

Disparities in Pro-Environmental Behaviour between Rural and Urban Areas in Zambia

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Abstract

Over the years, there has been rising concern over the state of cleanliness of the physical environment in Zambia. Although several studies have been done on the need to keep the environment clean, rarely have these studies addressed the differences in perception between rural and urban areas. Far more literature is concerned with urban areas rather than rural areas. This study, therefore, compared environmental behaviour characteristics between rural and urban areas to find out if there were any differences. Five hundred and forty-five randomly selected participants participated in the questionnaire survey which used a Likert rating scale. The results were analysed using the Student's t-test. The study determined that there was a significant difference in environmental behaviour between rural and urban areas. Therefore, implementing cleanup campaigns would require taking into consideration these differences.

Keywords: sanitary conditions, pro-environmental behaviour, barriers, environmental perception, rural, urban, Zambia.

Background

Over the years, there has been rising concern over the state of cleanliness of the physical environment in Zambia. The sanitary situation in the country has deteriorated to its minimum level partly due to increased problems of poor waste management at

individual and community levels. According to ECZ (2004: 1), the country is faced with a critical waste management problem, which has threatened the health of the people, socio-economic development as well as the environment. In relation to solid waste, littering, uncollected garbage, and indiscriminate dumping of waste have been identified as the major concerns. Although many studies have been done on the increasing sanitation problem in the country, the main focus of these studies has been on urban areas rather than rural areas (Banda, 2013; Ntambo, 2013; Mwiinga, 2014; Siachiyako, 2016). Studies that compare solid waste management between rural and urban areas are lacking. This paper, therefore, focuses on comparing environmentally significant behaviours and other characteristics between rural and urban areas in Zambia. Peteman (2010) explains that while no single rural/urban classification can be used for all geographies, such a study helps to better understand the differing characteristics of rural and urban areas in a consistent and transparent way. The study was done with the understanding that the cultivation of citizens, both rural and urban, who have environmentally friendly consciousness and responsible behaviours is particularly important when seeking to solve current environmental problems (Chen, 2017).

Literature Review

Kollmuss and Agyeman (2002: 24) define pro-environmental behaviour (used interchangeably with environmentally friendly behaviour and environmentally significant behaviour) as behaviour “that consciously seeks to minimise the negative impact of one’s actions on the natural and built world.” This behaviour has been linked with several psychological determinants, such as knowledge and awareness (Kaiser et al., 1999; Achterbergh & Vriens, 2002), values (Dunlap, Grieneeks, & Rokeach, 1983; Karp 1996; Schultz & Zelezny, 1999; Stern; 2000), norms (Cialdini et al.,

1990; UN-Habitat; 2010), attitudes (Diekmann & Preisendoerfer, 1992; Kollmuss & Agyeman, 2002) and beliefs (Mihalic et al., 2004; Bandy et al., 2008; Hazra & Goel, 2009; Hansen & Hansen, 2015). Pro-environmental behaviour may also be influenced by socio-demographic factors, such as age, gender, level of education, household size and income (Poortinga et al. 2004). Frugal environmental behaviour may similarly be hindered by barriers to behaviour change, such as lack of time (Mihalic et al., 2004), capital (Bogner et al., 2007; Sharholly et al., 2007), knowledge (Kollmuss & Agyeman, 2002; Oteng-Ababio, 2012.), institutional capacity and infrastructure (Mrayyan & Hamdi, 2006; Bogner et al., 2007), political will (Molapo et al. (2014), incentives and motivation (Solomon, 2011), or by 'I don't care' attitude (Moghadam et al., 2009; Yoada et al., 2014).

Various studies have compared manifestation of pro-environmental behaviour between rural and urban areas and distinctions which have emerged between the two locales have been well documented in environmental literature (Huddart-Kennedy et al., 2009). Who is greener? For both rural and urban areas, results have indicated high levels of environmental concern but low levels of pro-environmental behaviour (Berenguer, Corraliza & Martin, 2005). This incongruence between concern and behaviour has been variously called the knowledge-action gap, the values-action gap, the ideal-reality gap (Huddart-Kennedy et al., 2009) or intention instability (that is, the lack of association between intention and behaviour) (Fila and Smith, 2006). However, scholars have also shown that there is a stark difference between rural and urban areas in a lot of ways, including people's value and belief systems, standards of living, infrastructure development, educational attainment, occupational choices, consumption styles and wages. This difference, called the rural-urban divide or gap (Park, 2008; Mylott, 2009; Hnatkovska & Lahiri, 2012), may exert different influences on participation in environmentally supportive

behaviour (ESB) in the two milieus. Results of previous studies appear to suggest three scenarios. In Huddart-Kennedy et al.'s study, results showed few differences between rural and urban areas on indicators for pro-environmental behaviour. Rural residents, however, scored higher on altruistic values, placed a higher priority on the environment, and reported higher participation in recycling and stewardship behaviours. Pateman (2010) asserts that there is quantitative evidence that rural areas are better off than urban areas on a number of different measures and worse off in a few respects. On the contrary, studies done by Derkson and Gartrell (1993) and Saphores et al. (2006) showed diminishing differences between rural and urban areas. Chen's (2017) study of residents of Ningyang county in rural China showed that environmentally significant behaviours were widely conducted in rural areas, although these behaviours were mainly motivated by economic gains rather than environmental considerations. Gaps in the literature also point at the fact that urban areas have been studied more than rural areas while few studies have been done on the differences between urban and rural areas in developing countries, such as Zambia (Huddart-Kennedy et al., 2009).

Methodology

Two samples were randomly selected according to place of residence (rural/urban). A total of 545 (rural: N = 245, urban: N = 300) subjects participated. The rural sample was made up of participants living in Mumbwa district, a small town in the Central Province of Zambia, lying on the Lusaka-Mongu road, mostly surrounded by farming and rural communities. The urban sample, on the other hand, was derived from Lusaka, a bustling metropolitan and cosmopolitan city located in the Lusaka Province. Lusaka is also the national capital city for Zambia. The location of the two sites is shown in Figure 1.

responses on a 5-point scale, ranging from strongly agree (1) to strongly disagree (5). As for when the participants performed a pro-environmental behaviour, participants were asked to rate their responses on a 4-point scale, ranging from 1 = never to 4 = within last year. According to UNESCO-APNIEVE (2002), using scales such as these helps the participants to examine the strength of their feelings about a given value or issue.

The data obtained through the survey questionnaire were analysed using the Student's independent t-test. The data were analysed using the Statistical Package for Social Sciences (SPSS) Version 16.0. The level of significance was set at $p < 0.005$ for all the t-tests. When the value of p was less than 0.05, it meant the group means were significantly different. On the contrary, when the value of p was more than 0.05, it meant that the group means were not significantly different. These results were then compared with the means in the **group statistics** table. The higher mean in the table showed a higher proportion of the variable being measured.

Results

Environmental concern was measured using the variables knowledge and awareness, perceptions and attitudes, and values. For knowledge and awareness, knowing the need to live in a clean and sanitary environment and the dangers of living in a dirty and unsanitary environment was important. The participants were asked two questions: how important it was to live in a clean and healthy environment and how living in a dirty environment would affect their personal wellbeing. For the first question, the participants rated the importance of a clean and healthy environment on a four-point scale, from 1 = very important to 4 = not important at all. For the second question, the participants provided a 'Yes' or 'No' response. Table 1 shows the results of a t-test analysis of the data collected on the participants' responses

to questions on knowledge and awareness.

Table 1: Knowledge and awareness

<i>Question</i>	<i>Social Group</i>	<i>Mean</i>	<i>t</i>	<i>p</i>
<i>(a)How important is the issue of keeping the environment clean and healthy?</i>	Urban	1.26	-2.698	0.008
	Rural	1.42		
<i>(b)Do you think a dirty and unsanitary environment is something that is affecting your personal wellbeing?</i>	Urban	1.03	-6.237	0.000
	Rural	1.25		

Table 1 shows that for all the two questions that were asked on knowledge and awareness, the value of p was less than 0.05. This indicates that there was a significant difference between the responses given by the rural and urban samples. The means were, however, higher for the rural sample, implying that more participants from rural areas thought it was important to keep the environment clean and healthy, and that a dirty and unsanitary environment would affect their personal wellbeing.

Concerning the values, the participants were asked four questions: if they thought of themselves as environmentally friendly; if they thought that they were concerned about environmental issues; if they would be embarrassed to be seen to have an environmentally-friendly life style; and if they would not want their family to think of them as someone who was concerned about environmental issues. Participants rated their responses on a 5-point scale, ranging from strongly agree = 1 to strongly disagree = 5. A t-test analysis of the data collected revealed that there was a significant difference in the responses given by the rural and urban samples for all the questions except question (b), that is, more rural participants thought they were concerned with environmental issues (Table 2).

Table 2: Values

<i>Question</i>	<i>Social Group</i>	<i>Mean</i>	<i>t</i>	<i>p</i>
(a) <i>I think of myself as an environmentally-friendly person</i>	Urban	1.87	-2.534	.012
	Rural	2.15		
(a) <i>I think of myself as someone who is very concerned about environmental issues.</i>	Urban	1.76	-1.041	.299
	Rural	1.87		
(a) <i>I would be embarrassed to be seen to have an environmentally-friendly life style.</i>	Urban	4.06	7.368	.000
	Rural	3.05		
(a) <i>I would not want my family to think of me as someone who is concerned about environmental issues.</i>	Urban	4.01	4.272	.000
	Rural	3.44		

Attitude is about whether a person is in favour of doing an action or not. To measure attitude, participants were asked five questions, as shown in Table 3. They rated their responses on a 5-point scale, ranging from strongly agree (1) to strongly disagree (5). A t-test analysis for data obtained showed that there was a significant difference in perception and attitude between the two groups of participants for questions (a), (c) and (e) since p was less than 0.05. However, for questions (b) and (d), the values of p were more than 0.05, indicating that there was no significant difference between the responses given by the two samples.

Table 3: Perceptions and attitudes

Question	Social Group	Mean	t	P
(a) At the moment, how easy do you find it to participate in the KZCH programme?	Urban	2.18	0.000	0.000
	Rural	1.65		
(a) Does anyone you know (friend, family member or colleague) participate in the KZCH programme?	Urban	1.44	0.115	0.115
	Rural	1.37		
(a) How much influence do people you know (friend, family or colleague) have on your decision to participate in the programme?	Urban	2.39	0.000	0.000
	Rural	2.00		
(a) In general, what do you think your family, friends and colleagues' views would be if they found out that you were participating in the KZCH programme?	Urban	2.07	0.074	0.074
	Rural	1.90		
(a) If you are not participating now, do you think you will participate in future?	Urban	1.56	.004	.004
	Rural	1.82		

To measure pro-environmental behaviour, the participants were asked how often they performed the selected five behaviours: waste minimisation, re-use and recycling, not burning garbage openly, use of waste bins, and not dumping waste in undesignated areas. Following Berenguer et al. (2005), only behaviours that directly depended on the participants' intention, or over which they had control, were selected. The participants were asked to rate their responses to how often they performed pro-environmental tasks on a 4-point scale, ranging from 1 = never to 4 = within last year. A t-test analysis of the data collected showed that there was a significant difference in the responses given by rural and urban samples, except for question (d), that more urban participants used waste bins than rural participants (Table 4).

Table 4: Frequency of pro-environmental behaviour

Question	Social Group	Mean	t	p
(a) <i>Waste minimisation</i>	Rural	1.11	-8.445	0.000
	Urban	1.86		
(b) <i>Re-use and recycling</i>	Rural	1.42	-2.064	0.038
	Urban	1.60		
(c) <i>No open burning of garbage</i>	Rural	1.32	-4.601	0.000
	Urban	1.73		
(d) <i>Use of waste bins</i>	Rural	2.01	-0.079	0.937
	Urban	2.02		
(e) <i>No dumping in undesignated areas</i>	Rural	0.97	-2.838	0.005
	Urban	1.24		

Barriers to pro-environmental behaviour were defined by McKenzie-Mohr & Schultz (2012). In the current study, barriers to pro-environmental behaviour were assessed using nine measures, namely lack of information, lack of waste bins, I don't care attitude, lack of incentives and lack of political will. Others were lack of role models, socialisation, lack of time and lack of money. Participants were asked to rate the importance of the nine factors on a 5-point scale ranging from 1= strongly agree to 5 = strongly disagree. The data collected were analysed using a t-test which showed that, except for questions (a) and (f) where *p* was more than 0.05, there was a significant difference between the responses given by the rural and urban samples (Table 5).

Table 5: Perceived barriers to pro-environmental behaviour

<i>Question</i>	<i>Social Group</i>	<i>Mean</i>	<i>t</i>	<i>p</i>
(a) <i>Lack of information</i>	Urban	2.54	1.237	.222
	Rural	2.31		
(b) <i>Lack of refuse bins</i>	Urban	2.09	-7.544	.000
	Rural	3.23		
(c) <i>I don't care attitude</i>	Urban	2.01	-8.915	.000
	Rural	3.30		
(d) <i>Lack of incentives/ motivation</i>	Urban	2.84	-3.145	.002
	Rural	3.32		
(e) <i>Lack of political will</i>	Urban	2.45	-5.064	.000
	Rural	3.20		
(f) <i>Lack of role models</i>	Urban	3.08	1.251	.212
	Rural	2.89		
(g) <i>Socialisation</i>	Urban	3.02	-3.514	.000
	Rural	3.54		
(h) <i>Lack of time</i>	Urban	4.00	3.520	.000
	Rural	3.48		
(i) <i>Lack of money</i>	Urban	3.71	2.587	.010
	Rural	3.32		

Discussion

The findings of the survey suggest that location or place of residence (that is, either rural or urban) is an influencing factor to environmental behaviour as many variables were affected by location. The results show that, statistically, there was a significant difference in the importance attached to keeping and living in clean and sanitary environments between urban and rural participants. A higher mean for rural areas indicated that more participants from rural areas valued living in clean and healthy environments than urban participants. This finding may

have indicated that surroundings were cleaner in rural areas than in urban areas. This is not completely surprising since there were more waste products (such as paper, plastics, and cans) which contributed to littering in urban areas than in rural areas. The finding is also in line with Hamlin's (2009: 11) assertion that, "In urban areas, with the greater density of population and constant business activity, there is a greater risk of unsanitary waste disposal and its effects." Similarly, the study by Hinds and Sparks (2008) in the UK showed that students who had grown up in rural areas reported more positive orientations towards the natural environment than urban-raised students. However, this finding is contrary to the findings elsewhere. For example, Chen et al. (2011, cited in Gifford & Nilsson, 2014) found that, in China, people living in larger cities were more likely to engage in pro-environmental behaviours than people living in smaller cities. Also, a study by Lutz, Simpson-Housley, and de Man (1999) in the Canadian Province of British Columbia revealed relatively high levels of environmental concern among both rural and urban dwellers.

Concerning perceived risk from unclean and unhealthy environments, more participants from urban areas indicated that their personal wellbeing was being affected by dirty and unsanitary environments. Again, this is expected because urban environments, especially in developing countries like Zambia, are likely to be dirtier than rural ones. As stated above, generation of waste is lower in rural areas than in urban areas. This is because waste generation is related to population size and the amount of commercial and industrial activity in an area (Kumar, 2013). Clearly, both population size and commercial/industrial activity are greater in urban than in rural areas. Yoda et al. (2014: para 2) affirm that "an important feature of the urbanisation of the developing world is the rapid growth of cities and metropolitan areas. The high rate of urbanisation in African countries implies

a rapid accumulation of refuse.” Furthermore, the IBRD/World Bank (1999) argue that, although very little information is available about waste generation rates in Asian countries, one can assume that rural populations will generate less waste because of their lower per capita incomes. These statements show that waste generation in rural areas is significantly less than in urban areas. Therefore, rural dwellers are likely to live in cleaner and more sanitary environments than urban dwellers. However, it should also be acknowledged that, although urban areas produce more waste, they usually have better waste collection services than rural areas and, because housing units are closer together in urban areas, it is easier and cheaper to provide waste management services than in rural areas where houses are farther apart.

According to Hoa (2013), it is less sustainable to provide services in rural areas because of the lower population density. Further, practices of waste disposal are difficult to upgrade in rural areas due to poverty, lack of education and adherence to customs that do not easily fit into the modern world (Thomas-Hope, 1998). Additionally, rural areas also receive the urban garbage - polluted air, contaminated water, and all sorts of wastes discharged by the cities (Hanlon, 2007). Rural areas are also more distant from government as regulator and provider of services while access to infrastructure and services is limited (largely because of distance, low density and limited capacity to pay) (DANIDA, 2000). All these factors militate against provision of waste management services in rural areas. In this regard, therefore, rural and urban areas may need a completely different package of solutions from that which may be designed for urban areas. Alternatively, the emphases for the successful implementation of pro-environmental programmes may be completely different in the two areas.

Results of the t-test analysis also show a big disparity in knowledge between urban areas and rural areas. This knowledge gap has been a source of concern, raised time and again about in-

formation not permeating into the countryside as it does in urban areas. The reason for the gap has been that programme implementers (such as NGOs and FBOs) tend to concentrate on providing information to urban areas, neglecting rural areas. Furthermore, urban dwellers have additional sources of information such as newspapers, television and radio (and, of late, the internet). To prop up environmentally-friendly activities, there is need to balance up information dissemination between rural and urban areas if these activities are going to be undertaken in the same way across the country. Thomas-Hope (1998) ascribes lack of proper waste management practices in rural areas to lack of education, that is, lack of information, skills and right values and attitudes concerning waste management. This finding affirms the need for a viable Environmental Education programme in the country to get information across to the whole breadth of the country.

Concerning barriers to pro-environmental behaviour, the results varied from one barrier to another. For example, more participants from rural areas attributed the problem of lack of undertaking pro-environmental work to lack of waste bins and waste collection trucks. The majority of them also felt that the problem was 'I don't care' attitude; that they needed incentives; and that lack of political will was a problem. Furthermore, more rural participants indicated that the problem was lack of money and time. However, the results showed no significant difference between the views of participants from urban and rural areas on the need for role models, although the mean was higher for urban areas. As pointed out above (under knowledge and awareness), rural areas have more challenges when it comes to waste management than urban areas. Needless to say that rural areas lack basic infrastructure (such as bins and waste collection trucks) at the moment, and residents need to be incentivised in order for them to sacrifice their time and resources to do pro-environmental work. Time is of paramount importance for rural dwellers because they spent most of their lives trying to find a means of livelihood, which is

looking for food and other necessities of life.

Conclusion

This paper has shown that there are differences in environmental perception and environmental behaviour between rural and urban areas in Zambia. It has also highlighted some of the reasons why these differences exist. The reasons vary from attitudinal to infrastructural; while rural people largely perceive themselves to be more environmentally friendly, the urbanites enjoy the presence of better infrastructure in towns. People in rural areas also suffer from lack of information and distance from implementing agencies, both of which townspeople readily have access to. With these discrepancies between rural and urban dwellers, it is important to find a way of working in these two contexts in order to succeed. For attitudinal reasons, change of psyche or mindset is recommended, that is breaking old habits and attitudes and creating new ones. This may be achieved by using concerted public awareness campaigns. Issues of infrastructure may require political will to rally modern solid waste collection and disposal equipment, especially for rural areas where equipment is lacking. Communities, both rural and urban, can be encouraged to make meaningful decisions and take meaningful actions to address environmental challenges in their locales. This may require empowering citizens with relevant knowledge and skills (abilities) as well as good attitudes to behave and act in a pro-environmental way.

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