CHAPTER 3

PERCEPTIONS AND ATTITUDES IN POLLUTION CONTROL AND ENVIRONMENTAL MANAGEMENT

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Introduction

This Chapter focuses on Perceptions and Attitudes in Pollution Control and Environmental Management. The view is taken that technical approach alone may be and is often inadequate in dealing with some environmental issues. This view has been validated now and again by various studies (cf. Mensah and Whitney, 1991; Blaikie and Bookfield, 1991; Chanda, 1996). This Chapter will attempt to illustrate this position with Case Study data from Botswana.

Concepts

Four main concepts will form the basis of the chapter, namely, perception, attitude, pollution and environmental management.

a) Perception

Perception refers to the image or intuition formed in one's mind about some perceived phenomenon or object. To perceive is to be aware of something through the senses through direct or indirect contact with it. For example, an individual may be asked whether he/she is aware of various environmental quality problems in his/her town or community. An affirmative answer can indicate awareness while a negative response will suggest lack of perception. Where many individuals are interviewed in this manner, it becomes possible to identify issues that command greater or lower perception in an area. For instance, in a survey conducted in 1994 in Gaborone, Botswana, of perceptions of environmental quality issues the following levels of awareness, shown in Table 2.1, emerged.

Clearly, residents of Gaborone were more aware of problems of litter and public urination than other environmental quality issues.

Perception is influenced by both past experience and present context as defined or circumscribed by the perceiver's values, mood, beliefs, socio-economic circumstances and expectations. Since experiences and present contexts of individuals vary greatly, there cannot be standard perceptions; variations can be expected among individuals, between professional groups, between cultural groups and even for the same individual over time and in different contexts. Again Gaborone survey data are illustrative of this point. In addition to the 19

environmental quality issues in Table 3.1, the survey instrument included nine socio-economic issues deemed of relevance to Gaborone.

Table 3.1: Respondents rating environmental quality issues as serious-very serious in Gaborone, Botswana (July 1994) (N=250)

Issue	**% rating: issue as serious-very serious**
Paper/plastic litter	65.6
Can litter	65.2
Public urination	61.6
Bottle litter	56.0
Dust	49.6
Inadequate recreational parks	48.4
Noise	38.4
Garbage dumps	37.6
Cockroaches	34.8
Crowding	34.8
Untidy public open spaces	34.4
Air pollution	28.4
Flooding	28.4
Street erosion	28.0
Rodents	25.2
Unkempt	24.6
Uncollected garbage	18.8
Sewage disposal problems	11.6
Water shortage	5.6

Source: Adapted from Chanda (1995b)

The purpose of this inclusion was to gauge how the perception of environmental quality issues fared in relation to other problems of the urban milieux, especially with reference to the low and medium/high income groups of the city. The results (Table 3.2) clearly indicate that environmental quality issues were more widely perceived among the relatively well-off residents of the city while socio-economic issues ranked high among the poorer residents (cf. Chanda, 1995a&b).

Table 3.2: Top 10 concerns among low and medium/high income residents of Gaborone (July 1994) (N=250). Issue cited as serious-very serious

Low income	% citing issue	Medium-High Income	% citing issue
Unemployment	87.2	Crime	80.9
Cost of living	77.6	Can litter	77.7
Low income	72.4	Cost of living	74.4
House shortage	71.2	Paper/plastic litter	72.3
Public urination	62.2	Bottle litter	64.9
Paper/plastic litter	61.5	Public urination	60.6
Crime	59.6	Few recreational parks	58.5
Can litter	57.7	Dust	55.3
Bottle	50.6	House shortage	54.3
Too many foreigners	49.4	Untidy open spaces	52.1

Source: Chanda (1995a)

Thus, a phenomenon may conjure up different images in people with different experiences and in different socio-economic circumstances and cultural settings. This in effect means that perceptions are: (i) subjective views about phenomena, as opposed to being objective and verifiable facts, (ii) subject with changes in circumstances, experience and expectations.

b) Attitude

Attitude refers to an individual's feeling(s) and beliefs about some phenomenon which consequently would influence his/her behaviour toward that phenomenon. Attitudes are invariably conditioned by perceptions and vice versa.

Attitudes have three interrelated components: the affective, cognitive and behavioural components which are characterised as follows:

i) Affective Component: The Affective Component describes an individual's feelings towards/about something. It therefore addresses people's emotions towards things. For example, residents in a given city reacting to the statement "solid waste pollution poses the greatest risk to human health", on an attitudinal scale ranging from "strong agree" to "strongly disagree", would be expressing their feelings towards solid waste pollution and its relation to health.

ii) Cognitive Component: The Cognitive Component describes what an individual thinks or believes about something. For example, most respondent in the Gaborone survey who answered the question "Where in the city are

environmental quality problems most serious?" cited low cost residential areas (Table 3.2). Similarly, in a study of environmental degradation in the Boteti area of north-central Botswana, it was found that most agropastoralists interviewed thought that the primary cause of environmental problems was drought and that their solution lay in more regular rainfall events and government intervention (Tables 3.4 & 3.5) (Chanda 1994, 1996).

Table 3.3: Gaborone residents' spatial allocation of some environmental quality problems (% citations*)

Issue		**Where Most Serious**			
	(N)**	**Rich Areas**	**Poor Areas**	**Pub. Areas*****	**Everywhere**
Noise	43	0	51	25.6	13.9
Can litter	76	0	48.7	21	28.9
Paper/plastic litter	77	0	42.9	22.1	32.5
Bottle litter	57	0	56.1	17.5	24.6
Cockroaches	33	0	48.5	42.4	
Public urination	48	0	14.6	16.7	68.8
Crowding	43	0	86	0	11.6

*May not always add up to 100 because of the "no idea" responses
**N = number of returns on the question
***Pub. areas = public and shopping areas
Source: Chanda (1995)

Table 3.4: Perceived causes of resource use related environmental problems in the mid-Boteti area: a classification based on percent citation frequencies (in brackets)* (N=47)

Resource Use Type	**Significance of Classification of Causes**		
	Primary (>40)	**Secondary** (10-39)	**Minor** (<10)
a) Cultivation	Drought(60)	No floods(38)	Wind erosion(9)
		Pests(17)	Poor soils(6)
			Weeds(4)
b) Livestock	Drought(60)	Range	Veld fires
			Poor fencing(4)
			Crop damage by wildlife(4)
			Late fence material(2)
			Late seeds(2)
			Road works(2)
			Overpopulation
		Degradation(17)	Costly supp.feed(2)
		Overstocking(15)	Unfair BMC grading(2)
		No floods(15)	Road works(2)
		Disease(15)	Saline water(2)
		Predation(15)	Maun rice project(2)
c) Veld Product	Drought(45)	Overpop.(38)	Veld fires(9)
		Commercial exploitation(17)	Overgrazing(2)
			Game reserves(2)
			Wind erosion(2)
			Saline water(2)
			Cold winters(2)

*Due to non responses and/or multiple responses, per cent citations will not add up to 100.
Source: Chanda (1994)

Table 3.5: Perceived solutions to resource use problems in mid-Boteti (% citations) (N=47)

Solution	Cultivation	Livestock	Veld products
			Solution base
Government assistance*	51	16	15
External			
Rainfall/floods	57	47	32
External			
Fence fields	9	-	-
Local			
Cattle herding	6	2	-
Local			
Abandon cultivation	4	-	-
Local			
Landuse zoning	2	-	-
External/local			
Reduce/remove game reserve	2	6	-
External			
People-govt caucus for solutions	2	-	-
Local/External			
Re-empower chiefs	2	-	-
External			
Plant hedges around fields	2	-	-
Local			
Encourage horticulture	2	-	-
Local			
Kin assistance	2	-	-
Local			
Beer brewing	2	-	-
Local			
Supplementary feeding	-	15	-
Local			
Increase off-take	-	6	-
External/local			
Destock	-	6	-
External/Local			
Open game reserves up to cattle	-	2	-
External			
Kill predators	-	2	-
External			
Rotational grazing	-	2	2
Local			
Deconcentrate cattle posts	-	2	-

Local			
Plant trees	-	-	32
Local/external			
Stock commercial exploitation	-	-	11
External			
Substitute preferred fuelwood species	-	-	4
Local			
Substitution of energy sources	-	-	2
Local			
Build modern houses	-	-	2
Local/external			
Grow grass	-	-	2
Local			
Return land to Basarwa	-	-	2
External			
Build houses without reinforcing poles	-	-	2
Local			
Open access to game reserves	-	-	2
External			
No idea/no solution	15	23	21

*The commonest requests were for irrigation and game reserve boreholes, food, planting trees and employment.
Source: Chanda (1996)

iii) Behavioural Component: The Behavioural Component describes how an individual acts towards a given object, obviously influenced by the affective and cognitive components.

In considering attitudes, it is important to recognise the existence of cognitive versus behavioural dissonance and hierarchy of attitudes. The former refers to a situation where an individual's overt behaviour is at variance with his/her proclaimed beliefs: e.g. an individual preaching against solid waste pollution while privately contributing to littering in public places. To live with cognitive dissonance, individuals try to rationalise or justify their overt behaviour somehow as revealed in such statements as "the one piece of paper I threw in the park could not have caused much pollution, after all there was no garbage bin in sight". Hierarchy of attitudes, on the other hand, points to the existence of competing attitudes in people, some more dominant than others. For example, attitudes to environmental conservation/protection are assumed to be generally lukewarm in poor Third World countries in comparison to their attitudes towards economic growth. The contrasting ranking of environmental

quality and socio-economic issues among "rich" and "poor" residents of Gaborone shown in Table 3 provides another illustration of this concept.

Relevance to Pollution Control and Environmental Management

Both pollution control and environmental management are meant to curtail environmental degradation for various reasons. Most environmental problems (including pollution) are human-induced. Some pollution problems are easily amenable to technical solutions (eg. sulphur dioxide pollution, ozone layer depletion) because they are generated by identifiable industrial entities subject to direct government regulation.

Many other environmental problems, however, are less responsive to 'technological fix' interventions. Examples of the latter include solid waste pollution and rural livelihood related environmental degradation. These commonly involve many individuals, acting privately, often surreptitiously and at different and scattered points in time and space. The solution of these problems therefore requires intervention at the perceptual and attitudinal levels of actual and potential culprits. As Russell (1987) has observed for America, targets of efforts to improve the environment must shift from industry to the more widely dispersed sources, the control of which will depend on changing the behaviour of individual citizens (as cited in Gigliotti, 1992: 15-16). Similar observations have been made by other researchers. For example, from their study in Ghana, Mensah and Whitney (1991: 164) reached the following conclusion: "Urban waste problems such as littering cannot be solved by regulation alone - they are not likely to be obeyed - nor by just supplying disposal facilities like trash cans on the streets - they are not likely to be used. Motivation and attitudes must be considered." In Botswana, one of the Natural Resources Officers at the National Conservation Strategy Agency made a similar observation: "... the nature of most environmental problems is such that it is the people's actions that determine whether problems will be solved ... in many instances, the solutions lie with the people changing their attitudes toward the environment, ... (Botswana Daily News, Sept. 4, 1992: 3). The results of the Gaborone and Boteti perception studies cited in the previous section provide further illustration of the importance of gauging perceptions and attitudes of the public towards environmental problems for which solutions are needed. Data from the Gaborone study, for instance, suggest that poverty alleviation would have to be a major consideration in designing any environmental quality management strategy for low cost residential areas. The Boteti study points to the need for cognitive therapy to create a greater appreciation among the area's agropastoralists of the role of human action in livelihood related environmental degradation and its solution or amelioration. Sustainable environmental management requires appropriately attuned human perceptions and attitudes.

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