APPENDIX - F

Benefit Measurement Concepts

Two important benefit measurement concepts are introduced below.

Willingness to Pay (WTP)

"Willingness to Pay" (WTP) is the total amount of money a consumer would be willing to pay, at a given level of income, *to gain* the benefits associated with an environmental resource.

How does a consumer determine the value of a benefit such as the reliable supply of high quality water? In a situation where there is no other option, the consumer's valuation would be reflected in the amount he or she would be willing to pay for the water. In squatter colonies and slum areas where pilferage is not possible, consumers may be prepared to pay "speed money" to departmental employees to get their supply. Where public supplies are not available, some consumers would be willing to pay private suppliers.

The amount the consumer is willing to pay is the indicator of the perceived benefit of the good, which in this case is water.

However, in situations where water charges are zero or heavily subsidised, this indicator will clearly underestimate the benefit, and we can expect that the urban poor will develop their own strategies to make sure they have access to adequate supplies.

Willingness to Accept (WTA)

"Willingness to Accept" (WTA) is the total amount of money an individual would be willing to accept *to forego* all the benefits associated with an environmental resource.

It is axiomatic that WTP < WTA, particularly in situations where pricing systems do not reflect either the cost of the water or the cost of collecting and distributing it.

Consumer's Surplus and WTP

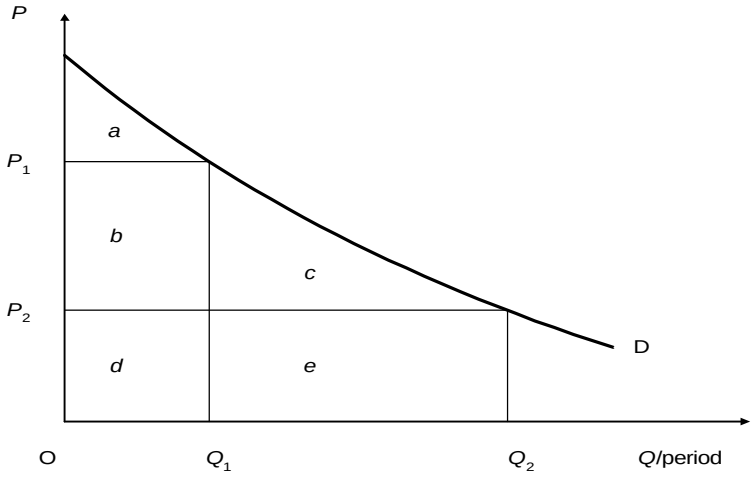
Consumer's Surplus can be defined as **the amount which consumers are <u>willing to pay</u> for a product, less the price that they are actually <u>required to pay</u>**.

In other words,

WTP – Actual Spending = Consumer's Surplus

Another way of looking at Consumer's Surplus is that it is the compensation required above product price in the event that the consumer is denied the product[1].

Consumer's Surplus may be graphically shown to be the area between the demand curve and the horizontal line indicating the price paid for the commodity. This is because consumer equilibrium requires the consumer to equate the price of a commodity with its marginal utility (measured in money), the demand curve for commodity I becomes a curve of marginal utility of that good[2].



In the above figure, total willingness to pay for Q_1 units is the amount (a + b + d). At price P_1, expenditure for these units is represented by the area (b + d) so that consumer surplus is (a). If price falls to P_2, total willingness to pay is (a + b + c + d + e), the expenditure is (d + e) and consumer surplus is (a + b + c). The benefit of the price fall measured by the change in consumer surplus is, therefore, (b + c).

[1] Schofield, J.A.,
[2] Baumol, William J., Economic Theory and Operations Analysis, New Delhi, Prentice Hall of India, 1985