



Bougainvillea Garden

VALUING RECREATIONAL BENEFITS OF URBAN FORESTRY-A CASE STUDY OF CHANDIGARH (INDIA) CITY

SUMMARY

Urban greens have significant amenity and recreational use value contributing towards quality of urban life. It is observed that politicians/bureaucrats/industrial houses, especially in developing countries, try to grab these green open spaces for creation of concrete jungle. Scientific understanding of how urban trees, parks, gardens benefit people is generally found lacking in majority of developing countries. This happens because non-market benefits of such areas are not correctly valued and incorporated in to cost-benefit analysis of so called development projects. Chandigarh is one of the planned cities of India, which is known in the world for its magnificent parks/gardens/urban greenery and was selected for quantification of recreational use value of urban forestry. The non-market value of recreational benefits provided by the urban forestry of the city, from the point of view of residents as well as tourists was estimated.

The focus of this study, in the form of Ph.D thesis, was on city's parks, gardens, tree-avenues, reserved forests and the Sukhana wild life sanctuary. The main objectives were to estimate the recreational use value of above areas from the point of view of residents as well as tourists coming to the city and to assess the predictive abilities of various functional forms for developing suitable models to estimate willingness to pay (WTP) on the part of residents & tourists for the cause of greenery and better environment.

Two economic valuation methods i.e. Contingent valuation method and Travel cost method were applied.



A landscaped Roundabout



Terraced Garden

The mean willingness to pay (WTP) for the betterment of existing green landscape features and for creating new parks/gardens on the part of each reasonably earning family residing in the city has been found as Rs. 153/- per year for a period of five years, which converts to an annual recreational use value of city's urban forestry assets to Rs. 2.75 crores (Rs. 27.50 millions) at 2002-03 prices.

Contingent valuation method (open ended) was used for this purpose and primary data was collected from 2358 residents of the city.

Contingent valuation method, open-ended version (CVM) and Zonal travel cost method (TCM) were used to estimate the annual recreational use value of city's urban greenery on the part of tourists coming to the city. The reasons for variation in the results of two methods have been discussed. Inherent tendency of most of the Indian middle and upper middle class, which has the capacity to move as tourists, to reveal actual income on record (except Govt. servants) due to huge black economy of the country, has been found as one of the major reasons for poor results in CVM (OE). Estimate of recreational use value provided by the TCM has been considered more reliable in Indian context, which was estimated as Rs. 9.24 crores (Rs. 92.40 millions). Therefore, total annual recreational (use) value of city's parks/ gardens, boulevards, green avenues, reserve forests, wild life sanctuary and other landscape features on 2002-03 prices, comes out approximately Rs. 12.00 crores (Rs. 2.75 crores plus Rs. 9.24 crores). This amount is its recreational use value only on the part of people using or having liking for this particular environmental asset and should not be misunderstood as environmental or ecological value.

The urban forestry in Chandigarh city contributes to the extent of 87.67% in making the city attractive from tourism point of view. City's unique architecture, openness, comparative cleanliness and other features account for the rest of 12.33%. This exhibits the immense power of urban forestry in attracting tourists.



Leisure Valley

Chandigarh city's residents consider the urban greenery responsible to the extent of 55.65% in attracting people to reside/work permanently in the city. This shows that people of the city give more than 50% weight age to city's planned green landscape and urban forestry in comparison to other factors like employment, infrastructure etc. available in the city for settling down for residence purpose in the city.

Statistical tools like ordinary least square (OLS) and weighted least square (WLS) methods were used to establish functional relationship of willingness to pay (WTP) towards "Environment Fund" supposed to be maintained by Chandigarh administration, with other variables. Various socio-economic and environmental factors influencing willingness to pay function on the part of tourists and people of city have also been discussed. It has been found that education and household income have positive correlation with WTP function i.e., willingness to pay increases with increasing income and education status. Educated society has more environmental concerns and social awareness. In general, younger generation was found more inclined to contribute towards urban greenery. People of the city having interest in environmental activities were more interested for contribution towards "Environment Fund".

Environmental Economics literature provides for two measures under contingent valuation method i.e. willingness to pay (WTP) on the part of an individual to obtain a particular good or service, which is clean and green urban parks/gardens of the Chandigarh city in the present study or willingness to accept (WTA) compensation i.e. amount of money that must be given to an individual by not allowing him/her to utilize a particular environmental asset i.e. parks or gardens of the city. The people of the city seem to have rejected the idea of receiving compensation (WTA) in lieu of not visiting green areas of the city for different purposes. Only 14% of the respondents chose to quote WTA value in monetary figures. This low response to WTA question is not a reliable result. Therefore, WTP questions are the best option, instead of WTA measure, to assign a monetary value to the recreational aspect of an environmental amenity like urban parks or landscapes.

It is pertinent to mention here that surveys for assessing non-market benefits of forests and gardens are more common and familiar to the western countries. Generally respondents who are familiar with some sort of economics and who have had at least some experience with marketing surveys, feel more comfortable in answering contingent valuation surveys. In the present study, the respondents (mainly tourists) who were not familiar with these ideas, were more suspicious of the questions and they tended to be hesitant in providing personal information such as income, mode of travel, make of cars etc. It was also observed during the survey that a sizeable number of tourists mentioned low monthly income and at the same time they were enjoying the luxuries of staying in good hotels and traveling in big cars of recent models as found using “Participant observation method” and Unstructured interview schedule” in addition to “Structured interview schedule”. A general model depicting the relation of TCM and CVM ratio with “Corruption perception index” was developed in case of tourists of various countries with different ranking in the world as far as parallel economy and levels of corruption were concerned. A clear cut conclusion can be drawn from the present study that CVM (open-ended) has to be applied with great care and precaution in case of even educated and well-off respondents belonging to developing countries like India where a huge black economy, from which majority of middle and higher income group belong to, can influence the final outcome.

The above summary pertains to Ph.D thesis of Dr. Pradeep Chaudhry ([e-mail-pradeepifs@yahoo.com](mailto:pradeepifs@yahoo.com)) on the topic “Valuing recreational benefits of urban forestry- A case study of Chandigarh (India) city” awarded by Forest Research Institute(deemed university) Dehradun-248006, India during 2006.