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RECREATIONAL BENEFITS OF THE HULA PROJECT

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INTRODUCTION

The Hula project in the north of Israel aims at recreating a marsh which in the early 50's was drained. The re-flooding will solve problems like water level and quality, dust, spontaneous fires, non-productive soil and regional unemployment. Recreating the marsh landscape will be achieved by digging a lake, "creating" islands, populating the area with wild animals, planting characteristic vegetation, and attracting birds (to recreate the role of the marsh in the birds' migration route). It is hoped that this landscape will be attractive for recreation, enabling safari, bird watching, boating, picnicking, etc.

This research deals with the following issues:
- what is the potential for recreation in the Hula Park;
- which activities would attract potential visitors;
- what are the expected recreational benefits from the Hula project;
- how do environment and man interact with respect to social carrying capacity.

The paper describes the survey conducted in six parks in the Upper Galilee, where a series of samples of recreationists were conducted in different seasons. It is estimated that at present 700,000 recreationists visit the Upper Galilee annually, besides visits of overseas tourists. 87\% of the respondents to the survey answered positively regarding their interest in visiting the Hula Park. On average, they would be willing to spend 30 NIS (around 10$) per adult for entrance fees. These results show that the park has a big potential as a recreation area.

In the forthcoming final report we shall report the findings regarding recreational patterns in six parks where interviews were conducted.

THE SURVEYS

Forecasting the demand for a non-existing planned park could be based on a national sample or on an on-site survey conducted at existing parks. We decided against a national survey since a high percentage of the population does not actively participate in recreation - only 26\% visited the Upper Galilee in 1994 for recreation purposes (Fleisher and Saati, 1994). Using a national survey would require a high

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number of interviews in order to obtain a reasonable representation of people acquainted with recreation in the area, and would correspondingly result in a very high cost. For these reasons, we opted for an on-site survey of visitors to existing parks in the Upper Galilee, in order to ensure that the interviewees are familiar with the area and its potential for recreation, with travel conditions, lodging conditions, etc. Since one would expect differences in recreation patterns throughout the year, we conducted the surveys in four different seasons. The surveys were conducted in the Summer and Fall of 1995, and in the Winter and Spring of 1996. Altogether 780 respondents were interviewed. Only adults (visitors who are 18 years and older) were interviewed, one individual from a group sampled. The interviews were conducted in Tel-Dan, Banias, Nahal Ayun, Hurshat Tal, Hula Reserve and Yarden park.

The questionnaire
The questionnaire contains five categories of questions:
* Responses to hypothetical questions regarding the proposed Hula Park;
* Recreational patterns of visits at existing parks: size of group, number of visits in the last five years, length of stay, expenditures incurred, etc.;
* Questions regarding distance traveled;
* Questions regarding social carrying capacity;
* Demographic and socio-economic characteristics.

Demographic and socio-economic profile
Comparing the characteristics of the visitors in the Upper Galilee parks to the Israeli population at large, one is justified in inferring that the visitors are more educated, have a higher income, are mostly in the age group of 30-49, and a high percentage of them have larger households.

Respondents in the analyzed sample are highly educated: about 30 percent of them have a university degree vs. 18.5% in the Israeli population at large (Central Bureau of Statistics - CBS- 1995); 50% of the respondents stated that their income is above the national average, while only 23% are below the national average. 83% of the respondents own a private car. Among the interviewees (all of them 18 years and older) the age structure is as follows: 29% are in the 18-29 age group and 63% are in the 30-49 age group vs. 30% and 39% respectively in the general population (CBS, 1995). 62% of the respondents have families with four or less family members and 17% of the respondents have six and more family members vs. 69% and 15% respectively in the general population (CBS, 1995).
RECREATIONAL BENEFITS OF THE HULA PROJECT

Since the environmental good - Hula Project - to be analyzed is in a construction phase, we need to set up a hypothetical market through which it is possible to elicit its valuations directly from individuals. The questionnaire describes the planned features of the park: an artificial lake, a safari park, a bird sanctuary, etc., and then asks respondents to indicate their willingness to visit a park with these characteristics. 87% of the interviewees responded positively, 12 percent were not sure or did not know, and only 1% of the respondents answered negatively. Using the number of visitors in the major recreation parks in the Upper Galilee, the ones in which we conducted our surveys, we know that 570,000 visitors were in the parks in 1994 and 700,000 were in 1995 (data was provided by the Nature Reserve Authority and National Parks Authority). Though we know that there are additional parks in the area, we also realize that visitors often visit more than one park, and consequently the number of recreationists is probably smaller than the number of visits in the parks. Therefore, we adopt the number of 700,000 as the number of visitors per year in the area. This number will be the base for our further predictions and estimations. We estimate that potentially 600,000 people will visit the Hula Park (only those responding positively). If these intentions were realized, it might result in heavy load on the park.

Respondents were also asked to state the two preferred activities in the new park (the interviewers read out a list of planned activities in the park). 38% of the respondents wish to visit the fowl and bird sanctuary, 45% wish to visit the safari park, and more than 42% of the respondents wish to engage in boating. The diverse interests might enable to manage the expected crowding by allocating future visitors among the park’s activities.

WTP for entrance

It must be noted that the economic evaluation of the Hula Park cannot be achieved directly, since we are dealing with a yet non-existing environmental amenity. It can be accomplished, however, by using the Contingent Valuation Method (CVM) (Mitchell and Carson, 1989, Shechter, 1995, Shechter and Baron, 1976). In CVM, individuals are induced to state the maximum sum of money they would be willing to pay (termed Willingness To Pay, WTP), as entrance fee to the park, as if they were able to “purchase” the Park’s amenities in a hypothetical market. The Willingness To Pay elicitation is often conducted in dichotomous choice framework. In our case interviewees were asked for their willingness to pay 30 NIS (equivalent to 10$) as entrance fee for an adult. If they agreed, they were then asked for their WTP a higher sum; if they disagreed, they were asked their WTP a lower sum. 13% are willing to pay 50 NIS or more, 18% stated 40 NIS, 32% of the respondents stated that they are willing to pay 30
NIS (a possible ‘anchoring effect’, see Mitchell and Carson, 1989), 24% stated 20 NIS, and 11% stated 10 NIS. Only one respondent did not agree to pay any entrance fee. The mean payment is 30 NIS per adult. An econometric analysis of the WTP shows that the sum is increasing with income and with the distance traveled and with safari, a unique activity, but is decreasing with family size and activities which are offered elsewhere - horse riding and swimming.

The procedure adopted is similar to the steps taken in a market research, when an attempt is taken to measure the public response to the introduction of a new product.

**Expected Benefits**

We estimated the expected revenues from the entrepreneurs’ point of view and the social benefits from the public perspective. The last term is more appropriate in analyzing a project which is financed by public authorities in its construction stage. The total social benefit aggregates all the visitors’ willingness to pay per visit. This sum is composed of the actual payment (the entrance fee) and the benefit which accrues to the visitor but he is not charged for (the consumer surplus). We estimate first the annual expected revenues from charging the entrance fee, and then the annual expected consumer surplus (the net benefits). Using the technique of ‘present value’ these amounts will generate the expected revenues and expected social benefits over a period of 25 years.

In estimating the expected revenues we take the product of the expected number of visitors and the entrance fee per person. In asking the WTP question, we asked for the willingness to pay for two attractions to the site (though we could have asked about payment per each attraction or per three or more attractions, or for an annual subscription). We expect that the entrance rate will be 30 NIS. If the visitors will behave according to our sample, we expect that 63% of the visitors in the area will pay this sum though some of them are willing to pay a larger sum. We expect 380,000 visitors that in 1996 (current) prices will pay about 11.4 million NIS. If the entrance fee is increased, the number of visitors will decrease and the expected revenues will decrease (i.e. the demand function is elastic), if the entrance fee is 40 NIS the revenues will decrease to 7.5 million NIS annually.

In calculating the net social benefits we estimate the ‘consumer surplus’, assuming that the entrance fee is 30 NIS. We aggregate the total willingness to pay above 30 for those willing to pay 40 and 50 NIS, by multiplying each net benefit by the expected number of visitors. This calculation generated the sum of 2.7 million NIS which is above the expected actual entrance fee. The total sum of social benefits is 14.1 million NIS.

Calculating the expected benefits during a period of 25 years, under several reasonable assumptions, we received an expected value of 250 million NIS of revenues and 57 of social net benefits. These expected values have to be compared to the construction costs and the operational costs in order to know if the project will be profitable to the entrepreneurs and in terms of society.
SOCIAL CARRYING CAPACITY

In designing a park for outdoor recreation, the question of capacity is of importance. We have to distinguish between different types of capacity. Physical capacity is "the maximum number of persons who can occupy a site at one time" (Walsh, 1986). This number depends on the type of activities (e.g. football playing vs. picnic, where a picnic enables a higher number of people). Using only a physical criterion, however, could result in damage to the natural environment. Consequently, Ashworth (1984) refers to ecological capacity which depends on the environmental carrying capacity.

As social scientists, we are interested in social carrying capacity, namely the number of visitors which maximizes social benefit (i.e., satisfaction from the visit) of all visitors. Each user considers his or her benefit from the recreation experience net of the loss in benefits due to crowding (imposed by the presence of other users). If congestion is too high, it might result in net negative benefits. The user can adjust by moving to another site or by leaving. In our survey we measure the social carrying capacity by estimating the actual minimal distance between the interviewed group and the adjacent group. The findings show that 23% of the groups are less than 5 meters from the adjacent group, 38% are 5-10 meters, and another 18% are in the distance of 11-20 meters. The observed behavior reveals that closeness is acceptable (probably a characteristic of the Israeli culture). The interviewees were asked whether the other visitors interfere with their experience. For 84% of the respondents the near presence of other visitors does not generate a disturbance, for 13% it disturbs a little, and only for 3% it is very disturbing. The negative reaction was explained by crowding, noise, smoke from barbecue and dirt. Only further analysis will help to explain the observed relative insensitivity to crowding. In the framework of natural areas one would normally expect the reverse situation (Shechter and Lucas, 1979, Shechter et al., 1981)

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