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# THE PERCEIVED IMPACT OF NUCLEAR PLANT (NP) ON A TOURISM DESTINATION: A CASE OF MERSIN

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## ABSTRACT

*This study is designed to examine the perception of residents, including second home owners of the province of Mersin about their general and tourism specific attitudes of the proposed nuclear power plant (NPP) location and assess the degree to which if there would be variations of perceptions within the local population about the construction of NPP. The study revealed that elder and more educated individuals have stronger opposition attitudes about the construction of the proposed NPP. However, the overall result indicates a matter of degrees of opposition that may need to be managed or mitigated should the project is implemented.*

**Keywords:** *Nuclear Power Plant, Perception of Residents, Tourism Attitudes, Mersin*

## INTRODUCTION

It is not unusual for places as destinations to deal with new challenges and development projects as they go through different phases of development over the years. One of these development types may also include energy sources in places that serve as destinations. Several countries in the world are looking for alternative ways of generating inexpensive energy sources, including nuclear power. Turkey is not an exception. Being a moderately developed nation with a steady growth rate of over 7 % for the past several years, the country is also planning to build its first nuclear power plant in Akkuyu – Gülnar town of the province of Mersin while sustaining

resources and promoting tourism activities. Such a dilemma also creates challenging policy issues and development strategies (Koyun, 2007; The Ministry of Energy and Natural Resources, 2010; Power-technology.com 2011).

To the best of our knowledge there has not been any systematic study on the perception of constructing such a nuclear power plant in the country, let alone in the province of Mersin. This study is designed solely with the objective of understanding the perception of residents, including second home owners of the province of Mersin about their general and tourism specific attitudes of the proposed nuclear power plant (NPP) location in their backyard and assessing the degree to which if there would be variations of perceptions within the local population about the construction of NPP.

There is a plethora of studies that have examined different aspects of looking at perceived risks associated with NPP locations and constructions in several countries (Parkhill et al., 2010; Falk, Green & Mudd, 2006; Hultkrantz & Olsson, 1997). The scope of such studies have covered such areas as perception of risk of living near nuclear power plant (Parkhill et al., 2010), perception of location of nuclear power plant (Slovic, Flynn & Layman, 1991), siting of high-level nuclear waste facilities (Litmanen, 1999), perceived risk of locating nuclear power (Slovic, Flynn & Layman, 1991), local acceptance of nuclear waste repository (Sjoberg, 2004), potential negative impacts of nuclear activities on local economies (Metz, 1994) and the like. However, there has been, if any, very limited work that has done with tourist activities in mind in a tourist destination such as Mersin. Thus, the main objective of this study is to reveal the nature of existing perceptions of the proposed NPP among residents and second home owners in Mersin province and uncover the ramifications of such a power plant for tourism related activities.

## THE STUDY DESIGN

**The Site:** It is decided that Akkuyu, located on the Mediterranean coast near Mersin-Gülнар, would be the home of Turkey's first nuclear power plant. Akkuyu is part of Mersin province which is situated in southern Turkey on the Mediterranean coast and also serves as the provincial capital city of Mersin. Tourism in Mersin does not have the huge volume of tourists enjoyed by neighboring Antalya or the Aegean coast, but Turkish people do come to this coast, especially now that the hotels have air-conditioning, and perhaps more to the mountain country behind where there are healing mineral water springs. In summer the hills are a popular retreat from the high humidity and extreme heat on the coast. Yacht touring is also important in the area. The province also hosts a large number of second home ownership. It is estimated that there are over 75,000 second homes / apartments scattered through the coastal area of Mersin. Mersin is also rich in culture and heritage.

**Questionnaire and data collection:** The questionnaire of the study was sent by fax, mail and in some cases by hand as face-to-face delivery. Fourteen hundred questionnaires were distributed in the summer period of 2009 with a 3 month data collection period (June, July, and August). This data collection effort resulted in 561 usable questionnaires for the study with a response rate of 40%. Nearly 90% of these questionnaires were returned within the first 2 months of the 3-month data collection period. The generated response rate was deemed appropriate. The

number was considered large enough to yield a sizeable base for answering the study objectives. The survey questionnaire was divided into four sections. The first section consisted of demographic questions about respondents. The second section gives a list of items generated to measure general and specific attitudes about NPP constructions in relation to general conditions and specific tourism conditions. These attribute items were measured a 5-point Likert-type scale and examined conditions associated with different aspects of NPP. Third section comprised of questions regarding use of information sources and the amount of information used to gather information about the nuclear power plant(s) and opinions on a place that this nuclear power plant would be situated; opinions about the use of products such as vegetables fruits and seafood from the region nuclear plant would be located. The last section is designed to gather information on if there is a nuclear power plant in Mersin, how this may affect attitudes and vacationing in the Mersin Coastal zone. Opinion –based items were all rated on a 5-point Likert type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

**Data Analysis:** The analysis of this study consisted of several interrelated steps building on each other. After descriptive analysis of the data, general attitudes about nuclear power plant (NPP) items were identified, purified and then factor analyzed to reduce the items of NPP attributes and also delineate the underlying dimensions of the scale. Second, a specific list of nuclear power plant attributes for Mersin was generated and factor analyzed utilizing a principal components analysis with varimax rotation in order to identify the specific NPP attributes of Mersin. Third, using the list of general NPP attributes, the respondents were factor – cluster analyzed using a K-means cluster analysis. In the final step, the identified two clusters were profiled using (1) demographic descriptors of respondents and (2) NPP attribute factors, information sources, and whether or not respondents would consider relocating as a result of building a NPP in Mersin. In the process of profiling, the study used Chi-square tests of nonhomogeneity for categorical descriptors and t-tests for continuous descriptors.

## FINDINGS AND DISCUSSION

The descriptive analysis of respondents with respect to demographic variables confirmed the current structure of the population characteristics; almost half the respondents were under 26 years old; almost 55% of respondents were married, 40.5% of respondents were female and 59.5% were male. More than 50% of respondents had college education or post graduate education. The occupation distribution of respondents is rather spread across several categories (educators 10.7%; civil servants 10.0%, professionals 21.6%, students 24.1%, farmers 7.1%, business owners 9.1%, tourism professionals 10.9, and other category 7.5%).

The factor analysis of general attributes about NPP resulted in four factors; General negative effects, Location – based attitude, Power representation, and Manageable effects, and explained almost 62 % of the variance in general attitudes about NPP. The reliability coefficients of the delineated factors range from .61 for Manageable attitudes to .87 for General negative effects. The tourism specific attitude about NPP in Mersin also revealed four factors: “Sustainability of tourism”, “Negative image / adverse impacts”, “As unique -selling propositions”, and “Increased cost of doing tourism”. Combined, these four factors explained almost 64% of the variance in tourism specific attitudes about NPP in Mersin. The factors -

cluster analysis of respondents based on the general attributes scale of NPP resulted in two distinct groups of individuals within the sampled population. Based on the description of these groups, the first group was labeled ‘Opposed’ (n=268, 47.8%) and the second group labeled ‘Strongly Opposed’ (n=292, 52.1%). This implies that almost all the respondents to the study have strong negative feelings about the perception of constructing a NPP in Mersin. The result is not a state of presence or absence of position, but a matter of degrees of opposition that may need to be managed or mitigated should the project is implemented. Almost 97 % of the original grouped cases were correctly classified based on the result of discriminant analysis. Once the clusters have been identified, the clusters were profiled based on demographic and attitude questions. The study revealed that elder and more educated individuals have stronger opposition attitudes about the construction of the proposed NPP. Strongest opposition came from educators and professionals. On the other hand, business owners and tourism professionals see the negative impacts for such a proposed plan, but because of business concerns they did not express stronger opposition to the project. This may be explained by the fact that these groups seem to have more to lose than any other groups since their livelihood depend on business operations in general. In addition, over 60% of the respondents who expressed strong opposition also indicated that they would no longer reside in Mersin should the project were implemented. This percentage was rather small (37.6%) among the respondents that simply opposed the project. In terms of tourism specific attributes, members of cluster II (Strangely Opposed) had much higher means scores on all the four factors of the scale. A similar pattern was also observed with the general attitude scale of NPP. It is hope that the information generated from this study could shed meaningful discussion points on the matter of the perceived impacts of locating and siting a NPP in a place that is rich in natural resources and also promoting itself as a second home tourist heaven in Turkey.