

## Decision-Making on The Location of Industries in Iran by using the Analytical Hierarchy Process (AHP)

**Dr. Ali A. Tofigh, Chancellor of the University of Applied Technology**  
Ministry of Culture and Higher Education, P. O. Box 14155-1644, Tehran-Iran.

**Abstract:** In this paper we present a model based on the AHP model for site selection of industries in Iran. Lack of proper concentration of industries in Iran as well as emergence of inappropriate industrial places and townships, has invariably been one of the major difficulties with which all the entrepreneurs and various ministries have been confronted. This feature, in its turn, has been ensued by a series of difficulties and impediments which, among others, one may point out the inaccurate concentration of population, environmental pollution, unbalanced industrial development in various points in the country, as well as hampering of growth opportunities in other economic activities such as agriculture, service and etc.

The main cause of the emergence of such a situation may be found in the process of decision making with respect to the location of an industry in specific place. Intervening variables such as the probabilistic nature of the decision making, intangibility of parameters, intervention of several ministries and authorities; as well as the lack of full control by a single authority, has made the decision making process subjected to the major inaccuracies. In this regard, site selection of industries in the country should take place from among a vast range of enterprises and various industrial activities available in the country's 24 provinces (and in the later stage, in a good number of towns and industrial regions) which have different features and qualifications. Furthermore, much pressure, along with high competition, is always brought to bear by the local planners and authorities to attract specific industries, which in many instances may be inconsistent with the overall industrial policy of the country. Thus, presentation of evidence as to locate or do not locate an industry in a specific site, is an important issue. Likewise, in later stage, specifying the prerequisites and preparing the required ground for attracting a specific industry to be planned by the local authorities along this line, could be very useful.

The issues mentioned above, demonstrates the necessity for having efficient model for the site selection of industries. Given the foregoing, using the mathematical optimization models (such as LP) which highly depends on quantitative values, cannot afford to reflect the real optimum response, but it may give rise to other difficulties (such as provision of data for application of the model). Hence attempt has been made by using AHP the model to apply most of the above mentioned situations and conditions in the decision making process in a way that the relevant decision may be made in a more realistic manner. Formulation of decision making model for location of industries in Iran will acts as a focal point of a support system for the decision making process, the object of which is to maximize productivity stemming from the location of industries in various places.

Five attributes of flexibility, dynamism, efficiency, effectiveness and multiplicity of users have been selected as the main features in the model. In the model, numerous criteria for the selection of alternatives have been studied which could be duly divided into two general factors of 1) affecting industries or 2) being affected by industries. Each of the said factors may have various divisions and subdivisions. A set of these factors and criteria may be used in the allocation of industries in the provinces and various other points throughout the country. The respective model is also susceptible to changes and modifications taking into account the spectrum of the number of criteria. In the model, decision maker, is in a position to work with the model in three general ways: 1) selection of the industry (I) by the decision maker, and then selection of the location (L) by the model, 2) selection of location (L) by the decision maker and then selection of industry (I) by the model, and 3) selection of industry (I) for the location (L) by the model. In the latter case, the feedback phenomenon can be used.