

# PROPOSING CRITERIA TO LOCATE NEW TOWNS ACCORDING TO THE PRINCIPLES OF SUSTAINABLE DEVELOPMENT (CASE STUDIES: HASHTGERD, ANDISHE AND PARAND NEW TOWNS IN IRAN)

Hamid Majedi <sup>a</sup>, Farah Habib <sup>b</sup>, Hosein Zabihi <sup>c</sup>, Mansoureh Kianersi <sup>d</sup>, Fereshte Ahmadi <sup>e</sup>

<sup>a,b,c,e</sup> Department of Art and Architecture ,Science and Research Branch, Islamic Azad University ,Tehran , Iran.

<sup>d</sup> Department of Art and Architecture and urbanism, Islamic Azad University, Najafabad Branch, Esfahan, Iran.

<sup>e</sup> Corresponding author: fereshteahmadi2004@yahoo.com

©Ontario International Development Agency ISSN: 1923-6654 (print)

ISSN 1923-6662 (online). Available at <http://www.ssrn.com/link/OIDA-Intl-Journal-Sustainable-Dev.html>

**Abstract:** The new towns are planned settlements that were created in response to predetermined goals. Concepts to build new towns in the world, have formed generally since the beginning of the twentieth century, after the Industrial Revolution and the increasing problems of megacities, in order to solve the population and economic problems of them. After years of new towns creation and their performance analysis, can be mentioned several factors in their success or failure function which One of the most important of them is the establishment of new town on the appropriate location. Locating the place is regarded as the first factor to along with formation of new towns goals and it will affect survival and existence of city. So, what criteria to locate and where to found new towns are main issues in urban planning. Among the after issues the principles of sustainable urban development as the most current theoretical basis to locate places correctly and to ensure the survival of these cities are taken in to consideration.

Therefore this article seeks to answer the following questions: (a) what are the criteria for locating of new towns according to the principles of sustainable development? (b) How will be the Principles of sustainable development affect the locating in new towns? (c) To what extent will considering the locating criteria of the new towns based on principles

of sustainable development affect the success or failure of the performance of new towns?

The main objectives of this research are: (a) Achieving Criteria to locate new towns considering the principles of sustainable urban development by assessment relevant documents and the extraction process of locating and its analysis according to the sustainable locating criteria. (b) Prioritizing criteria to new towns locating according to the principles of sustainable urban development. (c) Comparative assessment of the principles of sustainable development criteria to locate new towns, case study of sample cities: Adishe , Hashtgerd and Parand Iranian new towns in the west and southwest of Tehran, and analysis rate of the functional success or weakness of these towns, according to these criteria.

In order to achieve these goals, through a descriptive-analytic approach, locating principles and criteria of new towns according to sustainable locating, criteria are analyzed and their location among principles of sustainable development is determined. Then, by comparative analysis method case samples of the study are assessed and compared based on extracted criteria. Therefore, the impact of following or not-following these criteria will be determined in success or failure of these new towns.

Documentary, library and field studies are collection data methods for in this research. Theoretical principles and basic concepts are described along with the analysis in the study.

Criteria for locating of new towns according to the principles of sustainable development are classifiable in three main categories: environmental criteria, economic criteria and human- social criteria.

The parameters of environmental standards include: natural ability of land (measuring floods and seismicity), quantity and quality of groundwater and surface water, allowing the exploitation of water resources, access to fuel and energy, ecological sensitive area, power transmission networks, communication network and facilities, security, urban identity, sense of place, space capacity, functionality and ecological environment.

The parameters of economic standards include: economic infrastructure - job creation, capacity of production activities, capacity of factors providing livelihoods, capacity of making economic stability.

The parameters of social-humanistic standards include: the capacity of utilization of public participation, the capacity of being populated, the rate of migration, social structure and availability of health and welfare services.

The result of the present Research indicate that when sustainable development in the phase of locating new towns is considered as the base, it will have significant and profound effects on the functional health of new towns and will decrease the risk of functional failure and also unstable environmental and settlement. Through comparative Comparison of case studies based on the above parameters, the city Hashtgerd is the leading position, followed by the city Andishe. The new city Parand is in the third acceptable level due to not considering any of the indicators.

**Keywords:** New Towns, Locating New Towns, Sustainable Development, Stability Criteria

## INTRODUCTION

New towns are established in order to satisfy needs like absorption of the extra population who are considered beyond the capacity of an area, for providing house for people or for many other factors. But little attention is paid to their interest and need for sustainable development in 1970, urban sustainable development and the related concepts were soon incorporated in urban planning concepts. Since then many research studies have been conducted in this field and attempt has been made to plan and construct many new towns based on the concepts of sustainable development.[1]

But less attention has been paid to an applied project for locating new towns or developing expanding towns. This has caused the problem of overexpansion of towns, improper settlement of the people around towns, ignorance to environmental issues, dependence of new towns to main cities, and their dormitory like structure. Therefore, due to the important role of correct location finding for new towns in avoiding the above mentioned problems, the present research extract, the criteria of locating new towns regarding the principles of sustainable development through descriptive analytic method and then evaluates the location of some newly built towns in Iran and compares then with those criteria.

## LITERATURE REVIEW

### The principles of locating new towns

#### *Locating new towns in the history of the world*

19<sup>th</sup> century, the majority of new towns were established by the private part. Location finding was done by considering the surrounding environments, the possibility of expansion and development and the independence of new towns.

In 20<sup>th</sup> century, the majority of new towns were established by the governments. At that time for locating new towns, geological and climate conditions, the existence of inclusive transportation network especially for the towns that were established for the staff of heavy industries, and even the existence of a proper road were taken into accounts and were paid more attention to compared with the conditions of needed natural resources.

Britain has the locating position in establishing new towns in 20<sup>th</sup> century. Until 1970, at least 33 new towns were constructed and exploited.

Most of those towns were formed near London, which is the biggest city in the country. In locating the towns, following factors in Table 1 have been taken into account.

In Soviet some 800 towns and 2000 residential complexes similar to those in the towns were planned by 1980 which were mainly for industrial staff (Shia 1385). Meanwhile, one of the most important purposes for establishing these towns has been making connections between big and small cities which has directly affected locating criteria of the towns. By investigating different new towns and the policies of different countries regarding the issue of establishing new towns, it can be found out that the purpose of establishing a new town has a direct effect on determining factors of location finding in that town.

**Table 1:** Factors taken into account in locating new towns in Britain

Being located in communication paths of the country (through roads, river and railway)
Neighboring units
Economical functionality

**Table 2:** The intended factors in locating New towns in Iran

Subject	Description
Natural-environmental studies and Geographical condition in locating new towns	The variety of natural environment follows some factors like it's geographical situation climatic condition, the shape of the land(gradient),soil quality, vegetation, orientation and current of water and water resources, flood, earthquake and so on.
Geological factors	Physical application: Geological studies deal with recognition of underlying layers of the earth, proneness to earthquake, topography of the earth, gradient, proneness to flooding, height from the surface of the sea and geographical orientation. Economical application: Geological studies have the highest economical application. But what is important in this aspect is understanding after the potential roles for new towns. Plus, such studies can be helpful in finding access to construction materials needed for the towns.
Social studies	Social conditions, the existence of previous life in the area, proper condition for social life in the intended place
Ecological studies	Conditions of economical development and the infrastructures affecting it (being close to industrial centers).
Studies concerning the position o	
The town with respect to main residential areas	The distance to city centers, the kind of connection, roads and ways of accessibility
Studies concerning vulnerability and proneness parameters	Volcanoes, soil movement, tremors , sand storms, ...

**Table 3:** The process of planning a new town in Iran

Studies concerning locating
Providing construction and development plan
Providing detailed plan
Providing preparation plan
Urban architecture
Interior locating plans

**Table 4:** The steps in locating new towns based on the principles of sustainable development

Number	The steps in locating new towns based on the principles of sustainable development
1	Defining theoretical principles and purposes of establishing new towns
2	Distributing locating criteria considering the principles of sustainable development
3	Exact evaluation of the criteria (quality and quantity evaluation)
4	Find conclusion and introducing the best area for locating new towns

**Table5:** The criteria of locating new towns, based on the principles of sustainable development

Main criteria	Sub groups
<p>Environmental</p> <p>Nature and climatic condition of the place protecting natural environment</p>	<p>Natural strength of the land (being prone to flooding and earthquake)</p> <p>The quality and quantity of underground and surface water</p> <p>Facilities of exploiting water resources and accessibility to energy and fuel</p> <p>Ecological importance of the area, energy transfer networks</p> <p>Communication networks and facilities ,safety, city identity, spatial capacity, natural and environmental capabilities</p>
<p>Economical</p> <p>Independent economy and means of livelihood and the criteria for satisfying these factors</p> <p>Maintaining economical capital individual can use in a period of time while welfare situation in the end of the period is as it was in the beginning</p>	<p>Economic- job opportunity infrastructures</p> <p>The capacity of activity and production</p> <p>The capacity of the factors satisfying the livelihood</p> <p>The capacity of establishing economical sustainability</p>
<p>Social- humanistic</p> <p>Maintaining human sources</p> <p>Taking care of human life span</p> <p>Protecting social wealth</p>	<p>The capacity of exploitation of public cooperation</p> <p>The capacity of population</p> <p>The size of immigration</p> <p>Social structure</p> <p>Accessibility to welfare and health services</p>

### **Location of new towns in Iran**

In Iran studies concerning locating new towns are done after doing city district or district inclusive plans studies.

The ministry of house and urban development in new town construction company acts as an employer and gives the responsibility of doing these studies in detailed description of services to consultant architects and civil engineers.

Through reviewing the exiting sources and the changes that have happened in urban planning after gaining experience in Iran, it has been possible to apply new and more reliable criteria in urban planning and locating new towns. Therefore, new town construction company in Iran has provided the consultants with a list of locating criteria and the necessity of their evaluation to make them able to evaluate the location of newly built towns in a special area and compare them with other areas. The criteria are summarized in the table 2.

In Iran there is a defined process for locating new towns provided by new towns construction company which is discussed in the Table 3, so that it is possible to mention factors of sustainable development among the other factors.

The position of locating new towns in the process of town planning and establishment can be traced in the operational chart provided by new towns company in which the position of locating is clearly shown in the hierarchy[3].

Through these steps for locating a new town, local traits and the position of town establishment is evaluated and the result will normally be of critical importance to the future of the town.

There is another attitude to providing a plan for new towns in which applied locating plans are defined as a new subject which aims at affecting locating criteria in the field of studies concerning the establishment of new towns. This process has 3 steps as follows: (a) Determining the purposes of forming a new town. (b) Investigation and recognition : visual, economical, social traits and infrastructure. (c) Analyses and conclusion.

### **The principles of sustainable urban development**

The main purposes of sustainable development are: (a) providing human need: (b) improving standards of living (c) Maintaining and better management of ecosystems (d) Achieving a safer, more prosperous future

Sustainable urban development is defined as a healthy biological environment, providing and expanding proper house or at least public shelter,

improving the quality of constructed buildings, making and expanding public centers, planning and expanding safer fast and comfortable accessibility network, paying attention to industries, technology and new method of industrial management, achieving the goal of having a healthy urban economy and maintaining and generalizing social equality[7].

### **The steps in locating new towns based on the principle of sustainable development:**

Considering the mentioned factors, the steps in locating new towns based on the principles of sustainable development are as follows [9](Table 4).

### **MATERIALS AND METHODS**

In order to achieve the goals, principles and standards of locating new towns and analyze them based on the existing sustainable locating principles, we need to investigate the existing principles published by the relevant organizations and analyze the position of them in the principles of sustainable development. A case sample will be chosen and the information obtained through conducting a research on the case sample will be adapted.

Along with analyzing , the present research also describes research theoretical principle and basic concepts. The data will be collected through documentary, library, field study and evaluation data collection methods.

In the first part of the present study, which deals with correct criteria of locating new towns with respect to the principles of sustainable development, descriptive – analytic approach has been used while in the second part of the research. Which focuses on the investigation of the location of a couple of newly-built town in Iran , scientific evaluation in action (with respect to the gradual development of newly-built towns) and comparative analysis approaches have been used.

### **RESULTS AND DISCUSSION**

#### **Extracting the criteria of locating new towns based on the principles of sustainable development.**

In locating new towns environmental parameters concerning natural, economical, social, cultural and humanistic factors should be paid attention to as the main criteria of sustainable development.

However in Iran little attention is paid to the criteria of sustainable development while locating new towns and this can lead to further problems ,concerning the concepts of sustainable development, the main factors in locating new towns are provided in the Table 5 as a whole and based on these factors, some cases are discussed in detail [10].

**Table 6:** Assessment of location criteria based on the principles of sustainable development in Hashtgerd, Andisheh and Parand new towns

The influential factors in locating	The new town of Hashtgerd	The new town of Andisheh	The new town of Parand
The quality of water	+	+	-
The quantity of water	+	+	-
The degree of gradient	+	+	-
Wind orientation	+	-	-
Wind intensity	+	+	-
Geological structure	+	+	-
The situation of the fault and its performance	-	+	-
The current of surface water	+	+	-
Soil drainage	+	+	-
Sediment depth	+	+	-
Topographical structure	-	+	-
Natural scenery	+	+	-
Vegetation	+	+	-
Ecology and climate	+	+	-
The risk of natural disasters	-	-	-
Environmental pollution	+	-	-
Obstacles to city development	+	-	-
The result of the evaluation	14	13	-

+Being paid attention to in locating

-Not being paid attention to in locating

### **The investigation of the effect of the criteria of sustainable development on locating newly-built towns of Hashtgerd, Andisheh and Parand in Iran**

In this part of the article, locating of newly-built towns of Hashtgerd, Andisheh and Parand situated in western and south western part of Tehran is evaluated concerning the criteria of sustainable development and the role of following or not following these criteria in the success or lack of functional success of these towns is investigated [11] (table 6).

As the table 6 shows considering the 17 natural parameters that are influential in locating new towns, the newly-built town of Hashtgerd benefits from 14 parameters and is in a leading position followed by the new town of Andisheh benefiting from 13 parameters, while the new town of Parand is in the third grade due to not considering any of the parameters in locating.

Therefore, based on ecological model of city development and data analysis of each of the sample towns, Hashtgerd and Andisheh are in the first class of ecological model, while Parand is in the second class. The first class of the model has appropriate

capacity for city development, where as the second class has average capacity for it.

### ***The analyses of the criteria in the newly-built town of Hashtgerd***

Among the three studied here, Hashtgerd has the best situation for future development considering natural parameters. The existence of Daghestan fault line and Northern-Alborz fault line near the town is considered a natural risk and due to mechanical characteristics of the soil, the occurrence of soil movement is probable provided that the faults become active.

Natural and environmental analysis of the new towns indicate that Hashtgerd can be developed from the west, north and north west because of its natural capabilities.

### ***The analysis of the criteria in the newly-built town of Andisheh***

(a) In locating the new town of Andisheh, the role of natural and artificial informing phenomena in the area of the town is ignored. (b) The existence of Montazar-ol-Ghaem power plant and its dominance

on the town, industrial pollution of facoris in the north of the town, sand sources and ditches in the east and the road between Tehran-Esfahan and the town of Shahriar have made the development of the town very difficult in each of the four orientations. (c) The new town of Andisheh doesn't have the capability of future development due to natural and anthropological interfering factors in four orientations.

#### ***The analysis of the criteria in the newly-built town of Parand***

Mechanical characteristics of the soil in the surface of the town and the consequent problems of it for sewage system and also the lack of underground water in the area are among the most important issues that have ignored in locating the town. (a) Today the town is faced with the problem of domestic sewage management and the residents suffer from lack of drinking water. (b) The newly-built town of Parand has the capability of expansion in providing drinking water, being close to salty river and the problems in sewage are among the main obstacles in the future development and expansion of the town.

#### **CONCLUSIONS**

Choosing a proper location for the establishment of new towns is an important issue which provides the conditions for sustainable urban development. Finding a location is the beginning of the success or probably a turning point in the emergence of further problems. Incorporation of the principles of sustainable development in location-finding stage has made scientific location finding possible. By scientific location of the town with respect to the surrounding environment. Therefore in locating new towns more attention should be paid to the geographical situation of the town with respect to the surrounding environments so that on the one hand military, social and political safety of the town is maintained and on the other hand daily needs of the people can be easily satisfied without overusing natural resources and making problems for next generations. The results obtained by evaluating the location of the chosen towns in this study indicate that incorporating the principles of sustainable development in location finding stage has significant and profound influence in the functionality of the towns and reduce the risk of their functional failure and unsustainability. It's hoped that the present research has opened a way for further research in the future and the results will find application.

#### **REFERENCES**

- [1] Ashtor, E; A Social Economic History of the Near east in the Middle Ages, London 1976, PP. 286-281.
- [2] Asslanapa, Oktay; Turkish Art and Architecture, London 1971, pp.106-107.
- [3] Atash, Farhad&Shirazi-Beheshtiha, Y.S, 1998, Article: "New Towns and their Practical Challenges: The Experience of PouladShahr in Iran" HABITATITNL, Vol. 22, No. 1, pp. 1-13, Printed in Great Britain
- [4] Bigot, Françoise, 1994 : « L'Urbanisme au Défi de l'Environnement », France, Editions Apogée, Collection Ecopant.
- [5] Direction générale de l'urbanisme, de l'habitat et de la construction, 2002: « 33 fiches de lecture sur le développement durable », France.
- [6] Division Observation de la Direction de l'Architecture et de l'Urbanisme, Ministère de l'équipement des transports et du logement, 1994: « Atlas Statistique Des Villes Nouvelles d'Île-de-France, Evolution 1968 – 1993 », France, Edition : Autrement
- [7] Ruoxel, Françoise & Rist, Dominique, 2000 : « Le Développement Durable, Approche méthodologique dans les diagnostics territoriaux », France, Ministère de l'équipement des transports et du logement et Certu.
- [8] Sacquet, Anne-Mari, 2002 : « Atlas mondial de développement durable », France, édition autrement- collection Atlas/Monde.
- [9] UN- report 2002 Iran: <<http://www.un.org/esa/agenda21/natinfo/wssd/iran.pdf>> (Accessed Dec. 2004)
- [10] Michell, B., 1989, Geography and Resources Analysis, Lonquer, New York.
- [11] James P. Collins, Ann Kinzig, Nancy B. Grimm, William F. Fagan, Diane Hope, Jianguo Wu and Elizabeth T. Borer. "A New Urban Ecology". American Scientist 88: 416-425

#### **ABOUT THE AUTHORS**

Corresponding author: Fereshte Ahmadi  
 Email: fereshteahmadi2004@yahoo.com  
 Address : Group: Urbanism , Department of Art and Architecture ,Science and Research Branch, Islamic Azad University ,Tehran , Iran.  
 Telephone : +98 0311-2678693  
 Mobile phone : 09131290393

#### **Ref#: 288/USA/12/SD**

This article is taken from the PhD thesis of Fereshte .Ahmadi as "Proposing Criteria for Design of New Towns in Iran with Evaluation of Previous Experience" at the Islamic Azad University, Science and Research Branch of Tehran with the guidance of doctor Hamid Majedi.

