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Locating assessment of residential twons in order to achieve sustainable development

Case Study: South Pars twon of Assaluyeh

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Abstract

After World War II, the growing trend of urbanization, an increase in the phenomenon of migration to the cities, policies adopted in the field of housing and existing restrictions in cities was led to the making spread of residential Settlements, that of this among can be mentioned to the dormitory settlements that were made for certain groups of people such as workers Group. Many factors affect on the location and formation pattern of settlements land in order to achieve sustainable development, it is essential to pay attention to these factors. Hence attention to effective yardstick on the location of settlements land on the basis factors of the social welfare and economic prosperity and on the basis environmental and ecological effects approach is valuable. This study seeks to that existing land locating in the twon by using compatibility criteria, comfort, utility, performance, safety and health, scrutinized and scrutiny and then to particular ecological and environmental impact of locating and construction of town , the analysis gives. As a result with residential twon selection of South Pars belong to south pars company of Assaluyeh located at Bushehr province of Iran has paid to this matter. In an applied research to rely on the documenting method and on a process step by step and develop the assessment table with regard to not equal of weight and importance of each criterion, with determine the weight of criteria, lands locating of the South Pars twon analyzed, and by using AHP Model to evaluate the ecological and environmental impacts's of locating. Based on an assessment done from the pattern of locating, from 100 points, 92/10 points are accrued to the town. Also the results showed which respectively the water pollution and noise pollution, had have maximum and minimum impact on the environment.

Keywords :criterion, locating, Settlement, ecological effects, environmental, AHP

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1 Liable Author

Introduction

After World War II, the growing trend of urbanization, an increase in the phenomenon of migration to the cities, policies adopted in the field of housing and existing restrictions in cities was led to the making spread of residential towns, that of this among can be mentioned to the dormitory settlements that were made for certain groups of people such as workers Group. independent dormitory towns (Oil City) communities are planned that by purpose exploitation of natural resources, the transfer benefits of growth pole to the backward areas, Industrialize potential resources, strengthen industrial areas and etc, are created. According to the Emphasis World Commission of Environment and Development in the name of our common future "Brundtland Commission" in 1987, Today our act in the sequencing of future generations to provide their needs has serious effects, in other words, sustainable development is a form of the development, that meet the needs of today without reducing posterity ability to supply their needs, considers.(Mahmoudi,1384). Necessity of sustainable development is the popular idea (Jabareen, 2004) Which has created much debate in the field of urban form (Jabareen, 2006). Idea of the sustainable development offers the main strategy to respond to questions relating to sustainable urban form that reduces energy consumption and reduce the level of air pollution,(uk Department of the Environment [DoE] 1996; Breheny 1992a, 138). Yosef Rafeq Jabareen Has introduced four types of sustainable urban development such as: the neotraditional development, the urban containment, the compact city and eco-city (Jabareen,2006) John Ellington in the book "Cannibals with Forks" which was released in 1998, with looking deeper looks to the sustainability means-and a new concept is introduced as the three principles of sustainability. The three fields is mentioned with titles of People (social), Planet (environment), economic growth (economy) ,which called as three pillars of sustainability. that equilibrium decisions of these three areas will lead to achieving a sustainable solution (Eddie Krygyl and colleagues, 1393). So many factors is effective on the formation and locating of residential town (eg urban development) that attention to these factors, is necessary for to achieve sustainable development "compact city". Given that in determining Profile of the location of each type of land use or any type of urban activity, two director factors , social welfare and economic welfare are located as criterion of assessment, therefore based on these two general factors, six criterion in locating of urban functions are located as criterion urban planning, which include: compatibility, comfort, performance, utility, health, safety, and user locating must be considered (Saeed Nia, 1383), In other words, switching the location of a user in space should be such that realize the stability or sustainable development, so that by reducing adverse environmental and ecological effects arising from risky activities lead, and the highest efficiency and performance of the lands of result of the business seems to be more logical and spatial arrangement of activities (Mahmudi, 1384). In most cases sustainable development provide basis for discussions about Compact City (Welbank et al, 1996). Hence should be allocated a place to a user that in addition to the necessary needs is supplied for optimal performance of activities and the establishment of the user in a space does not harm to the Natural, social and economic aspects of sustainability and etc (Mahmodi , 1384), Because according to the systematic approach, the residential town is an open system that it affect on the environmental systems and its surroundings and of it will be affected,according to the healthy city standards,any urban activity should be evaluated in terms of the environment and protection of social welfare and protection of cultural heritage(Saeed nya, 1383). Therefore, due to the effective criteria on user locating of town

especially ecological effects and ecological are valuable approach. From an environmental standpoint, urbanization that is a very complex set of user types, among one of the broadest and deepest of human activity on the environment Is considered. Urban Planning can be formed in a manner optimum and yet be no Environmental Impact. In assessment environmental impact of IPA, Cognition of environmental impacts arising from the establishment or urban development in the environment is concerned. Thus, according to this research seeks to answer the above questions it is as follows:

1. What are the appropriate criteria for selection locating of land use residential town?
2. How is that the way locating and positioning existing land use in the town based on criteria of Locating?
3. What are the ecological and environmental indicators to assess the effects of residential town on environmental?
4. How is the Ecological and environmental impacts of residential town land use on the environment ?

Literature review

Many research In the field of urban residential locating and the influencing factors on this positioning is done that on following concisely explained:

Kobe Boussauw and et al(2011) developes amodel based on a set of spatial proximity characteristics a model that estimates for every neighbourhood in Flanders and proposed model could contribute to the practice of sustainable spatial planning. Marc D. Weiner and et al(2013) explore the effects of the gander gap and differences in residential location on environmental risk tolerance and analyze data from the US general population and from households living with 50 miles of a US nuclear facility.they conclude that modeling environmental risk tolerance both gander and place of residence should be considered potentially meaningful explanatory variables. John H. Lowry and et al(2014) compares eighteen metrics of urban form for 542 neighborhoods in salt lake county ,Uath. They findings suggest the effectiveness of smart growth policies in Salt Lake County have had limited effect. Changhyo Yi and et al (2014) xamines the factors of residential location choice by considering the characteristics of the Korean housing market.hte results of this study are significant in understanding the characteristics of residential location choices of Korea and the countries in the transition as well .Petter neass(2013) studies relationships between urban land use and travel have shown correlations between daily-life travel behavior and the location of the dwelling . Amnon Frenkel and et al (2013) investigates the residential location choice of knowledge-workers at the intra-metropolitan level. David Boyce and et al (1999)present reformulation of the residential location submodel of the Integrated Model of Residential and Employment Location.Joseph Prashker (2008)investigates various factors influencing individual's choice of residence location and the role of commute trip on that decision. The results are consistent with existing research literature with new emphasis on the effect of income.Marshall Lindesy and et al (2011)explore the relationship between residential location on household patterns of vehicle miles of travel, and by extension, energy consumption and greenhouse gas emissions. Various scenario show that with increases in privately vehicle fuel efficiency, the overall reduction in fuel use creates a more uniform spatial profile of energy/greenhouse gas emission across the region.

Bagherzadeh et al (2013) to explain the process of creating residential complexes and urban planning criterions and design of residential standards with regard to the standards and principles of sustainable urban development and to have concluded that low density and open green spaces, provides more desirable residential environment. Amyn Zadh B. et al (2013)in research, locating new cities in 3 decades by adapting known methods and techniques used in the past have evaluated, so that the main axes of compare how determination acceptable areas of new town location, methods for determining

the location selection criteria, weighting the criteria to determine the final score of each option and to have concluded in locating new cities there have been simplistic approach. In Table 1 was conducted to check the number of the researcher-related issue that also hypothesis, aims and methods of data collection and, in particular, to review the results investigated and been studied gaps .

Therefore, it is necessary to research on locating of residential town land use based on the following factors and in accordance with the standards of compatibility, comfort, performance, utility, health, safety carried out and due to the necessity of urban sustainable development and exiting land use in it, for this study has been diagnosed.

Method

The present study is based on the trilogy principles of sustainable development, the effective criteria on the locating of the town land use, such as compatibility, comfort, utility, performance, safety and health to the are reviewed and scrutinize, And in particular ecological and environmental impact of town locating on environmental, analysis. Therefore,By choosing residential town owned South Pars Gas company of Assaluyeh in Bushehr province of Iran's, in a Practical Research and with relying on documentation methods in a step by step process has action to identify the town of South Pars, existing land use in town. Then, based on the criteria outlined above to assess existing land use locating in the town, paid And with the formulation the evaluation table of the locating, And determine the weight of each criteria and sub-criteria and Criteria and according to not equal weight and importance of each criterion and According to Weighting method experts in the field, South Pars town's land uses has been analysis; Finally, in particular by identifying indicators of environmental assessment with using AHP method to assess the ecological and environmental impact of town locating Been paid.

Table 1. Research study conducted by researchers (authors, 2015)

Author	The aim of this study	The research hypothesis	Methods and data collection	Results	Items not covered (gaps) or strengths
Rezai et al. (1393)	Benchmark study and factors influencing on locating of industrial towns	attention to the effective criteria on locating is essential for creation balancing space.	In this study, analytical and written documents and sources used to collect information and to determine the weight of ANP method is used.	-Environmental factorsexcellence to human factors -Local factors more weight than natural factors -Reducing weight by increasing the level of atmosphere from local to national level	- The use of locating criteria of municipal criteria to assess locating -Using OF AHP model -Lack of attention to strategies achieve to sustainable development
Nasrallahy et al (1391)	Determining effective criteria on locating of industrial town by using sustainable indices	Social, economic and environmental criteria, including effective criteria.	The criteria prioritization by using AHP and fuzzy triangular numbers	-Social and economic criteria from the the most influential factors	- doing research on the principles of sustainable development - Using of AHP model
Zarabad et al. (2013)	Locating of industrial town based on the criteria of sustainable development	Social, economic, and environmental criteria and infrastructure Among the factors affect.	-Using of AHP model -Multi-criteria analysis for network analysis	-Environmental criteria and infrastructure The most important role in the residential town's location.	- doing research on the principles of sustainable development
Erik Ellde'r (2014)	Investigate the effect of the location of residence on daily distance traveled	Place of residence and travel time have a direct relationship.	Multilevel statistically models	-Place of residence on travel purposes (space and time) has a great effect. Suggested changing the built environment to reduce the time and distance traveled. Interaction between the place of residence, individuals are offered variety.	-consideration only the human factor in locating housing
Vincenza Chiarazzo and et al(2014)	Investigate the effect of environmental conditions on site selection and development of the city and access facilities	Environmental factors affect the location and development of the city.	using of Hendonic models and MLR model	-The results showed that the relationship there is a assumed, and a classification from the climate variation between different areas has offered.	-Lack of attention to the three principles of sustainability in research
Fiona J.Andrews(2010)	Investigate the factors influencing the choice of place of residence and the point of view and experience Family from the places associated with children's health	Living outside the city with children increasing age problems such as access to services and equipment providers to have delivered entertainment and transportation system.	Using of Bronfenbrenner's Social Ecology model	-The results showed that parents prediction from the place of residence in understanding the relationship between children's health and Location is important.	-Lack of attention to sustainability principles in the evaluation of locating places of residence

Source: authors

In order from left to right: 1. Position Bushehr province in Iran (website, 2015) 2. The position of city jam in Bushehr Province (website, 2015) -Source: authors

In order from left to right (1) aerial photos city jam (website, 2015) 2. Aerial photo South Pars settlements (website, 2015) - Source: authors

Planning for urban land use, means location and spatial organization of urban activities and functions, based on the wishes and needs of the urban community. This planning in practice is the core of urban planning that types of land use is classified And the location locate. location Criteria On land use, the overall is standard which optimizes place of land use will measure. In determining location characteristics of each type of land use or any type of urban activity, guidance by two factors, namely Of social welfare and economic prosperity Criterion Is measured. Thus, According to these two factors are very general, six criteria, criteria of urban planning will be in the positioning of urban functions, That Include: compatibility, comfort, performance, utility, health, safety (Saeed Nia, 1383), that should be considered in the user locating .

Compatibility

The most major urbanization efforts, locating for various land use in the city and the separation of incompatible land use from each other. Land uses that produce smoke, smell, noise and bustle, Should of other land uses, particularly residential, social, cultural separated. Of course this separation is not absolute,but in some cases can the effect of annoying land uses be limited with a series of measures. At Spatial separation of land uses, cost and profits factors and relative self-sufficiency them, be Considered (Saeed Nia ,1383).

Comfort

At locating Standard, two factors distance and time, are measure units of comfort and convenience amount. For categories such as the close distance or comfortable distance for living, walking distances, access to transportation routes and facilities and utilities, usually have the concept of comfort. Ease of access to facilities and utilities required different land use and avoid some land uses of overcrowded from Comfort factors are considered (Saeed Nia, 1383).

performance

Pattern of urban land price, is Basic Criteria and main factor to determine the locating land use. Any lnad use of economically and investments, is resulting in land prices and the situation it ,in terms of preparation and development expenses, which has the own special following criteria are also (Saeed Nia, 1383).

Utility

Factors utility and chunky, that's mean try to keep the natural factors, landscapes, open spaces and green, how formation of the roads, buildings and urban space. This factor in terms of design of communication ways system also has special importance. Network routes and orientation them can be such that pedestrians and someone in the car most beautiful scenery and natural refreshing to see within the city and around the city and to enjoy (Saeed Nia, 1383).

Health

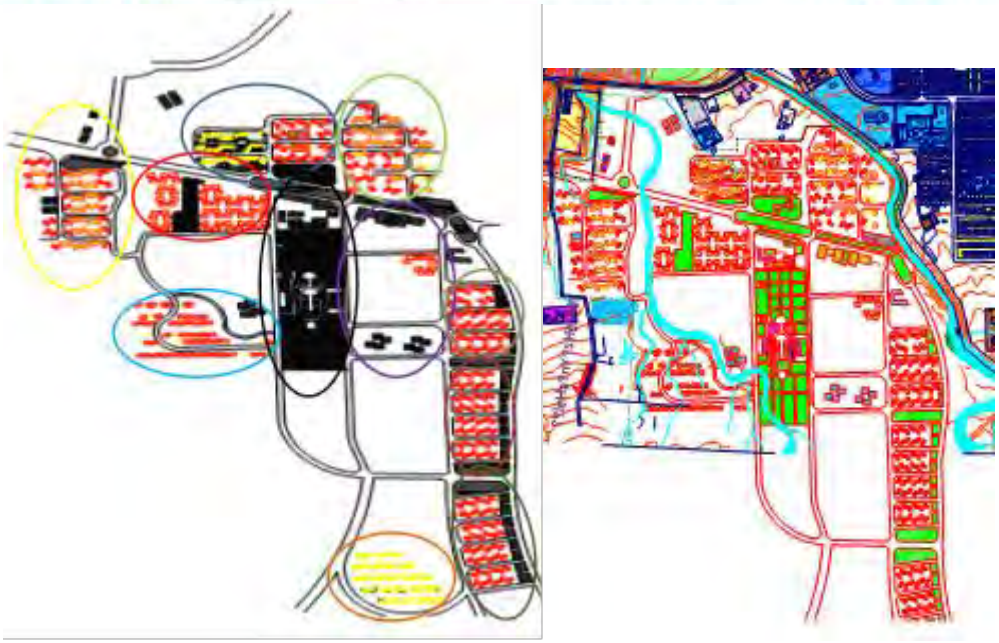
Today, to improve spaces and buildings and Industrial locations, Health and environmental executive standards observance plays an important role. Healthy city standards and regulations known as the EIS environmental impact of any urban activity in terms protecting the environment, Protection of social welfare and protection of cultural heritage are evaluated. So that the standards of cleanliness and control of the environment, the main factors determining the land use plan are considered(Saeed Nia, 1383). That in this Study specifically been studied to it.

Safety

Security factors, offer the specific standards in locating urban activities. Generally Security standards depends to urban facilities protection and defense of the city and against possible attacks of war. As well as Protection and safety of the city against Natural disasters such as floods, Hurricane and earthquake also at location standards activities and different uses Effective. Generally for protection against unexpected events, in addition to the specific rules of technical safety and building regulations, Must locating criteria of activities and the establishment of urban functions be respected (Saeed Nia, 1383).

Assessed land use locating of town according to the are listed criteria

To evaluate how to land use locating of town, beginning with attention to the distribution pattern of existing land uses, location and number of land use to be determined. Thus, considering that one of the existing methods to investigate land uses locating, use of desired range map and investigate existing land uses in terms of numbers and their location and distribution of land uses and etc, is, Therefore, by using aerial map of town and according to the existing district in the town, existing land uses in each district identified and briefly listed in the table below:



In order from left to right: 1-dispersion of map of land uses in settlements According to the color representing each user. Map No. 2-Range any district in settlements (authors, 2015)- Source: authors

Table 2: Existing land uses in any region of South Pars town (authors, 2015)

Region	User in each Region
Region1	Residential-Kindergarten-Specific market Region-Emergency-Fire Stations(Near Region)
Region2	Residential-Lemon and Olive Garden
Region3	Residential-Special park of Region-Sports Hall for Region-Office
Region4	Residential-Special Office of settlements
Region5	Residential-Girls Highschool-School Girls-School boys-Sports Hall of settlements
Region6	Residential-Green space
Region7	Residential-Green space
Region8	Residential-Green space
Region9	Residential-Music school
Region10	Residential
Neighborhood Center	Green space-Stores-Markets-Library - Clinic

Source: authors

Then according to existing land uses in each district And locating criteria mentioned, Attempted to drafting table for evaluation positioning of existing land uses, according to mentioned criteria and the sub-criteria for each main criterion has done and to the main factors compatibility, comfort, performance, utility, health, safety, based on opinion of experts and planners, respectively weighs 25, 20, 15, 15, 15, 10 is and then, based on any main criteria to each one of the sub-criteria and based on the importance, weight has been that for example in the assessment table of residential district 1 (Table 2) is clear:

Table 1-3 Assessment compatibility and comfort factor of residential usage of area 1

Criterion	Weight	The following criteria	Weight	Advantages of the place	Weaknesses place	Evaluation(score)=100
Adaptability	25	Proximity to educational and cultural centers	4	There kindergarten in a residential region 1	Lack of proximity to cultural center	3
		proximity to clinics	2	Near to the clinic	-	2
		proximity to public green spaces, .lakes, parks, etc	4	Located opposite the Park	-	3
		proximity to stores	4	There is a small market in the region of 1	-	4
		Lack of proximity to highway	۳	Far from highways	-	3
		Far from annoying and industrial Land uses	4	Do not disturb the proximity to uses	-	4
		Far from transportation hubs, terminals and airports	4	Lack of proximity to the terminals, airports	-	4
Comfort	20	Proximity to workplace and Place leisure	5	Near the parks	No nearby business centers and leisure centers	۲
		Access to the bus stop, taxi stand	5	Access to bus and taxi	-	4
		Appropriate access to main and secondary roads	5	Appropriate access to roads	-	5
		Walking access	5	Through sidewalk	-	5

Source: authors

Table 2-3 Assessment performance and desirability factor of residential usage of area 1

Criterion	Weight	The following criteria	Weight	Advantages of the place	Weaknesses place	Evaluation(score)=100
Performance		Coordination spaces with per capita design	3	Coordination with per capita	-	3
		Non-overlapping functional areas	2/5	No impact on the performance of other areas	-	2/5
		Coordination with the per capita municipal services	2/5	-	There are two girls high school in the area	1
		Appropriate size spaces	2/5	There is space Fit		2/5
		Existence a good number of spaces required	2/5	There are required spaces		2/5
		Attention to Principle of least profitable and highest costs	2/5			2/5
The desirability		Access Maximum desirable light and wind andsuitable perspective	3	Access to desirable winds and light	Lack of desirable views	2
		Lack of vision	2/5	Regard of privacy of buildings		2/5
		Regard of privacy of green belt surrounding areas	2/5	Regard to privacy of the Green Belt		2/5
		desirable input and desirable view	2/5	Legible input	The lack of variety in the facades	2/5
		Adaptation Internal street system by Natural Features	2/5			2/5
		Construction site on the slope of less than 8%	2/5			2/5

Source: authors

Table 3.3 Assessment health and safety factor of residential usage of area 1

Criterion	Weight	The following criteria	Weight	Advantages of the place	Weaknesses place	Evaluation(score)=100
Health	15	Observance green belt surrounding areas	6	Regard to the front	-	4
		Close to the center of light industry (bakery and Crafts, etc.)	5	Lack of proximity to small industrial centers	-	5
		Respect proper distance to major industrial centers (Factories, manufacturing plants, etc.)	4	Absence of large industrial centers in settlements	-	4
Safety	10	Away from dangerous areas, faults and Watercourse	5	Respect correct distance from the areas listed	-	5
		Avoid faults	5	The point is not dangerous	-	5

Source: authors

Finally, by evaluate the locating all existing land uses in the 10 district of town, points that is to the locating of land uses in town due to the the criteria of compatibility, comfort, performance, utility, health, safety and the overall weight is given to each main criterion and with average sum earned by existing land uses in each region of town, points that is given to way of land uses location of residential South Pars given can be calculated. eventually points total that to the town 2500 unit of South Pars, based on the above factor 5 ,than 100 points awarded, 92/10(Table 4) be. That main reason for the reduced points for residents of the town be away from the workplace, Because the town is located 60 km from the workplace settlers. That reason for this separation of workplace (strategic region of the South Pars Assaluyeh), is safety factors due to hazardous workplace conditions.

Table 4 - Final evaluation of existing locating in town

Neighborhood Center	District 10	District 9	District 8	District 7	District 6	District 5	District 4	District 3	District 2	District 1	Weight	Criterion
20	25	25	25	25	25	25	23.5	23	24	23	25	Compatibility
16.5	16	16	17	17	17	18	16	17	16	17	20	Comfort
14.80	15	15	13.5	13.5	14	14.5	15	15.5	14	14.5	15	Performance
14.40	14	14	13.5	14	14.5	14.5	13	12.5	13.5	13.5	15	Desirability
14.40	13.5	13.5	13.5	15	15	15	15	13	13	11	15	Health
10	10	10	10	10	10	10	10	10	10	10	10	Safety
90.10	92	92	92.5	95	95.5	97	91.5	91	88.5	88	100	Total points

Source: authors

The necessity assess the environmental impact of urban development in order to achieve sustainable development

Urban sustainable development is a multi-dimensional content, including environmental aspects, economic, social and political (Huanget al,2009;Olewier,2006). When an urban project can be indicative of urban sustainability that create balance in the living environment and reduce the lack of social balance and social gap and improve the quality of life in general(Enyedi, 2002). International council of environmental initiatives (ISEI) emphasizes that sustainable development is development that basic services of environmental, social, and economic Without threatening the environment, Building a community systems that depend on these services, offers (Hosseini et al, 1393). Thus,

attention to effects of urban development on the natural environment in form of the making town in addition to paying to both factor of social welfare and economic welfare is essential in order to achieve sustainable development. United nations environment Programme also sustainable development has defined as improve the quality of life within the capability range of the capacity of ecosystems (Berton et al ,1996(.The purpose of the sustainability assessment, it is that ensure of the optimal contribution of plan and activities in sustainable development (Pope et al,2004,596). in this case sustainability assessment in urban areas is a major challenge for environmental management and public documents (Martinez et al, 2005).

environmental and ecological indices affecting the land use locating

With the emergence of the harmful effects of human activities to create balance and harmony between the activities and the environment, tools and various methods have been developed and used. Environmental impact assessment (EPI) is one of the best ways that by identifying the environment and understand its importance, the effects of various sectors and activities a project on the environmental components, review and assess does (Rvdgrmy et al, 1386). Hence do environmental impact assessment with the approval of National Environmental Policy Act America(NEPA) formally began in the world(Jafari, 1387).

Studies of the effects of environmental assessment, in fact, the positive and negative effects that could directly or indirectly in the short term or long term, Natural and human environment at local dimensions to global scale to form reversibly or irreparable, will affect (Rvdgrmy et al, 1386). Conference "Environment and Development" in June 1992 by United Nations in Rio de Janeiro city (Brazil) was held. In principle 17 the final statement of this conference, necessity of environmental impact assessment of projects that may have significant negative effects on the environment are stipulated. Since the today purpose of development, is sustainable development, Therefore, environmental impact assessment is one of the acceptable methods to achieve purposes of stable development. And can be used as a planning tool available to planners and managers and decision makers, based on that can the potential environmental impacts, were identified that as a result of the implementation of civil projects and development, appear and reasonable options choose to eliminate or reduce them(Mahmudi, 1384).

In fact environmental impact assessment, measuring different aspects of the environment be related to the decisions and policies (Tukker, 2000,440) and includes assessing the direct impact of the project on the environment with regard to alternatives and efforts to reduce the harmful effects of environmental(Sutecliffe et al,2009). Analysis of urban literature and urban planning regarding sustainable development and environmental sustainability Shows that a city or urban development the only time has a principles of sustainable that its structure in full interacting with strategies and obstacles, resources air and water pollution and soil and also noise pollution and plant appropriate cover(Hussaini et al, 1393).

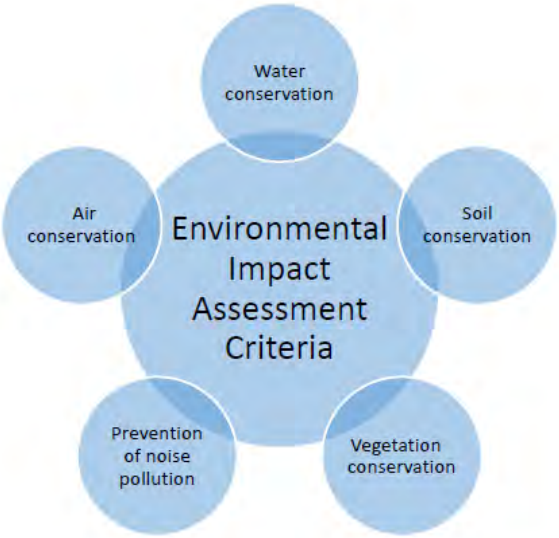


Figure 3. The criteria of ecological and environmental impact assessment -Source: authors

ecological and environmental impact assessment by using sustainable development indices of AHP method

AHP is one of the most famous multi-criteria decision-making techniques that were invented first developed in the 1980s by Thomas Al.sany. Basis of This method of decision-making is hidden In paired comparisons. Decisions by providing a decision tree That Reflects factors are compared and evaluated, begins and then will be done a series of paired comparisons. This weight of each of factor in comparison to evaluated competing alternatives in decision shows. Eventually logic of analytic hierarchy process In a manner matrix of pairwise comparison makes combined.

In the first phase (phase hierarchy tree): Should fulfill the criteria and sub-criteria environmental sustainability That in ecological and environmental impact assessment of land uses settlements location Influence, To be determined and in the form of a decision tree to be arranged in a hierarchy, matching with Figure 1.

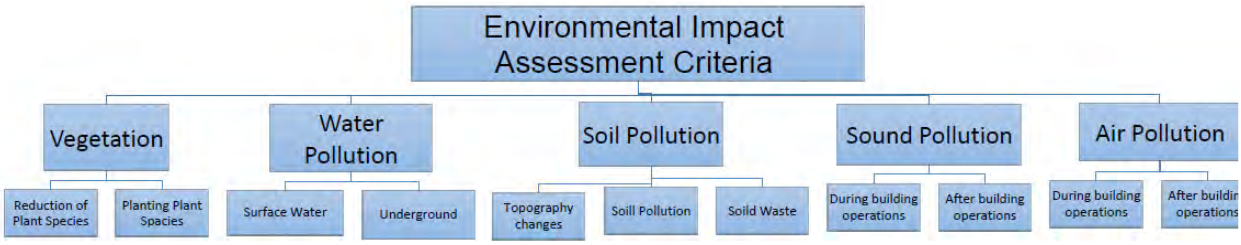


Diagram1. The criteria and sub- criteria of Environmental sustainable development -Source: authors

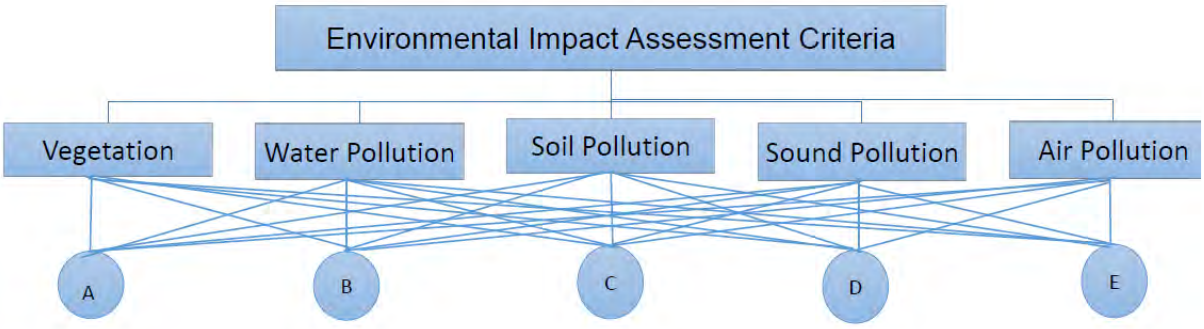


Diagram 2. The tree hierarchy of criteria and sub- criteria of Environmental sustainable development -Source: authors

Phase 2 paired comparisons: In AHP elements of each level toward Their respective element at a higher level as Paired comparison and their weights is calculated. This weight, called the relative weight. Then by combining these weights, the weight of each option is determined, matching with Table 5 and 6.

Table 5 – paired comparison matrix of environmental indicators

	A(Plant)	B(Water)	C(Soil)	D(Sound)	E(Air)
A	1	$\frac{1}{3}$	3	8	5
B	3	1	5	9	7
C	$\frac{1}{3}$	$\frac{1}{5}$	1	3	5
D	$\frac{1}{8}$	$\frac{1}{9}$	$\frac{1}{3}$	1	$\frac{1}{5}$
E	$\frac{1}{5}$	$\frac{1}{7}$	$\frac{1}{5}$	5	1

Source: authors

Table 6 - Normalized matrix of pairwise comparison

	A(Plant)	B(Water)	C(Soil)	D(Sound)	E(Air)
A	0/22	0/19	0/31	0/3	0/27
B	0/64	0/56	0/54	0/35	0/4
C	0/31	0/11	0/1	0/12	0/27
D	0/03	0/06	0/03	0/04	0/01
E	0/04	0/08	0/02	0/19	0/05

Source: authors

According to the results of the analysis was done on the basis of AHP, Water pollution has the greatest impact on the environment and then changes in vegetation, soil contamination, air pollution and eventually noise pollution is minimal impact on the environment, that is mentioned in Table 7. As

identified in Diagram 1, effective criteria in the ecological and environmental impact assessment it has a sub-criteria, that in this research was done exactly like the AHP method to evaluate the main criteria, it is also made to the sub-criteria and water sub-criteria evaluation results showed that the highest and the lowest amount of water pollution respectively is related to water contamination of groundwater and surface water. About sub-criteria related to vegetation highest and lowest of amount, respectively, related to the reduction of available plant species and planting non-native species. The results of the evaluation sub-criteria related to the highest and lowest levels of soil contamination respectively related to waste and pollution of soil and topography changes due to its construction. about the sub-criteria for maximum and minimum air pollution respectively related to the construction stage (the results of human habitation) and the process is construction. About Evaluation the following criteria related to sound criteria results showed that the highest and lowest levels of contamination related to the construction stage (the results of human habitation) and during the construction, that results are summarized in Table 7 is shown. And the evaluation of all environmental factors is shown in Table 8.

Table7. The results of the ecological and environmental impact assessment

Environmental Impact Assessment CRITERIA	Weight Criteria	Criteria Arrangment
Plant(A)	0/258	2
Water(B)	0/498	1
Soil(C)	0/134	3
Sound(D)	0/034	5
Air(E)	0/076	4

Source: authors

Table8. The final results of the final evaluation criteria and sub-criteria ecological and environmental effects of residential settlements

Environmental Impact Assessment Criteria	Criteria Arrangment	Weight Criteria	Secondary Criteria	Criteria Arrangment	Weight Criteria
Plant(A)	2	0/258	Reduction Plant Species	1	0/8
			Planting Plant Spacies	2	0/2
Water(B)	1	0/498	Surface Water	2	0/17
			Underground Water	1	0/8
Soil©	3	0/134	Topography Changes	3	0/1
			Soild Pollution	2	0/29
			Soild Waste	1	0/55
Sound(D)	5	0/034	During Building Operation	2	0/32
			After Building Opertion	1	0/67
Air(E)	4	0/76	During Building Operation	2	0/25
			After Building Opertion	1	0/75

Source: authors

Conclusion

This present Research looking a strategy to achieve sustainable urban development, assessment of land use locating of residential town and ecological and environmental impact assessment of them Based on the the three principles of of sustainable development, effective strategy to achieve this aim is considers, Therefore by choosing town of South Pars is located in the Jam city of Bushehr province in Iran, and evaluate the distribution of existing land uses in residential town and formulation assessments table of locating based on the criteria: compatibility, comfort, performance, utility, health and safety and the sub-criteria for each main criterion, take action to assess the locating of the town of South Pars. Finally, of 100 total points, points equivalent 92/10 is awarded to locating pattern of the mentioned town. Also to evaluate the environmental and ecological effects on the environment of residential town, by identifying criteria and using AHP model to this action taken and the results showed that Among the mentioned criteria water pollution have the greatest impact on the environment and then changes in vegetation, soil contamination, air pollution and the noise pollution is minimal impact on the environment.

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