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THE IMPACT OF GREEN SPACES IN IMPROVING THE URBAN MICRO-CLIMATE

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ABSTRACT

Green space in the machinism living in big cities can be a sign of the fluidity of life and is effective in increasing the desirability of life. If properly designed green spaces have ecological, social and beautify functions in urban spaces. One of the major tasks of urban planners attempt to solve environmental concerns, Water Quality Improvement and urban healthy air for purpose of improving the quality of life in cities and urban areas become habitable place for its residents. To achieve this goal, expansion of urban green spaces has decisive role. In the present study we will try to explain a variety of green spaces to suit different climates. In choosing green spaces be considered to cities natural Characteristics such as soil type, climate and water availability. In this context, in order to to prevent loss of funds should be noted in choosing species and planting plants places and different times. The results show that green spaces reaction are not the same to natural conditions and climate and in planning considered to the nature, aesthetic dimensions, form, color and resistance of Theirgo against different climates.

Keywords: micro-climate, green, environment, ecology.

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INTRODUCTION

Although urbanization has led to the welfare and comfort of human beings but also have followed problems as the urban population becomes more, as well as, or even higher growth of urban problems is also increasing. Population growth have been following problems such as traffic problems, create a variety of urban pollution (noise, air and water pollution) environmental degradation, cultural and social problems and many other problems. One of the major tasks of urban planners attempt to solve environmental concerns, Water Quality Improvement and urban healthy air for purpose of improving the quality of life in cities and urban areas become habitable place for its residents. To achieve this goal, expansion of urban green spaces has decisive role.

The purpose of urban green space is actually a form of urban land surfaces with vegetation that is man-made and have social efficiency and environmental performance. Urban green space from the

perspective of urban planners includes part of the city landscape is made up of vegetation and as a factor of vital and living next to lifeless body the city determine shape and construction of city(Vaziri, 2008: 22).

Green space construction, management and maintenance it's Because effective in air stylized the city and improve the quality of life in towns, an issue that has been emphasized in recent years and the basic steps taken to achieve it in the big cities that show of urban managers to this part of the city.

In recent decades the development of green spaces in urban planning is an important part. Forest is one of the best investments that urban management can do in the field of urban planning. Green space in the machinism living in big cities can be a sign of the fluidity of life and is effective in increasing the desirability of life. If properly designed green spaces have ecological, social and beautify functions in urban spaces.

History of urban green space in Iran: Unfortunately, of the history Iran's pre-Islamic places with regular tree planting is planned there is not exact works and texts; But after Islam during the Safavid period streets and public places to be regular and correct conceptual framework designed with green space. An example is the gardens four of Isfahan that was a place for daily pedestrians was built with a width of 55 meters. In this passage were seen of six rows of poplar and sycamore was planted among the roses and jasmine bushes(majnoonian, 1990: 15).

In roknabad of Shiraz was palace or a small garden to the surrounding streets like Garden four of Isfahan. In both sides of it were planted the orange and oranges and other citrus fruits trees. Eram Garden in Shiraz has a symmetrical design with a axis in the central palace to be connected to down of the garden palace. In two sides was planted also long umbrella cedars, pines and hedge, and among them there were also seasonal plants.

Types of Green space: Green spaces can be divided to two types of green spaces in urban and non-urban green spaces.urban green space can also be divided into three categories of public green space, semi-public green space and green space of the streets (The decisions collection of Supreme Council for Planning and Architecture of Iran, 1991: 61).

Public green spaces: Public green spaces are urban green spaces that have social performance. This spaces use for Public leisure, recreation and social gatherings and cultural. Existence Benches, lighting, water fountains, restrooms, flooring streets are of the components of public green spaces. This green space is often mentioned as a park. In fact public green spaces including public green spaces equipped with all the services and facilities.

Semi-public green spaces: Semi-public green spaces are green spaces that have ecological efficiency but their users are restricted compared to public green spaces. Therefore are not qualify for total and complete social efficiency. Open area of hospitals, military barracks and government offices are placed In this category.

Green spaces on the streets: Kind of urban green spaces are that between of routes mounted and dismounted, the boulevards or were formed in interior spaces of land on highways and streets that are covered with types of cover plants (such as trees, grasses or flowers).

Green spaces Function on the streets is very valuable because this type of urban green spaces can be effective in reducing audio pollution and air pollution. also linear green spaces in terms of social function increase walking routes desirability and attract people to come for a walk.

Types of Green space In urban different micro-climates: The Green space goal is to inspire the lives In citizens and create their cleaner water and air. in choosing green spaces be considered to cities natural Characteristics such as soil type, climate and water availability. In this context, in order to to prevent loss of funds should be noted in choosing species and planting plants places and different times. The following types of plants that are suitable for different climates mentioned(Organization of parks and green spaces, 2005: 48):

Jasmine: It is shrub very resistant and arc creeping it branches is very hard. This plant is planted In high-traffic areas and has good growth.

Pinus Mugo: short pine is a 1/5 to 3 m in height and crown diameter of about 3 m.Resistantto cold anddrought.Short trunk and are covered from dense branches and leaves.

Pruns Laurocerus: Evergreen shrub with leathery leaves, glossy, oval and stretched. It has white flowers. This plant is can be planted In points the sun and shade but it is better to be planted in areas where pollution is low.

Amorpha: Height of this deciduous shrub does not exceed 2 m. It has green leaves and trunk to be derived of the ground and is resistant in the face of pollution and drought.

Nerium Oleander: Evergreen shrubs that cover in dense the soil near the surface. Is resistant to the wind and dust and dirt. in the face of salt spray on surface streets in winter is resistant.

Ligustrum: evergreen shrubs are that planting very common in the margins. in sunny and shady points as well as the growth and development. When this plant planting is should be considered a high water requirement and should not be planted in highly contaminated and dry.

Berberis: Spiny shrub is that species are often decorative. grows in light and shade and any soil . deciduous species grow as well as even in poor soil and dry. And is recommended for planting in areas where the pollution rate is low.

Cercis: This shrub is deciduous and its beautiful flowers covers in spring bare branches and main trunk. This plant is compatible with environmental inappropriate conditions In different parts of the city.

Cupressus Arizona: This plant is utilized considerable tolerant conifers in dry and arid lands highway surrounding embankments and play an important part In forestry and green space. This plant when using is recommended less pruning operations to be performed on it.

Logerstromia: Shrub with leaves green and bright brown and pink and white flowers that in During the summer decorate the environment. Planting This plant is recommend where they are better dealt with.

Thuja: Evergreen shrub that can be seen as forms a spherical, conical and cylindrical. its young branch and leaves is feathery and its small leaves are needles. Planting in highly contaminated areas Not recommended but is relatively resistant to dry soil.

Pyracantha: Evergreen shrub with a maximum height of 2 meters its Orange fruit during the fall and winter Gives a special beauty to the environment. The plant is resistant to pollution, heat and cold and In all soils grows through irrigation Sort.

Hibiscus Syriacus: Is a deciduous shrub that flowering period during the summer. In most parts of the city planted and should be watered regularly and have good soil drainage. Grows as well as In the sun areas and shade-sun however planting is not recommended in water low areas and highly contaminated.

Morus: This plant is show their strength in terms of pollution and water shortage In various parts of the city and from this tree can be used for planting In wide streets.

Yucca: Evergreen shrub with a height of 90 to 150 cm. Its leaves are sword shape and base. This plant is resistant in the face of air pollution, drought and frost. This plant is produces many Sprout That has grown to cover a height less than a meter but gardeners mistakenly cut the sprouts and Create a bare trunk that has little density. In the case of tree planting use from varieties resistant to urban space and dry.

Strategies for improving micro-climate of the city

- 1) advertising and extensive training in order to develop a sense of responsibility in people and especially custodians of green space in order to maintain green space and keeping it in the second stage of its development. The fact is that most of the facilities in the city but destroyed due to unfamiliarity or lack of sense of responsibility to the people and authorities(Rezaeepoor, 1996: 29).
- 2) many festivals to encourage citizens to reduce pollution of the environment and create a clean environment for example held flower festivals and vegetation in the house, the windows and the roof and active individuals encouraged through moral and material.
- 3) Space formed over time and during their formation will be faced with many changes. The landscape designer should choose a combination of trees and shrubs in a way in order to achieve short-term effects of green space, provide chance to grow and survival of trees and green spaces(Consulting Engineers of environment amayesh, 1993: 112).
- 4) for the healthy growth of a tree in a range of 1.5 meters square of its radius soil surface should be free any from any kind of asphalt and concrete pavement so that the prevent any disruption of roots activities(Bahram soltani, 2003: 48).

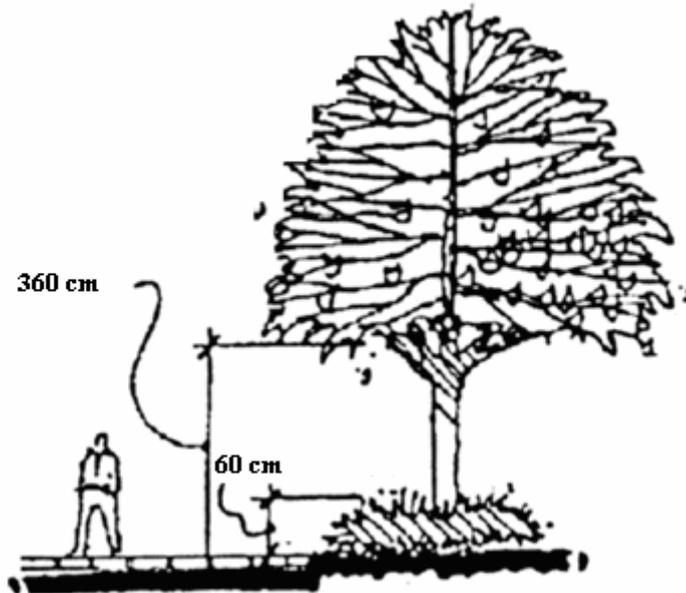


Figure1. The appropriate height range of the green space(NCHRP , 2004: 18)

- 5) Green spaces should be designed to become easily drain surface water and rainwater does not flow from the green space into the passage.
- 6) Care must be taken in planting trees to sunset and sunrise and where the shadow of the tree makes on the sidewalk.
- 7) If the plant trees on sidewalks is the right distance from the table causes to provide shade in the heat to create appropriate passage for passersby.
- 8) to choose the kind trees and plants care must becharacteristics Urban Space such as soil type and temperature(Organization of parks and green spaces, 2006: 78).
- 9) From the outset it should be noted that the final growth of the plant is to what extent and which shrubs and plants that have a height suitable for light breaking that can be used in the city streets.



Figure 2. An example of lack of attention to plant growth along the street

- 10) In winter evergreen plants should have a special place.
- 11) the green space must be resistant to air pollution, wind, light and heat reflected from the surface of the asphalt.

- 12) The vegetation is selected according to the conditions of irrigation especially in highways to be used from resistant plants to drought to possible need not to use from water mobile tankers.
- 13) reflected light from surface the objects make color. Reflects quality of the color regulated by changing the intensity of the light source, the sun filtered through the trees, changing the type level of skylight and color contrast. It should be noted that colors are created different effects in humans sense for example bold and bright colors caused sense of vitality and trimmed and dark colors to reduce human spirit emotions and leads will be to inner peace. So in selection of trees must be note to the relationship between the color of the tree, the climate and season.



Figure 3. In the selection of trees and green space be considered to mix colors and light.

- 14) Planting of grass is not recommended in residential and commercial areas; because have not the function of traffic and create not green space is with desired efficiency. Operation of maintenance and irrigation it requires to constant presence of humans. also be careful in the selection of suitable species of trees that not be Containing large deciduous fruit or messy.
- 15) In places where there are no pedestrian crossings and the aim is preventing of cross pedestrian crossing should have a hedge position to prevent the passage of pedestrians.
- 16) Low pest and disease resistant plants are selected because spraying is causing in most cases problems.

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