علـوم محـیـطی سال چهارم، شماره سوم ، بـهار ۱۳۸٦
ENVIRONMENTAL SCIENCES Vol.4, No.3 , Spring 2007
21-40

The Survey of the Urban Space: New pattern A Case study of Greenwich Millennium Village, London,U.K.

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Abstract
Urban spaces form main dynamic spaces of cities and towns. Different disciplines have theorized urban spaces and have heavily shed some light on the process or nature of the urban spaces, but the concept of the urban spaces is highly unknown yet and the gap between urban theories and practices is not clear too. The aim of this article is to propose a conceptual pattern for surveying and analyzing the urban spaces to decrease the gap between theory and practice based on the real world. This article is consisted of two parts. In first part, it aims to propose *a* conceptual *pattern* which is named Sustainable Socio-Spatial Pattern to survey and analyse the urban spaces. In the second part, it has been applied in Greenwich Millennium Village, a major development in London city, U.K. So, this article has resulted a conceptual pattern in at least two approaches: Process and Substance which can apply in complex and multi-layered urban spaces.

Keywords: urban space, survey, pattern, greenwich millennium village, London.

بررسی فضای شهری: الگوی جدید با مطالعه موردی در دهکده هزاره گرینویچ لندن، انگلستان

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چکیده
فضاهای شهری فضاهای پویا و اصلی شهر را شکل می‌دهند. این فضاها توسط رشته و حوزه های معرفتی گوناگون مورد بررسی و تحلیل قرار گرفته‌اند و هر یک از آن‌ها تلاش نموده‌اند تا فرایند یا ماهیت این فضاها را روشن نمایند ولی هنوز این مفهوم ناشناخته مانده و شکاف میان نظریه‌ها و اقدامات مربوط به فضاهای شهری هم، آن چنان که باید، کاهش نیافته است. این مقاله برای کاهش شکاف میان نظریه‌ها و اقدامات مربوط به فضاهای شهری، بربحث روش‌های تحقیق به عنوان حلقه واسط میان نظریه و عمل تأکید نموده است. ولی از آن جایی که بسیاری از اندیشمندان و متخصصان حرفه‌ای این حوزه مطالعاتی در اولین گام با دنیایی از اطلاعاتی پراکنده مواجه‌اند که نه می‌توانند عوامل موثر در شکل گیری فضاهای شهری را بشناسند و تحلیل کنند، و نه می‌توانند ماهیت و کیفیت فضاهای شهری را به طور جامع و منسجم تحلیل کنند، و نه آن که می‌توانند به گونه‌ای میان آن‌ها نظم و نسقی برقرار سازند، از این رو، هدف مقاله حاضر، با تکیه بر روش‌های شناخت و تحلیل، معرفی یک الگوی مفهومی شناخت و تحلیل فضاهای شهری است تا علاوه بر این که بتواند به بررسی و تحلیل عاملین و عوامل موثر در شکل گیری فضاهای شهری بپردازد، همچنین بتواند به بررسی و تحلیل مهم‌ترین کیفیت‌ها و ویژگی‌های فضاهای شهری نیز بپردازد. این مقاله از دو بخش نظری و عملی تشکیل شده است. در بخش نظری الگوی مفهومی برای بررسی و تحلیل فضاهای شهری معرفی و در بخش دوم این الگو درقالب یک مثال موردی در دهکده هزاره گرینویچ به آزمایش گذاشته شده است تا قابلیت اجرای آن مشخص گردد. نتیجه حاصل از این مقاله ارایه یک الگوی مفهومی با قابلیت اجرای مناسب برای بررسی و شناخت فضاهای شهری است که می تواند برای فضاهای شهری گوناگون در مقیاس‌های متفاوت بکار گرفته شود.

کلید واژه‌ها: فضای شهری، بررسی، الگو، دهکده هزاره گرینویچ، لندن، انگستان.

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Introduction

Urban spaces have had important role in urban life all the time. People, governments and groups have had main effect on the shaping of the urban spaces. They tried to operate their idea in the real spaces. When Industrial Revolution began, the concept, role and functions of the urban spaces became more significant. People and authoritarians have taken new solutions from different disciplines which have zoomed in the urban spaces such as Geography, Social Science, History, Management and Economic. So, some movements and schools such as Beautiful and Social Movements and Modernism Schools were formed and paid attention to these spaces more but many problems. A few problems removed but many problems were added. So, some urban spaces have heavily changed, expanded or neglected and the gap between urban theories and practices increased. After Information Revolution the essence of the urban spaces became more important because lots of information about them produced, in spite of that the structure of the many urban spaces was broken and many of them became as an indefensible, polluted, unfriendly, and unbalanced spaces with high traffic, which people preferred to run away from their cities. These factors affect on the urban spaces and have caused that the ambiguities of the theories and practices increase. As research methods are critical subject in any academic principle, in one hand, and urban design has paid little attention to the research methods(and it is clear by few research methods books in this field) on the other hand, this article has emphasised on the research methods. But, the fist step of the research methods which is survey and analysis, or generally cognition, is unclear, vague and discontinuity with full of information without any order among them. Because of this reason, this article has emphasised on the fist step of the research methods. Thus, to decrease the gap between theory and practice by proposing a new pattern for surveying and analyzing the urban spaces is the purpose of this article. Of course, the pattern is tested in the real world, that is, Greenwich Millennium Village in London city.

Literature Review

The literature of the urban spaces commonly covers five main periods of time. These periods show dominant thoughts and experiences in the survey of the urban spaces.The first period has been started from about the first century and lasted near the end of the middle Ages, in Europe. In this period, urban spaces were surveyed as part of the city and city life and there was holistic and integrated approach to the urban spaces. All of the urban spaces were as important as the other part of the city or even more important than them. The second period has been started from the end of the Middle Ages and lasted in to 1880s. In this period aesthetic aspects have been highly considered; and on this base, the urban spaces were surveyed by regard to the aesthetic aspects (Shirvani, 1985 and Lang, 1994). On the other hand, the study area often was a street or square (Sitte, 1945).

As, several leading artists of the period, including Gian Bernini, Leonardo da Vinci and Michelangelo, became involved in work to beautify cities. Other leading artists are Haussamnn and Camillo Sitte which has leaded to City Beautiful Movement. Also, early planned cities have considered aesthetic aspects elaborately (Benevolo, 1971 and Meltzer, 1997).

The third period has been started from the late 1700's to 1920s and even 1960s. The industrial revolution marked the beginning of this period. The population of the many cities, in Europe and North America, increased rapidly and thousands of workers left farms to take manufacturing jobs in cities. So, technologic-scientific aspects have been highly considered in building industry, urban facilities and urban spaces. New buildings with gardens and open spaces are proposed in separate zones and between 1900 and 1930 many local governments introduced zoning laws (Benevolo, 1971 and Meltzer, 1997). Therefore, urban spaces were surveyed with regard to the technologic-scientific aspects or logical approach,

in this time (Rittel & Webber, 1984; Alexander, 1968 and Moughtin, 1999) and the study area often was a city (Le Corbusier, 1971 and Lynch, 1976). Forth period has been started from the early 1900's to 1970's. In this period social reformers began to call on governments to improve city life. Many playing spaces for children, green and open spaces for meeting and leisure time, public spaces for social interaction, waterfront spaces and pedestrian spaces for leisure time are made. In other word, social aspects have been highly considered; and on this base, urban spaces were surveyed (Harplin, 1969; Davidoff, 1969; Jacobs, 1984; Benn and Gans, 1983; Rowe, 1987; Cross, 1984 and Madanipour, 1996) and the study area often was public and open spaces.

And finally, fifth period has been started from the early 1970's up to now. The release of greenhouse, acid rain and ozone depleting chemicals are all the results of modern city life which affect conditions generally. For improving the situations, various directives and research funding programs seek to improve the quality of life by insuring that environmental matters are taken in to account. With regard to these conditions, many urban spaces have been surveyed by sustainable approach in this period (Cross, 1984; Katz, 1994 and Edwards, 1999) and the study area often was mega cities or metropolitans (Mumford, 1961 and Katz, 1994). Thus, urban spaces have been surveyed based on one definite aspect and specific area of study on one hand and specific process on the other hand in the last four period; and they have not been surveyed based on the creation of the urban spaces, except Madanipour in 1995. He has mentioned that it is essential to consider the factors and agents, if academic and professional people have to survey the urban spaces. In this reason, one of the main theories in the theoretical framework of this article is based on this theory and the other one is New Urbanism. The synthesis of these theories is a new pattern to survey and analyze the urban spaces. This pattern is applied as exemplar case in GMV (Greenwich Millennium Village). Greenwich Millennium Village is located on the Greenwich Peninsula as the first phase of its development plans, and it has been placed in London Borough of Greenwich, south east London. It lies close to historic Greenwich, just across the Thames River from Canary Warf (Figure 1 and 2).

This site, historically, was first recorded, in 918 AD, as being an area of marshland. Later it turned into farmland and market garden, whilst the riverside remained for fisheries. Henry V is reported to have travelled down from Royal Palaces at Greenwich to exercise his falcons. There are tales of murderer, smugglers and villains too that they were creeping across the land and escaping toward the open sea. It was recorded that there was abundant wildlife, but with industrialization in the nineteenth century, much of the native wildlife was lost. In this time, the site has been used for a range of industries, manufacturing, munitions, chemical, steel, submarine cables, rope and

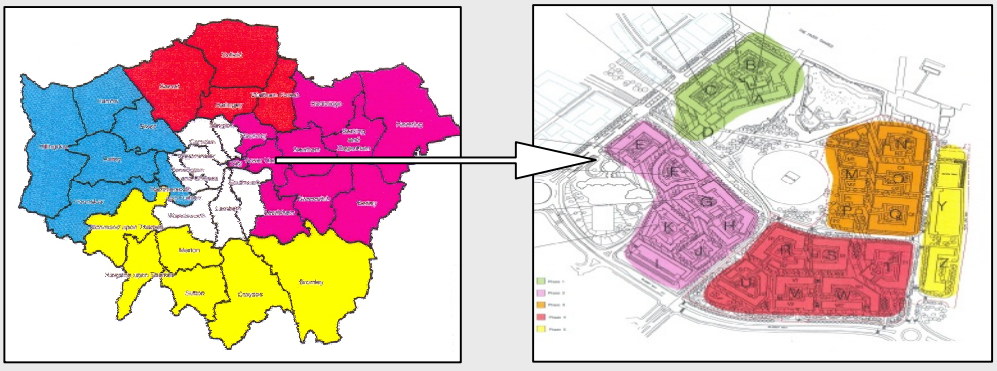

Figure 1. London City, 2004
(Source: The London Plan, 2004)

Figure 2. Greenwich Millennium village, 2004
(Source: Erskin – Tavatte, 2004)

soap. In 1860, gas and coal production started and was followed various industrial factories. In 1887, they become the largest gas work site in Europe. For almost 100 years they supplied gas to communities in South-east London.

By the mid-1980s Greenwich Peninsula and Greenwich Millennium Village was left largely derelict and polluted by industrial waste, and populated by unused areas of cars and empty roads. In 1996, The Richard Rogers Partnership won a new competition for the master planning of new sustainable community on the Peninsula. The Roger's plan was based on the concept of a new central business district at the top of the peninsula connecting to linear parkland and transportation corridor extending for 2 km down the spine of the peninsula. Later in 1996, Rogers designed a new exhibition hall to be built on the tip of the peninsula, which is called the Millennium Dome. In 1997, Ralph Erskine, in collaboration with Hunt Thompson Association, won design competition. In 1999, Greenwich Millennium Village began construction. Taylor Woodrow and countryside properties won the competition for the construction of this site. They formed Greenwich Millennium Village LTD to develop the project. In 2000, initial residents taking occupancy. Now, it is a model of the sustainable urban living for the new Millennium.

Materials and Methods

In this article, research strategy is combined strategy which consists of descriptive, qualitative Meta Analysis and case study. Descriptive strategy is heavily used for explaining the different theories on one hand, and explaining the GMV's conditions (Greenwich Millennium Village) on the other hand. Qualitative Meta Analysis strategy is basically used for introducing and proposing a pattern to survey and analysis the urban spaces. Finally case study is used for applying the pattern in GMV (Figure 3).

There are two major research methods in this article: those which attempt to explain theoretical discussions by descriptive, qualitative Meta Analysis strategy and those which try to operate the theoretical framework in the real world by case study. The first type draws heavily upon documental methods. The second type which derives much of its methods, tools and techniques from case study consist of observation, interview, documental and visual methods. Observation method is applied to observe the form of the buildings, the type of the functions, the social interactions and the environmental conditions in GMV; interview is applied to clarify the process of the urban spaces in five stages in GMV; documental method is applied to survey the plans, laws and regulations, maps and diagrams in GMV; and visual method is applied to take pictures from the important places and events in GMV.

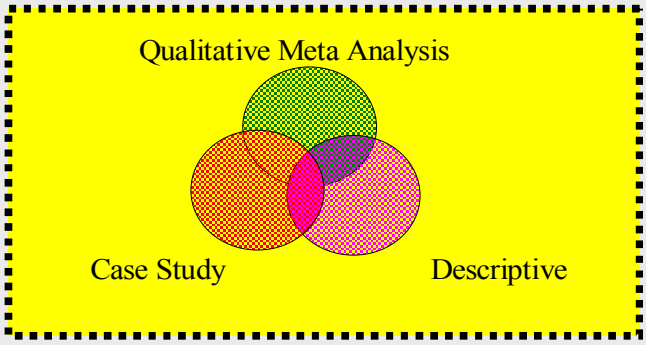

Figure 3- Combined strategy
Source: Author

Result and Discussion

Theoretical Results and Discussion

This article is mainly based on Madanipour's theory (Madanipour, 1995), which has been synthesised with New Urbanism process (Katz, 1994) for introducing a new process on one hand, and it is based on the 17 well-known authors' theories for clarifying the substance of the urban spaces on the other hand. Therefore, this article proposes a pattern for surveying and analyzing the urban spaces which is consisted of the process of the creation of the urban spaces and the substance of the urban spaces. This new pattern is named sustainable socio-spatial pattern.

Process

The process of this pattern is combined by Socio-Spatial process (Madanipour, 1995) and new urbanism process (Katz, 1994). This combination is made a process, which has three scales with five stages in each scale. It has explained in the following lines:

Macro Scale

It is the largest scale which covers regions, Metropolises, cities and towns for preparing development framework. It is consisted the five following stages:

- Planning: This stage determines development goals, strategies and policies and prepares development strategy planning or structure planning.
- Design: This stage designs development main structure for example liner, cluster, circle and grid.
- Development: This stage determines the name, situation, role, and responsibility of the developer (public, private or people) and performance time.
- Management: This stage determines the management or control of the area. It can be done by people participation or without them.
- User: This stage explains the number, sex, different age's groups and employment of people.

Medial Scale

It is middle scale which covers neighbourhoods, districts and corridors. It is consisted the five following stages:

- Planning: This stage plans for neighbourhoods, districts or corridors. It should be coordinated with higher-scale plans.
- Design: This stage designs main structure and the shape of the neighbourhoods, districts or corridors. It should design the centre, size and rang of the neighbourhoods, districts or corridors.
- Development: This stage determines performance time and clarifies the name, situation, role, and the responsibility of the agencies, organizes, developers (public, private) and even people.
- Management: This stage determines management, control and conservation of the human and natural environments. It can be done by people participation or without them.
- User: This stage explains the social, economic, cultural and ethnic characteristic of the users.

Micro Scale

It is the smallest scale which covers blocks, buildings and streets for preparing manuals and guidelines. It is consisted the five following stages:

- Planning: This stage determines planning guidelines for different levels with planning notebooks for all people.
- Design: This stage determines design guidelines in different levels.
- Development: This stage determines the quality of the construction material and clarifies the name, situation, role, and the responsibility of the agencies, organizes, developers (public, private) and even people.
- Management: This stage determines the name, situation, role, and the responsibility of the inspectors for making the safe environment, high people security and the conservation of the human and natural environments. It can be done by people participation or without them.

●User: This stage determines the number of the users, householders and families in term of their physical and temporal presence, age-wise, sexual, social, economic, cultural and ethnic groups. It should be explained the type of their vehicles too.

Substance

The substance of this pattern is the quality and essence of the urban spaces. Main qualities of urban spaces are technologic, aesthetic, social and sustainable. Each of these main qualities has been clarified by a few criteria. These criteria explain some of the main qualities of the urban spaces by their selves or sub-criteria.

Technologic qualities

This quality has been studied by modernists. They have showed the role of this quality in people welfare and convenience and their problem solving. Two main criteria, maximum use of the modern technology and efficiency, determine technologic quality in the urban spaces.

●Maximum use of the modern technology: It means the use of the modern, industrial and super-industrial technology, methods, techniques, and tools academically and systematically in the urban spaces (Le Corbusier, 1971 and Giedion, 1961).

●Efficiency: It means decrease the costs, increase the profits and increase the rapidity of the doing works in the urban spaces. High efficiency effects on the quality and quantity of the urban spaces (Le Corbusier, 1971 and Giedion, 1961).

Aesthetic qualities

This quality has been studied by formalists, culturalists and the other artistic disciplines. They have showed the role of this quality for increasing attraction in the urban spaces. Four main criteria, order, oneness, character and human scale determine aesthetic quality in the urban spaces.

●Connectivity: It means to link and join among elements or characteristics which are related to one thing in urban spaces. It some times means to affect and effect among elements or characteristics too. It can be consisted movements in one system. This criterion is consisted by three sub-criteria: visual, social and temporal connectivity.

●Visual connectivity: It means to link and join among physical elements or characteristics which are related to one thing in urban spaces (Sitte,1945; Cullen, 1971 and Zucker, 1970).

●Social connectivity: It means to link and join between physical and human elements or characteristics which are related to one thing in urban spaces(Cullen,1971; Zucker, 1970; Hillier and Hanson,1984).

●Temporal connectivity: It means to link and join between physical and human elements or characteristics with temporal events and happenings in urban spaces(Tschumi, 1983 and Mitchell, 1994).

●Oneness: It means intimacy, solidarity, uniqueness and matchless in urban spaces. This criterion is consisted by two sub-criteria: unity and variety. Unity makes convenience and variety makes dynamic.

●Unity: It means order for releasing chaos in urban spaces. Human always need minimum level of unity in his life, otherwise he has chaos (Ardalan and Bakhtiar, 1975; Bacon, 1975; Zucker, 1970; Alexander *& et al.*,1987; Kreier,1979; Trancik, 1986 and Kostof, 2004).

●Variety: It means contrast, multiplicity and diversity in urban spaces. Variety makes attraction in the urban spaces. It creates flexible spaces (Rapoprt, 1977; Venturi and *et al*, 1972; Appleyard, 1976; Jencks, 1986; Ellin, 1996; Loukaitou – sideris and Banerjee, 1998).

●Character: It means unique and single specific character in the urban spaces (Hiedegger, 1969; Appleyard 1976; Norberg-Schulz, 1980; Lynch, 1981; Rossi, 1982; Jackson, 1994; Arefi, 1999; Lawson, 2001; Jiven and Larkham, 2003).

●Human scale: It means to link between human and environment elements or characteristics for example in term of human size, high and safety in urban spaces (Sitte, C. 1945; Mumford, 1961; Zucker, 1970; Bacon, 1975; Jacobs, 1984; Rapoprt, 1977; Tibbalds, 1992; Urban Task force, 1999; Moughtin, 2003; Gehl and Gemzoe, 1996).

Social qualities

This quality has been studied by structuralisms and radicalisms. They have showed the role of this quality for increasing public spaces. Four main criteria, access, social inclusion, security and willingness determine social quality in the urban spaces.

●Access: It means the possibility of the use of the activities, spaces, information and resources in the urban spaces with the seeing possibility. This criterion is consisted by four sub-criteria: physical access, the access of the activities, the access of the information and resources and visual access.

●Physical access: It means the possibility of the use of the spaces for all people in the urban spaces (Lynch, 1981; Mitchell, 1999; Benn and Gaus, 1983; Calthrope, 1993; Madanipour, 1995; Tibbalds, 1992; Akkar, 2005).

●The access of the activities: It means the possibility of the use of the activities for all people in the urban spaces (Whyte, 1980; Benn and Gaus, 1983; Carr *et al*., 1992; Madanipour, 1995 and Akkar, 2005).

●The access of the information and resources: It means the possibility of the use of the information and resources for all people in the urban spaces (Benn and Gaus, 1983; Madanipour, 1995 and Akkar, 2005).

●Visual access: It means the seeing possibility of the urban spaces for all people(Newman, 1995; Jacobs , 1984 and Trancik, 1986).

●Social inclusion: It means the use of the urban spaces for all social, economic, cultural and ethnic groups of people, without any limitation (Harvey, 1973; Rapoprt, 1977; Whyte, 1980; Jacobs, 1984; Sennett, 1994 and Madanipour, 2004).

●Security: It means to make convenience and safe for users of urban spaces by controlling the environment (Trancik, 1986; Carr and *et al*, 1992 and Jacobs, 1984).

●Wants: It means to consider public and private wants, to pay attention to organs, agents, planners, designers, developers, users and different groups willing in urban spaces. This criterion is consisted by three sub-criteria: governmental and public wants, private and local wants and people wants.

●Governmental and public wants: It means to consider governmental and public wants in the urban spaces (Healy, 2002; Gehl and Gemzoe, 1996).

●Private and local wants: It means to consider private and local wants in the urban spaces (Healy, 2002).

●People wants: It means to consider different groups of people wants in the urban spaces (Arnstein, 1969; Lynch, 1981; Carr *et al*, 1992; Tibbalds, 1992; Sennett, 1994; Gehl and Gemzoe, 1996a and Healy, 2002).

Sustainable qualities

This quality has been studied by environmentalisms and naturalisms. They have showed the role of this quality for enhancing natural environments. Five main criteria, ecological awareness, compact shape, mixed use, best use of technology and stability determine sustainable quality in the urban spaces.

●Ecological awareness: It means to be well aware of ecological, climatic and geographic conditions in urban spaces for minimizing damages to the environment (Katz, 1994; Urban Task Force, 1999; Leccese and McCormick, 2000; Carmona and etc, 2003).

●Compact shape: It means to interweave physical elements and parts in a determined urban space (Mumford, 1961; Rapoprt, 1977; Lynch, 1981; Tibbalds, 1992; Katz, 1994; Urban Task Force, 1999; Hilderbrand, 1999; Carmona and etc, 2003 and Moughtin, 2003).

- ●Mixed use: It means to gather different functions in urban spaces(Mumford,1961; Rapoprt,1977; Jacobs, 1984; Tibbalds,1992; Gehl and Gemzoe,1996; Urban Task Force,1999; Carmona and etc,2003 and Moughtin, 2003).
- ●The best use of the technology: It means to use of modern and academic technologies suitably in urban spaces for minimizing damages to the environment (Arendt, 1958; Mumford, 1961; Tibbalds, 1992; Urban Task Force, 1999 and Katz, 1994).
- ●Stability: It means to last and increase lifetime of the urban spaces for delivering them to the next generation (Tibbalds, 1992; Katz, 1994; Urban Task Force, 1999 and Carmona and etc, 2003).

Therefore, this pattern uses two different approaches for surveying the urban spaces: procedural and substantial approaches. Each of these approaches focuses on a specific aspect or dimension.

Procedural approach

This approach emphasis on the creation of the urban spaces serially. It is concerned on the following characteristics too:

- Procedural approach occasionally focuses on the different agents of the creation for surveying the urban spaces.
- It sometimes considers the different factors which affect on the creation of the urban spaces.
- It pays attention to the different time of the creation of the urban spaces now and then.
- It focuses on the move-oriented (top to down or down to top) from time to time.

Substantial approach

This approach emphasis the nature, essence and quality of the urban spaces. It is concerned on the following characteristics too:

- Substantial approach sometimes considers the technologic qualities of the urban spaces.
- It focuses on aesthetic qualities of the urban spaces.
- It pays attention to social qualities of the urban spaces now and then.
- It considers the environmental qualities of the urban spaces from time to time.

Thus, this article is a synthesis of these two approaches which has proposed a conceptual pattern with all above characteristics.

○***Practical Results and Discussion by applying the conceptual pattern in GMV***

Sustainable socio-spatial pattern has consisted from two main parts: process and substance, as mentioned above. Process has three scales with five stages in each stage and substance has four main qualities. As testing this pattern has needed long time, more information and costs, Greenwich Millennium Village as an exemplar case is chosen and the pattern only has been applied in Medial Scale.

Process

According to the pattern, the process of the creation of the urban spaces in Greenwich Millennium Village should be explained, for understanding and analyzing them. This process is made of planning, design, development and management and user stages.

Planning

London Borough of Greenwich is planning authority and Montag Evans is as planning consultant in GMV. Greenwich Millennium Village Masterplan falls within the larger Greenwich Peninsula Masterplan, which was created by a team including world known architects, Richard Rogers Partnership. However Greenwich Peninsula Masterplan is base on Greenwich Unitary Development Plan (Richard Rogers Partnership Masterplan,1997 and Greenwich Council,2004).

Greenwich Unitary Development Plan strategy focused on three main themes: equality and social inclusion; sustainable development; and regeneration (Greenwich Council,2004).

Richard Rogers' Masterplan focused on the creation of jobs; use of new energy and water saving standards; making use of modern building

techniques and off-site manufacture of materials; using good quality design and planning; promoting pedestrian transportation and creating a sustainable social mix (Richard Rogers Partnership Masterplan, 1997).

GMV planning has created a residential, mixed-used and vibrant neighbourhood with an integrated transport network into coherent and ecologically friendly whole, where people want to live, to work and to enjoy a high quality of life. GMV has offered a mix of the housing tenures, affordable and private apartments and houses with a range of different density and ownership options, such as full-buy, part-buy and part-rent(English Partnerships and Housing Corporation. 2000; Erskin-Tovatte, 2004).

GMV has been divided into five main phases of development. Phase one has been planed for residential uses and a few commercial function with the highest density. Phase two has been planed for residential and educational function and a health centre and live/work units and a few commercial functions with the lowest density. Phase three has been planed for residential and commercial function and sport uses and community centre and Yacht Club with medium density. Phase four has been completely planed for residential function with medium density and Phase five has been planed for no residential function, only for commercial function, sport uses and CHP plant with low density (www.greenwich-village.co.uk; www.aa.uidaho.edu; Mulholland Research & Consulting, 2003).

Design

GMV design is the result of approximately seven years of design work, since English Partnerships submitted a masterplan for the entire Greenwich Peninsula in 1997. The GMV Masterplan, produced by the architects Erskin Tovatt, was developed within the framework of this Peninsula Masterplan. Then GMV Masterplan revised and prepared by Erskin Tovatt Architects and Planners in association with EDAW. Erskin's masterplan for Greenwich Millennium Village is not just residential. It also includes a community centre, a primary school, a health centre, shops, cafes, bars and offices. The Village is grouped in communities around a large village green and an artificially created lake, with links the river and the rest of the Greenwich Peninsula via green corridors (Erskin-Tovatte.2004).

Development

The GMV developer is GMV Ltd. GMV Ltd is a joint venture development by Countryside properties plc and Taylor Woodrow Developments Ltd in association with English Partnerships. GMV Construction works took approximately seven years, and involved the clearance and removal of vegetation and topsoil, the implementation of service infrastructure such as roads and statutory services and construction of residential buildings (Hawley and Handkinson, 2001; Mulholland Research & Consulting ,2003).

Management

The owner of the GMV lands, at first, was British Gas Company. English partnerships, then, bought the lands from the Company and sought a private sector partner that shared its commitments to Greenwich Millennium Village by joint venture development, Countryside properties plc and Taylor Woodrow Developments Ltd. These three companies established GMV Ltd. In GMV Ltd, GMV Management ltd does GMV management. GMV Management ltd was set up to be responsible for the long-term management of the Village. It is a member of the Greenwich Peninsula partnership and made a significant financial contribution. It supports/supported social works and other occasional events too. GMV Ltd in conjunction with English Partnerships is responsible about car parking in Village. They intend to provide a maximum of 3o secure car parking spaces located on the phase 5 sites, suitable for cars and trailers for the sole use of

the adjoining Greenwich Yacht club. This company will ultimately be owned by the residents/owner and thus will determine the standards they require (www.greenwich-village.co.uk). On the other hand, some commitments of GMV Management is done by Community Development Manager who is working with the growing number of residents, who expressed a particular interest and formed E-team for taking a keen interest in local management issues. People have high security in GMV by CCTV coverage in the streets, parks and open spaces, the effective street lighting and permanent security guards.

Users

Users are different groups of people, who are from different ages, sexes and countries, who have different disabilities and religion, and who are able to rent or share affordable or private houses.

Users' access to the spaces and activities have done by foots and bicycle for short trips and by bus and train for long trips because, the Village is looking to discourage unnecessary use of cars by making public transport, walking and cycling the easy option. In addition, privet vehicles are being kept away from the Village streets in dedicated parking areas. These off-street parking areas are being incorporated into the design of the village, utilising all available spaces (Erskin-Tovatte, 2004).

Most of the users are employed as London's key workers, teachers and nurses.

Substance

According to the pattern, the process of the urban spaces in Greenwich Millennium Village includes four main qualities: technologic, aesthetic, social and sustainable quality. Each of these main qualities has been clarified by a few criteria.

Technologic qualities

This quality is related to academic and modern developments and affect on welfare and convenience. Two main criteria, maximum use of the modern technology and efficiency, determine technologic quality in the urban spaces, in GMV.

- Maximum use of the modern technology: New modern advanced technologies such as using the solar system and CHP system with using internet and digital services and remote control are applied for residents in GMV (Hawley and Handkinson, 2001; Mulholland Research & Consulting ,2003).
- Efficiency: Reduction in construction costs, primary energy, embodied energy, construction waste, water use and project duration with increase the profits and the speed of the works, by establishing a small factory for the construction of metal frameworks, using timber-clad buildings, using the high levels of insulation, selecting materials carefully at design and construction stage, CHP system, have shown high efficiency in the urban spaces, in GMV (Hawley and Handkinson, 2001; Mulholland Research & Consulting , 2003).

Aesthetic qualities

This quality is related to the urban forms and culture and artistic urban issues and has focused on the beauty and attractiveness in the urban spaces. Four main criteria, order, oneness, character and human scale determine aesthetic quality in the urban spaces.

- Connectivity: It links and joins physical elements or characteristics together. This criterion includes three sub-criteria: visual, social and temporal connectivity (Figure 4).
- Visual connectivity: The buildings in GMV relate to each other in term of similar colours and types of materials and similar features e.g. balconies. Visual connectivity in GMV is like a Lego land. In GMV, the spaces between the buildings are defined by the buildings themselves. They form linkages and a rout through the site.
- Social connectivity: The external spaces are connected to surrounding features. Buildings and urban spaces have been constructed to promote positive social interaction, to arrange the various committees and to create a spirit of neighbourhood in GMV.

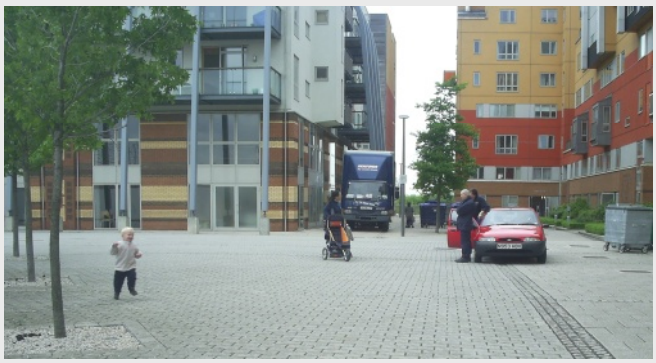

Figure 4. Visual, Social and Temporal connectivity in GMV
Source: Author

- Temporal connectivity: Planning, design and construction in GMV do belong to the 21st Century. In GMV, people often came with cameras and took pictures and said" this is 21st Century living!" The spaces also pedestrian oriented and are constructed for ease of access for the disabled.
- Oneness: Uniqueness and matchless is a criterion which is consisted by two sub-criteria: unity and variety. Unity makes convenience and variety makes dynamic in urban spaces (Figure 5).
- Unity: GMV is a cohesive urban neighbourhood that made an ecologically friendly whole with series of five integrated clustered groups around an interconnected network of streets, squares, gardens, open spaces, services, leisure facilities and the existing riverside walk. Of course, each group is further subdivided into smaller, horseshoe-shaped "gossip groups" which interconnected together and to the whole, as there is no desperation in a whole of the neighbourhood. So, there is a unity in GMV.
- Variety: According to the forms, there are different colures, textures, extensive use of the glass, different materials include spilt bricks, corrugated panels, timber cladding and zinc sheet in GMV urban spaces. According to the functions, there are different residential, commercial and educational functions, a health centre, green space, open space, waterfront space, sport and leisure facilities and services with different functions of public spaces- civic spaces, multi use game area, neighbourhood play area and local play area.

Figure 5- Unity and Variety in GMV
Source: Author

●Character: GMV has different character.

Pedestrian orientation made a community with human scale character. Small scale streets with limited disable parking and semi-public rear landscaped courtyard, with parking below, created a calm and quiet character. Variation in the elevation height and façade of the buildings with different colures and textures and extensive use of the glass, different materials include spilt bricks, corrugated panels, timber cladding and zinc sheet made an attractive character. Monumental stone is other character of GMV which is written the name of people who worked in British Gas Co. and were killed in war world 2 (Figure 6).

Ecology Park, which is a symbol of sustainable neighbourhood in this era, reminds the long past life of the site (Figure 7).

With these different characters of GMV, all residents can feel a sense of pride.

●Human scale: As GMV has been principally designed for the pedestrian and gives priority generally to people over cars, and it works for the people, the Village is human in scale. Although GMV has high buildings, but different colours break the height and it seems human in scale (Figure 8).

Figure 6. Monumental stone (Source: Author)

Figure 7. Ecology Park (Source: Author)

Figure 8. Human scale (Source: Author)

Although, some of the buildings are quit tall, their setting around open spaces with different colours break height and give them a more human scale.

Social qualities

This quality is related to social interactions among people and users of urban spaces. Four main criteria, access, social inclusion, security and wants determine social quality in the urban spaces.

- ●Access: the possibility of the use of the activities, spaces, information and resources in the urban spaces with the seeing possibility of each corner of the urban spaces is high in GMV. This criterion includes four sub-criteria: physical access, the access of the activities, the access of the information and resources and visual access.
- ●Physical access: Pedestrian-friendly streets, cycle routes with public transportation linked key elements and provide easy access for all people in the urban spaces, in GMV (Erskin-Tovatte, 2004).
- ●The access of the activities: Everyone has access to the different activities in the neighbourhood, without any limitation, in GMV (EDOW, 2004).
- ●The access of the information and resources: Everyone has access to the information and resources in the neighbourhood. The access to the information and resources can be done by these 3 ways, in GMV:
  - GMV Life: It produced by GMV ltd is the main vehicle for communication of information from developers to residents (Hawley and Handkinson, 2001; Meridian Delta Business Centre, 2005).
  - GMVonline website: it is increasingly becoming the main interchange of information and discussion in the village. By this website, residents can link the Forum@Greenwich. The Forum is a major source of information and contacts in wider community.
  - Village Voices: It provides a regular, informal overview of Village activities. It is as like as a newsletter which issues on a regular basis, e.g. monthly. It is written articles about events and activities in GMV with useful contacts.

These accesses are done by high-speed internet (Hawley and Handkinson, 2001) and digital services through the neighbourhood.

Of course, in urban spaces of GMV, there are bus timetables and Ecology Park which has some information panels in it.

- ●Visual access: Every thing is clear and visible in urban spaces, GMV. Users have a good visual access especially to the River, Ecology and Central Park, Open spaces and all other urban spaces. So, no one has privacy in urban spaces, in GMV, except when man is only inside of his-self or his house (Figure 9).

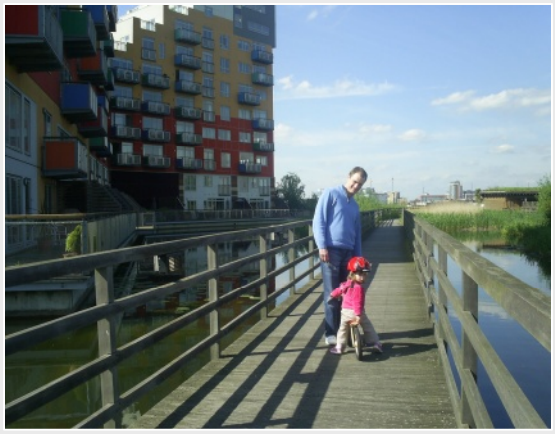

Figure 9. Visual access (Source: Author)

- ●Social inclusion: There is the provision of rang of community facilities and opportunities for all ages and different interests of different religion, cultural, ethnical and economical groups of the people without any limitation in GMV urban spaces (GMV, 2004; Greenwich Council, 2004). So, this new community can include everyone. It is a healthy community, because a varied mix of household type, cultural background and lifestyles creates a more interesting, vibrant and successful community.
- ●Security: Observation has shown that there is a sense that high density of people and high enough buildings with CCTV coverage of the neighbourhood, the effective street lighting and permanent security guards made the area feel safe for pedestrian and users of urban spaces around, in GMV.
- ●Wants: Consider public and private wants, pay attention to organs, agents, planners, designers, developers, users and different groups' wants is important in urban spaces. This criterion is consisted by three sub-criteria: governmental and public wants, private and local wants and people wants.
- ●Governmental and public wants: London borough of Greenwich's wants and other public sector partner's wants have been considered by assessing the application in term of national and regional policies and considering any representations they make on the applications (CNU XI, 2003 Greenwich Council, 2003 and Greenwich Council, 2004).
- ●Private and local wants: English Partnerships' wants Countryside properties' wants and Taylor Woodrow's wants and other private sector partner's wants have been paid attention by considering the material in their application documents and during discussions and meetings (Meridian Delta Business Centre, 2005; EDOW.2004b; English Partnerships and Housing Corporation. 2000).
- ●People wants: The GMVA was built with residents who were asked for their view of what they wanted on their site. They could/can explain about their want, interesting and willing through the public consultation exercise during the planning applications. Their comments then formed the basis of the navigation plan (GMV, 2006). So, the Village caters to the needs of its people- present and future.

Sustainable qualities

This quality is related to natural and man-made environments. Five main criteria, ecological awareness, compact shape, mixed use, best use of technology and stability determine sustainable quality in the urban spaces.

- ●Ecological awareness: According to aspect and climatic conditions, the site has been made to combat the prevailing windy conditions experienced on the Peninsula by protective wall in front of the icy winds and by different windows in terms of the size, shape and materials in GMV. So, there was an ecological awareness in design and construction works of GMV.
- ●Compact shape: Observation has shown that GMV has massive, concentrated and compressed buildings in different groups with different uses for living, working and enjoying, and all parts will be within about 15mins walking distance of each other. It has a compact shape (Figure 4).
- ●Mixed use: A range of functions and uses is seen for all GMV residents. These functions and uses are educational and commercial functions with health centre, offices and light industrial spaces, nursery school, public open space, green space and play and sports facilities (EDOW, 2004).
- ●The best use of the technology: By using of the modern technology, it is possible to provide high levels of thermal insulation for creating energy efficient buildings. Not only does saving energy reduce costs but it also maintains a better environment with reduced greenhouse, gas

emissions and pollution (Meridian Delta Business Centre, 2005).

Also, by using of the modern technology, each building has been designed and constructed specifically to explore the development of sustainable housing design and to pioneer building methods that minimize impact on the environment. They made shielding in the site from icy wind and maintain daylight for different activities, and save energy from artificial lighting in urban spaces too ((Erskin-Tovatte, 2004).

So, it is possible to minimize damages to the environment by the usage of the modern and academic technologies.

●Stability: The study has shown that all buildings and spaces are warranted for at least 10 years. Buildings and spaces have increased their lifetime by using high quality, resistant and standard materials, PVC windows, permanent monitoring and controlling the site, training to the residents for well protecting the site and doing services and plans of prevention of demolition.

Therefore, it is used from two different approaches for surveying the urban spaces in GMV: procedural and substantial approaches and includes the following characteristics:

- It is focused on the different agents of the creation of GMV urban spaces for surveying.
- It is considered to the different factors affect on the creation of the urban spaces in GMV survey.
- It paid attention to the different time of the creation of the urban spaces in GMV survey.
- It focused on the different scales of the urban spaces (macro, middle and micro) in GMV survey.
- It is considered to the technologic qualities of the urban spaces by using two main criteria, the maximum use of the modern technology and efficiency in GMV survey.
- It is focused on aesthetic qualities of the urban spaces by using four criteria, connectivity, oneness, character and human scale in GMV survey.
- It is paid attention to social qualities of the urban spaces by using four criteria, access, social inclusion, security and wants in GMV survey.
- It is considered the environmental qualities of the urban spaces by using five criteria such as ecological awareness, compact city, mixed use, the best use of the technology and stability in GMV survey.

Conclusion

This article proposed the conceptual pattern for surveying the urban spaces. Urban spaces are complex and multi-layered spaces which their surveying base on real world affects on their alternatives for problem solving or improving the quality. This survey can clarify to the concept of the urban spaces and reduce the crises which are in urban theories and practices. The conceptual pattern includes two different approaches in surveying the urban spaces: procedural and substantial approaches. However each of these approaches focuses on a specific aspect or dimension, but this article emphasises on the most aspects of the surveying the urban spaces base on the real world. This pattern includes the following characteristics:

- This pattern focuses on the different agents of the creation of the urban spaces, such as people, planners, designers and etc.
- It considers the different factors which affect on the creation of the urban spaces, such as social, economical and environmental factors.
- It pays attention to the different time of the creation of the urban spaces from the plan to the use of the urban spaces.
- It focuses on the different scales of the urban spaces, such as macro, middle and micro scale.
- It considers the technologic qualities of the urban spaces by using different technological criteria and sub-criteria.
- It focuses on aesthetic qualities of the urban spaces by using different aesthetic criteria and sub-criteria.

- It pays attention to social qualities of the urban spaces by using different social criteria and sub-criteria.
- It considers the environmental qualities of the urban spaces by using different environmental criteria and sub-criteria.

So, the usage of the pattern in GMV has shown that:

* The real survey of the urban spaces in GMV coordinates with sustainable socio-spatial process of the pattern in this research, because five main stages of the creation of the urban spaces: planning, design, development, control and use are tested as part of the conceptual pattern in the Greenwich Millennium Village, in London city.

* The quality survey of the urban spaces in GMV coordinates with the sustainable socio-spatial substance of the pattern in this research, because four main qualities: technical, aesthetic, social and sustainable qualities are tested as part of the conceptual pattern in the Greenwich Millennium Village, in London city.

Therefore, as both procedural and substantial approach are tested as a conceptual pattern in the Greenwich Millennium Village, in London city, so this pattern has been considered as a new practical approach in the real world for surveying the urban spaces.

Acknowledgements

Thanks to British Council officers in Iran to their scholarship and International Affair in University of Tehran, Dr Faezipour to his permission for completing my study in Britain.

Notes

foe more information, look at: English Partnerships,2004:5; Erskin-Tovatt,2004:4; www.greenwich-village.co.uk; www.aa.uidaho.edu

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