

A Design Methodology for Urban Sustainability: Principles and Practice for Livable Communities

Dr. Mostafa Gharib Mostafa Abdou

Department of Architecture,
Faculty of Engineering, Al-Azhar University
Postcode 11371, Nasr City, Cairo, Egypt
E-Mail: mgmabdou@yahoo.com

Abstract

The research discusses the social progress as an important factor in the built environment, which the author believes that it has been left off from the sustainable and livable community agenda too often in the past. Sustainability should encompass not just fabric of buildings, although that is important, but also what we call '*the People Factor*'. Moreover, urban area is sustainable if every user has the opportunity of access a home that is decent, if it promotes Social Cohesion, well-being and self dependence. That is the research aim.

On one hand, the research shed light on the good efficient community which provides better environments for peoples living on them as well as reducing the impact on the natural environment, and on the other hand it looks into the different perspectives on Sustainable urbanism, and is subject to distinct design parameters. The approach to the research objectives is based on two methodologies:

- **Deductive:** a theoretical investigation based on the properties of the urban sustainability, definitions, principles of design, and the dilemma of achieving sustainable development is as much cultural as technical.
- **Inductive:** a reviewing of case studies as samples of livable communities. The conclusion to this part is based on a features analysis of the case studies.

Finally, the research puts simply triangular structural model between society today, environmental resources and society's future needs.



1. Introduction

Sustainable development is the challenge of meeting growing human needs for natural resources, industrial products, energy, food, transportation, shelter, and effective waste management while conserving and protecting environmental quality and the natural resource base essential for future life and development. This concept recognizes that meeting long-term human needs will be impossible unless we also conserve the earth's natural physical, chemical, and biological systems [1, P.15].

Sustainable development is viewed as comprising the environmental, socio-cultural and economic dimension. Thirty-five key indicators were defined to measure the three dimensions of sustainability, such as air pollution, consumption of natural resources, quality of open space, population exposure to air pollution and noise, equity and opportunities and economic benefits from transport and land use [2].

For instance, the 'Charter of European Cities and Towns towards Sustainability' states that the main basis for sustainable development is:

"...to achieve social justice, sustainable economies, and environmental sustainability. Social justice will necessarily have to be based on economic sustainability and equity, which require environmental sustainability" [3].

The first part of the paper introduces the literature review of the urban sustainability issues and goes in detail to the Social Sustainability as a catch word of the times and as it appears everywhere in our life now days. The second part presents a case study for sustainable community testing the livable community principles which the paper concludes in the end of first part. The paper concludes with reflections on how successful strategies to enhance the long-term sustainability of urban communities can be developed.

2. Urban Sustainability

"The built fabric of the city is only half the equation, without the social, cultural and political processes, the city's fabric is but an empty shell" [4, p.39].

A foundation to urban sustainability is overriding objectives to achieve a high quality of life for whole community within a socio-economic framework that minimizes the impact of the city on local and global environment. For it to be successfully realized, the city must tackle the dimensions of sustainability: social, ecological, as well as economic. Sustainable cities ensure well-being and a good quality of life for citizens, are environmentally friendly, the socially integrated and just.



There is no shortage of ideas for how *environmental sustainability* can be achieved [5, pp.24-26]:

- Use of renewable energy and dramatic increase in energy efficiency.
- Recycling and reuse of materials.
- Food production within cities.
- An end to edge-of-town retail, leisure and business development to protect the countryside and retaining jobs in cities.

Fundamental to achieving progress towards sustainability is an economy that concentrates on well-being and quality of life for all. Essentially, the economy should be regarded as being inextricably linked to the livelihoods of its residents, rather than simply as the production, consumption and possession of commodities. The relationship between the economy, society, and environment needs addressing with the recognition that one cannot exist without others. Human life, activity and culture depend on their wider environment [6, pp.25-42].

Lozano (1990) argues that the city is a realm with a high level of culture linked with the most civilized expression of social behavior. Mumford (1970) described the city as the most advanced work of art of human civilization [5, pp.24-26].

Consequently, goals to make *communities more sustainable* have been formulated [7, p.20]:

- Minimizing the consumption of space and natural resources,
- Rationalizing and efficiently managing urban flows,
- Protecting the health of the urban population,
- Ensuring equal access to resources and services,
- Maintaining cultural and social diversity.

2.1. Social Sustainability for the Built Environment

Sustainable urban development has been proposed as a revalidation of urban living, in contrast with the geographically dispersed city and the high levels of personal mobility that have increasingly become the norms. *Urban sustainability* is commonly interpreted to mean increased residential densities, a more intense mixing of social groups and functional activities, and reduced spatial mobility. For this concept to work, people should accept the ideas of living closer together in their communities, and in close to a variety of different people in more heterogeneous neighborhoods and residential districts [8]. This will mean significant social



change, and behind it is an implicit notion of '*social sustainability*', a pattern of social relations within the city that more sustainable than current patterns. Such a notion is therefore both a critique ⁽¹⁾ of the social condition of the city today and a proposal for a more harmonious way of life in the future (Fig.1).

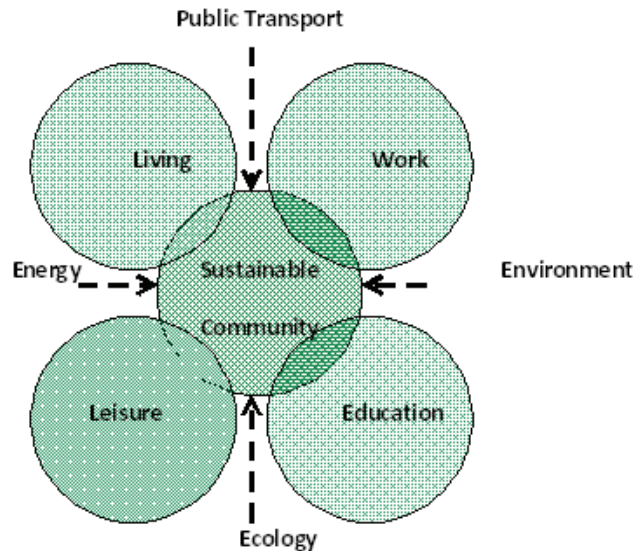


Fig. 1: Key Relationships in Sustainable Community [9, p.35].

2.2. Achieving Social Sustainability

Achieving social sustainability is a prerequisite both for environmental and economic sustainability, which will be necessity take place in the urban realm. Despite being closely associated with crime and vandalism, deprivation, unemployment, deteriorating infrastructure, inner-city decay, socio-economic problems and neighborhood collapse (i.e. the most serious symptoms of unsustainable development), the city nevertheless provides the greatest opportunities for their remedy. Young (1996) argues that no design will be sustainable if it does not recognize the complex interrelationship of the physical and cultural [10, p.7] (Fig.2).

Urban intelligence has social sustainability processes is very often divorced from its *Burndtland* origins, where it was expressed in terms of the need for development to ensure greater social sustainability (locally and globally), while acknowledging the limitations imposed by the environmental context. If cities are to strive for sustainability, urban governance and policy should be directed at achieving urban intelligence [4, pp.45- 48] (Fig.3).

This understanding of what constitutes city intelligence leads to a consideration of the city from a holistic viewpoint as the sum of a number of systems:

(1) ⁰ The social critique of the city is a reaction against the consequences of dispersal, segregation, and exclusion.

namely economic, social and environmental. These systems are fundamentally integrated, and the health of the city overall relies on achieving a dynamic balance between these potentially competing interests. The city is not static; it is a dynamic system in which the key to its long-term health and success, or its intelligence, will be its capacity to adapt to change. Like any ecological system, the key to this capacity is diversity [4, p.40] (Fig.4, 5).



Fig. 2: The Urban Environment may be the Scene of Great Socio-Economic Inequity Especially in the Developing World With Its Large Populations of Urban Poor: Cairo, Egypt [11].

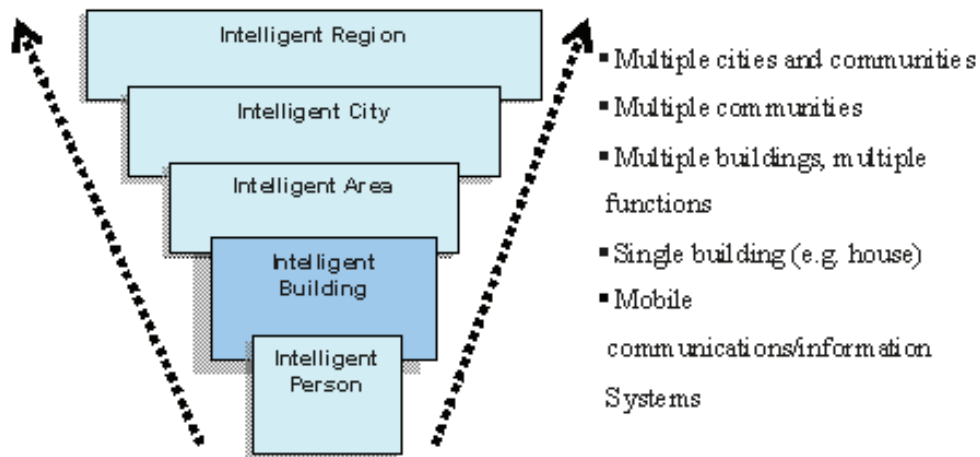


Fig. 3: Intelligent Building (e.g. House) in the intelligent organizational networks hierarchy [4, p.36].

According to this review, urban success results from the interaction of four linked elements, which they term ***‘Intelligent City Indicators’***. These are as follows [4, p.40] (Table 1):

•***Economy***: concerned with turnover, investment and employment, and measured over time against turnover per unit of floor space, number of planning applications, business starts and closures, retail expenditure and demographics.

•***Accessibility***: concerned with transport, and measured through infrastructural capacity versus extent of congestion.

•***Property***: concerned with space, and measuring return, take-up (a function of



demand) and change of use, against vacancy rates, comparative yield, intensity of land use, building quality and open space.

•**Environment:** concerned with safety and security, ambience and conviviality, and local partnership and commitment assessed in terms of availability (the number of hours the environment is active), sense of place, cleanliness, amenities and key attractions.

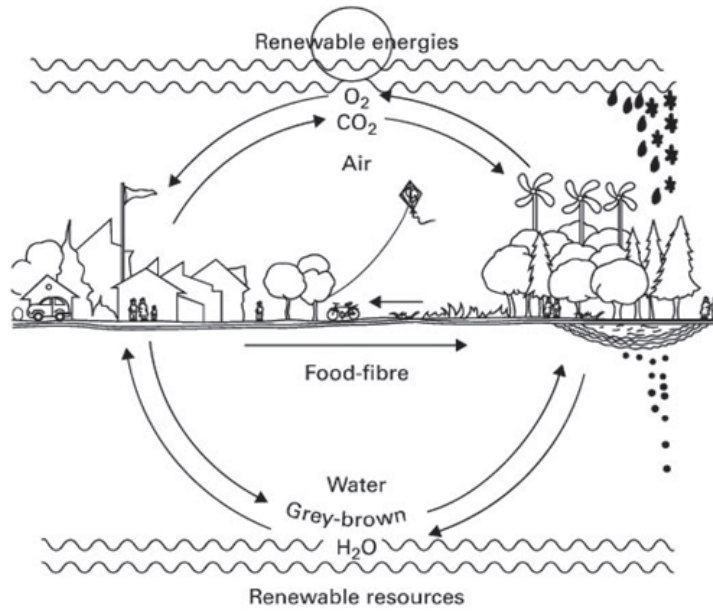


Fig. 4: Pullman's ecological systems diagram: Intelligent Community Sustainable and Ecological UrbanSystem [12, p.228].

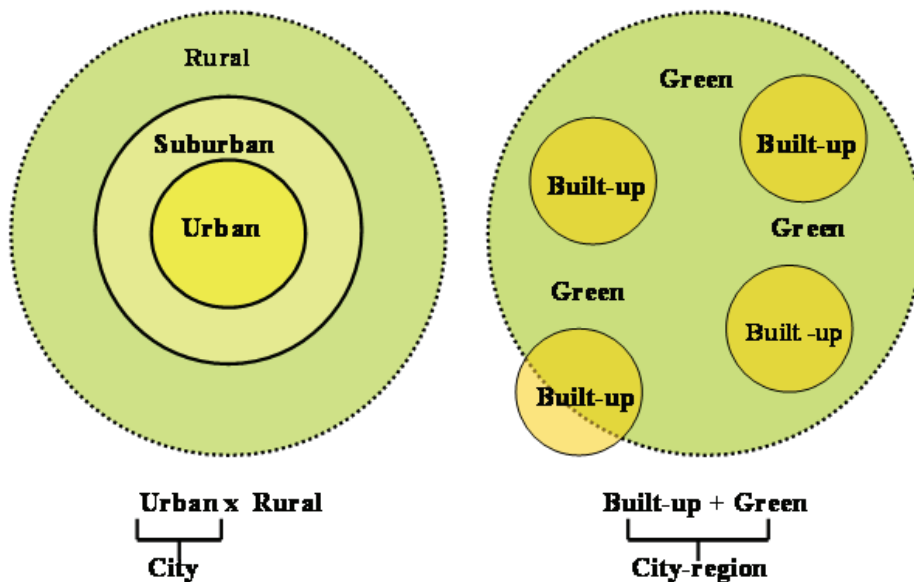


Fig.5: The Green Urbanization Concept compared with Traditional one and the city-region [13, p.59]

Table 1: Benefits of Intelligent Community to different Stakeholders
(Source: The Author after Edwards, B., 2005)

| Stakeholder | Government | Developers | Design team | Occupants |
|-------------|---|---|--|--|
| Benefit | <ul style="list-style-type: none"> •lower health risks; •helps achieve international obligations; •good national or regional image | <ul style="list-style-type: none"> •enhance business efficiency; •reduced long-term cost; •greater competitiveness through energy conservation; •Improved construction company image. | <ul style="list-style-type: none"> •higher profile; •better customer focus; •improved team working between industry players; •Greater standardization. | <ul style="list-style-type: none"> •improved health workplace; •stimulating working environment; •greater attention to stress and comfort; •Improved productivity. |

2.3. Sustainable Community Initiative Stakeholders

Most sustainable communities are high-quality communities; they last longer, cost less to operate and maintain, and provide greater occupant satisfaction than standard developments. Sophisticated investors and developers prefer them, and are often willing to pay a premium for their advantages. What surprises many people unfamiliar with this design movement is that good sustainable buildings often cost little or no more to build than conventional designs. Commitment to better performance, close teamwork throughout the design process, openness to new approaches, and information on how these are best applied are more important than a large construction budget (Table 2).

Table 2: Key Initiatives Sustainable Community Solutions from Different Stakeholders
(Source: The Author after Edwards, B., 2005)

| Brief | Design | Construction | Use | Re-use |
|---|---|---|--|--|
| <ul style="list-style-type: none"> •Put green issue into brief •Consult with user •Anchor brief into government policy/ initiatives on environment | <ul style="list-style-type: none"> •Put green approach into design at early stage •Consider impact of materials on environment and health •Appoint green consultants | <ul style="list-style-type: none"> •Waste mineralization •use recycled materials •promote gender and environmental best practice | <ul style="list-style-type: none"> •Give users control over environment •Create healthy spaces •Allow for change in use space | <ul style="list-style-type: none"> •Design for re-use •Robust Constructor for long life •Allow for access to renewable energy over time |
| Client | Architect | Builder | User | Future User |



2.4. AIA's 10 Principles for Livable and Sustainable Communities: A Practical Social-Based Model

These principles comprise a conceptual framework for livable and sustainable communities design. This framework is intended to help designers seek solutions rather than giving them a set of solutions. Specific design solutions compatible with a given design problem will emanate from these principles which provide the foundation to create economically viable, healthy, sustainable communities [14, pp.54-55]:

2.4.1. Design on a Human Scale: Compact, pedestrian-friendly communities allow residents to walk to shops, services, cultural resources, and jobs and can reduce traffic congestion and benefit people's health.

2.4.2. Provide Choices: People want variety in their urban areas (housing, shopping, recreation transportation, and employment). Variety creates lively neighborhoods and accommodates residents in different stages of their lives.

2.4.3. Encourage Mixed-Use Development: Integrating different land uses and varied building types creates vibrant, pedestrian-friendly, diverse communities.

2.4.4. Preserve Urban Centers: Restoring, revitalizing, and infilling urban centers take advantage of existing streets, services, and buildings and avoid the need for new infrastructure. This helps to curb sprawl and promote stability for city neighborhoods.

2.4.5. Vary Transportation Options: Giving people the option of walking, biking, and using public transit, in addition to driving, reduces traffic congestion, protects the environment, and encourages physical activity.

2.4.6. Build Vibrant Public Spaces: Citizens need welcoming, well-defined public places to stimulate face-to-face interaction, collectively celebrate and mourn, encourage civic participation, admire public art, and gather for public events.

2.4.7. Create a Neighborhood Identity: A "sense of place" gives neighborhoods a unique character, enhances the walking environment, and creates pride in the community.

2.4.8. Protect Environmental Resources: A well-designed balance of nature and development preserves natural systems, protects waterways from pollution, reduces air pollution, and protects property values.

2.4.9. Conserve Landscapes: Open space, farms, and wildlife habitat are essential for environmental, recreational, and cultural reasons.

2.4.10. Design Matters: Design excellence is the foundation of successful and healthy communities.



3. Case Study for Sustainable Community: The Georgie Millennium Project, Car-Free Development, Slateford Road, Edinburgh, Scotland, UK⁽²⁾. (Designed by: Hackland & Dore, R. Slateford, 2000)

3.1. Overview

Edinburgh's millennium housing project was the subject of an architectural competition in 1997 commissioned by the *Canmore* housing association, the Royal Incorporation of Architects in Scotland and Scottish Home [15, p.298]. The project demonstrates the financial viability of housing for sale that is car-free and incorporates sustainable construction methods (Fig.6).

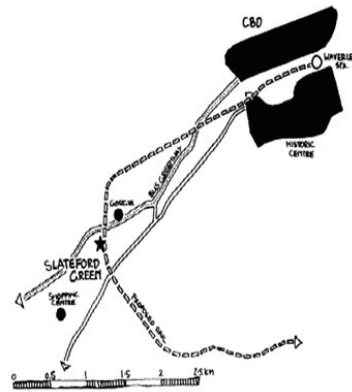


Fig.6: Location of Slateford Green in relation to Edinburgh's CBD, transport routes and local centers [18].

3.2. Project Description

The *Slateford Green* project is one of the most sustainable and energy-efficient communities in Edinburgh of the last few decades [15, pp.297-299]. It locates in the South West of Edinburgh city center, just off Slateford Road. The site of approximately 1.6ha is a former railway goods yard. It lies to the west of the existing suburban line and is bounded to the north by Gorgie Road and to the south by Slateford Road. To the west of the site there is a mixed development of flats and houses with small workspaces.

The buildings are grouped around an oval courtyard (tear shape), at a variable height of two to four storey. The basic construction is a timber frame, and most materials have been selected to minimize environmental impact, maintenance requirements and wastage at demolition. There are glass conservatories for passive solar energy use. Insulation is made from recycled newspapers. Heating

(2) This case study is a part of research made by the author under supervision of Prof. Dr Faozi Ujam, Prof. Dr Miles Glendinning, and Prof. Dr Brian Edwards during the postdoctoral study at Edinburgh College of art (eca), University of Edinburgh, Edinburgh, Scotland, UK (2006-2007).



is from a purpose-built district heating system, which uses condensate from a nearby distillery, available at extremely low cost. Grey water is treated on-site in a wetland system, and rainwater is collected and made available for garden watering. There are provisions for photovoltaic panels, but it was decided that this technology is not advanced and inexpensive enough yet to be included at this stage.

A design competition was won by Hackland and Dore of Edinburgh. The design is derived from the traditional Edinburgh tenement block, with its sheltered courtyard form adapted to the site and maximizing solar gain. A community hall is included within a 2-4 storey perimeter block of units. The block encloses terraced gardens and is surrounded by natural landscape and allotments. The construction is lightweight dry-fix with reduced costs through prefabrication and waste reduction. Materials have been sourced for minimal environmental impact, reduced maintenance and their capacity for recycling [16] (Fig.7).



Fig.7: Slateford Green Development layout, Edinburgh
(Source: Google Maps, UK)

Energy saving is achieved mainly by super insulation. The structure is clad with a breathing wall with 175mm of Warmcel with panel-vent sheathing. Most flats have conservatories providing passive solar gain to living spaces orientated into the south-facing courtyard. Natural ventilation is encouraged by passive stack ventilation and there is provision for retrofitting of photovoltaic panels to power lighting if and when practical cost-effective products become available[16] (Fig.8).

3.3. The Assessment of Sustainability and Livability Issues

Many of the ‘innovations’ in Slateford Green is now recognized as part of a sensible ‘green’ strategy, They involve the use of recycled materials – e.g. the joist system, ‘warmcell’; natural and ‘low tech’ processes rather than energy consuming systems – e.g. passive stack ventilation (even if Slateford Green had to have some mechanical assistance); and the use of non-toxic materials. Most of these have involved additional capital costs in Slateford Green, and have been justified on the basis of benefits either on reduced energy consumption or lower maintenance.



Fig.8: Slateford Green Basic Construction Materials have been selected to Minimize Environmental Impact. (Source: the Author)

The design incorporated many low energy features. These include breathing walls, sun spaces or winter gardens, reed-bed ponds to treat surface and storm water, natural passive ventilation systems and stair lighting powered by photo-voltaic cells. Communities heating industrializing heat from a nearby drink distillery cheaper and more efficient heating and hot water. A low maintenance aluminum roof was selected as it can be recycled at the end of its life. Reed-bed ponds will be provided as part of the landscape to earnable the surface and storm water to be treated. Table.3 summarized the chick list of the sustainability features of the Slateford Green project.



Table 3: Slateford Green Sustainability Checklist [17, p.290]
(Highlighted items indicates features included in the scheme)

| Slateford Green: Provision Of Sustainability Features | |
|---|---|
| Resource Use | |
| Revitalization of previously developed site | Rainwater collection and indoor use |
| Low –energy building standard | On-site grey water treatment |
| Passive solar design | On-site recycling facilities (paper, glass) |
| Solar-supported heating or photovoltaic | On-site composting facilities |
| Community | |
| Purpose-built community centre | Resident involvement in running facilities |
| Resident participation during planning | Institutionalized representation of residents |
| Mobility | |
| Integration with public transit facility | On-site car sharing vehicles |
| Integration with pedestrian & cycling networks | Integration of basic retail facilities |
| Exclusion of motorized traffic | Allocation of open space for food production |
| Reduced parking provision(< 0.5 / unit) | Integration of workspaces |

3.4.The Social Sustainability features of the Project

The brief looked for architects to explore ways in which people will live in cities with limited natural resources. The project provides 121 flats and a kindergarten in a 2 to 4-storey from reflecting the traditional Edinburgh tenement block. Its sheltering courtyard from was adapted to the site of the former Georgie railway sidings off Slateford Road.

The block encloses terraced gardens and is surrounded by natural landscape and allotments. It is skirted by a pedestrian street and a cycle route, which provides service, drop-off and emergency access throughout. No vehicles can enter the internal courtyard and minimal parking is located only for disabled people’s flats and visitors. The residents asked to agree, as part of their tenancy, not to park cars within the scheme or in the streets around [18].

Flats are arranged in traditional stair clusters and closes. Each staircase is designed to include a furniture hoist and may be retrofitted with a disabled lift. Flats for disabled people are arranged around specifically designed gardens. All areas are barrier-free and routes ramped to provide access to public areas (Fig.9).

The development acts as the frame of a vibrant community life. Immediately at hand are a wide variety of spaces and activities for adults and children, as

well as chances to meet, and whether in private garden or public space people are visible to and so known to each other in the diverse roles of their daily lives. Shades of green: Low energy/high performance; replenish able sources; recycling; embodied energy; long life, loose fit; embedded in place; access and urban context; health and happiness; community and connection [19] (Fig. 10).



Fig.9: Slateford Green Development Social Cohesion Life in the car-free courtyard [18].

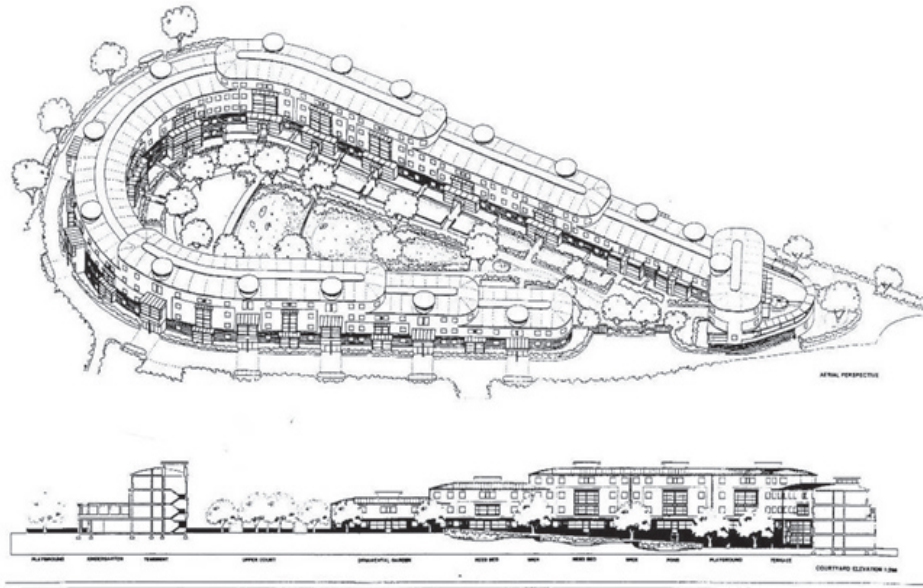


Fig.10: Car-Free Courtyard as a Frame of a Vibrant Community: Aerial View [9, p.19].

3.5. Lessons Learned

The author has concluded through Slateford green project some lessons such as:

- The design, construction and maintenance of the built environment provide significant opportunities to contribute towards a more sustainable future. Safe, warm, dry homes are fundamental to our well-being. Our buildings make a big



difference to how communities look, feel and function [20].

- Through the sustainable architectural policy, the project will promote sustainability, livability housing in well planned development (Fig.11).
- The governmental legislators and the architects will monitor progress in delivering a built environment for a sustainable future as part of the reporting arrangements for this strategy.



Fig.11: Terraced Gardens which Surrounded by Natural Landscape and the Inner Pedestrian Walkway [18].

4.CONCLUSION

• In order to shape action in support of sustainable Community, it is necessary to distinguish between social issues and environmental ones. Social sustainability requires that communities have access to employment, to healthy and safe environments, and mobility. Hence, a triangle exists here of interdependancies between employment/education and safty/health, each revolving around the issue of Urban (Fig.12).

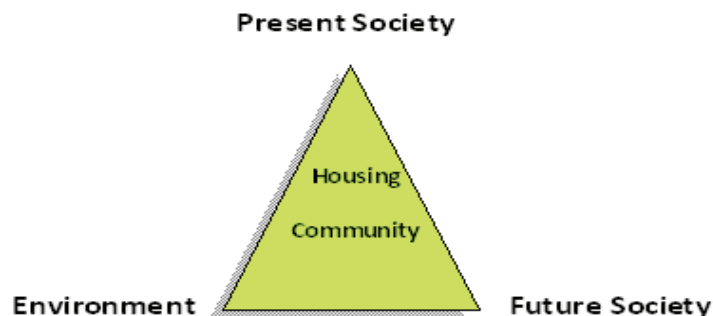


Fig.12: the Importance of Housing Community to Social and Environmental Harmony
(Source: The Author after Brian Edwards, 2000)

“...Sustainable housing has to grasp the nettle of social provision, equity and justice. Every line a town planner or architect draws is a sense a political act... Sustainability has to break down the injustices inherent in our binary systems-

social versus private housing, Greenfield versus brownfield land, employment versus welfare, car versus public transport. Sustainable housing provides the mechanism to create integrated balanced communities, where there was once division by class, race or opportunity” [21, p.124].

- The imperative of sustainability will lead to a new housing aesthetic with consequences for how planning authorities conduct their controlling function, how developers appeal to the taste of consumers, and how architects approach the design of housing.

- The scale of new urban housing required provides an opportunity to innovate. The twin forces of growth in provision coupled with the sustainability agenda offer a chance to explore newness after a long period of neglect of housing design.

- Sustainable housing is a matter of both the design and management of the housing stock. A decent home of whatever type of the social cohesion, personal wellbeing and creation of successful communities. The task of building sustainable housing involves finding ways of integrating social, economic and environmental goals. Communities of the future will need to live more in equilibrium with nature than in the past. This requires rethinking how we design buildings, how we lay out estates, how towns connect with their surrounding and interrelate with natural resources. Action required of us all-government, professions, industry, communities and users themselves [21, p.124].

- To achieve environmental sustainability in the building sector, architects must be educated about environmental issues during their professional training. Faculty has to foster environmental awareness, introduce students to environmental ethics, and developing their skills and knowledge-base in sustainable design (Table 4).

Table 4: Concepts and Themes of a Sustainable community as a Part from Sustainable Urban Development [8]

| Environmental Sustainability | Economic Sustainability | Social Sustainability |
|---|--|--|
| <ul style="list-style-type: none"> •Low energy •Low pollution •Low mobility <p>‘Compact City’</p> | <ul style="list-style-type: none"> •Local jobs •Home- based working •Mixed uses and activities <p>‘ Compact economy= ‘village’</p> | <ul style="list-style-type: none"> •Higher residential densities •Local social system •Social mix plus social integration <p>Compact society= ‘ Livable community’</p> |

- The current status of sustainable design in architecture is that of an ethic rather than a science. While a change of lifestyles and attitudes toward the local and global environments is important, the development of scientific knowledge-bases that provides skills, techniques, and methods of implementing specific



environmental design goals is urgent.

- To enhance environmental sustainability, a building must holistically balance and integrate all three principles - Sustainable Design, Economy of Resources, and Life Cycle.

5. RECOMMENDATIONS

With the guidance of ideas addressed previously in this paper, the author aims to present a list of guidelines that may contribute to application of sustainable and livable community development, taken into consideration the social dimension of the urban environment in Arab regions, *as follows*:

5.1. In Sustainable Housing Scale:

- The design of the housing should react to natural climate and environment. It should utilize natural lighting and ventilation; encourage the use of renewable energy sources for heating and cooling systems. Moreover, be sensible to ecology wherever possible.

- The design of the housing should be flexible and adaptable to allow for future changes in family organization.

- The housing should encourage the use of natural, durable and recycled materials that are available in the local market [21, pp.124-129].

- The housing should be compact for less land use, reduce the need for motorize travel.

- The housing design should reflect local customs and traditions. In Egypt -as example- this means more focus on economic aspect, privacy and communicable society.

- It is desired to provide multi use spaces within the housing to serve different needs at different time.

- The housing design should incorporate an effective system to reduce domestic water consumption [21, p.128].

- In an environmentally sensible manner, trees and vegetations should be introduced in communities to provide shade and aesthetic look.

- Settlements should promote policies that protect the environment by preserving green belts, agriculture land, natural resources, and applying strict waste and pollution policies.



5.2 In Sustainable Community Scale:

- The design of the community should have a clear sense of hierarchy of spaces that present semi-public, semi-private and private spaces.
- The community plan and street layout shall provide shaded walkways and be supported with element that ensure safe use for children, elderly and the disabled.
- The community should generate a *social sense*; it should enhance the coherence and support local costumes in relation to the idea of living quarter [8].
- The design of community should take into consideration environmental criteria and climatic conditions like, wind and solar exposure.
- A gradual move toward mixed use developments (compounds as it called in some literatures) is encouraged to limit the public dependency on transportation systems and encourage lively environments.

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منهجية تصميمية للاستدامة العمرانية

في أسس وتطبيقات المجتمعات المستدامة

د. مصطفى غريب مصطفى عبده

قسم هندسة العمارة، كلية الهندسة، جامعة الأزهر

كود بريدي 11371، مدينة نصر، القاهرة، مصر

بريد اليكتروني: mgmabdou@yahoo.com

الملخص:

إن تناول عمليات التصميم الحضري من مدخل تصميمي متكامل يعظم من الفرص الإجتماعية، ويدقق جودة الحياة في المناطق الحضرية العمرانية، كما أنه يكسبها وضوح الهيكل ويجعلها مجتمعات مولدة للفرص، ومحقة لمبادئ التنمية المستدامة.

يسعى البحث إلى فحص ملامح الإستدامة العمرانية في البيئة المبنية من وجهات نظر متعددة، كما يلقي الضوء على مفهوم "المجتمع المستدام"، وهو الموضوع المطروح حالياً على خريطة إهتمام الجهات المؤسسية، كما يطرح المفاهيم المرتبطة به مثل العمل، الصحة، التعليم، ومواضيع أخرى ذات أهمية بحياة المستعملين وهو ما يمثل أهمية لتناول إشكالية البعد المجتمعي في مخططات التنمية المستدامة.

يطرح البحث فكرة جودة وكفاءة المجتمع الذي يوفر البيئة المبنية الأوفق لمستعمليه، وفي نفس الوقت يحافظ على البيئة الطبيعية ويحد من آثاره السلبية عليها؛ كما يناقش بعض جوانب عمليات التحضر المستدام، ويخلص إلى صياغة محدداته التصميمية من خلال المنهجية البحثية التالية:

• المنهج الإستدلالي: من خلال مراجعة نظرية أحدث لخصائص الإستدامة العمرانية، وتعريفاتها ومفاهيمها، وإشكالية الوصول إلى التنمية المستدامة كهدف حضاري بقدر ما هو تقني، ويعتمد البحث في ذلك عرض لأدبيات وأفكار أساسية في الشئون العمرانية ومجال العمران المستدام.

• المنهج الأستقرائي: من خلال مراجعة بعض تجارب المجتمعات المستدامة سواء في مرحلة التصميم أو التي تم تنفيذها بالفعل. ينتهي البحث إلى وضع نموذج هيكلي بين المجتمع اليوم، وإمكاناته البيئية، وإحتياجات المجتمع المستقبلية، كما يخلص إلى أن هناك العديد من الفرص لإستحداث الطاقات المتميزة للوصول إلى الإستدامة العمرانية، ويوضح محددات الوصول لذلك، وأهمية تدقيق عمليات التخطيط والتصميم للمجتمعات بدءاً من مرحلة التصميم والتخطيط المبدئي لها.

