

Preface: Ecological Matters for Good Cities and Environmental Benefits

It is clear that the patterns of space and movement in a contemporary city are different from those that had shaped the older city. The perceptual contradiction between old and modern city has been the reason of the recent urban and social conflicts. Furthermore, from a space viewpoint, the conventional framework for the design of cities had radically altered the quality, the variety, the dimensions, the aesthetic of urban environment that is necessary to be revisited. Traditional priorities and standards of considerable inner and outer urban areas must be changed in favour of more unconventional approaches. It is then essential to introduce new ways of planning and designing the cities that have to consider a holistic approach, which focuses on many ecological and social issues and to a more careful protection of the environments. This mainly means a sustainable design process in which one must try to better define the “right way of doing” rather than following a dogmatic one. There is an attitude to introduce an “adaptable way”, possibly respecting identity and culture of place. At the same time the great changes of physical landscape, as well as of social and economic conditions, need to be re-examine by a continuous “investigative approach”.

In recent years, there is an expanding of attention to ecological matters regarding urban regeneration and development, planning and conservation processes by developing a range of appropriate key considerations aimed to a better quality of urban environments. It is really hoped to reach the enhancement of use of urban space and of physical landscape in delivering effective design guidance.

Substantial dimensions of ecological design in an overall thesis have to be considered from a morphological, functional, social and economic point of view. Despite general recognition that making good places in cities socially, economically and environmentally depends on a strategic planning and design process, there is less understanding how the right tools can be really delivered. It is now further considerable the aim at a comprehensive range of design issues for community strategies, local development frameworks and actions plans that can enhance quality of life. It is therefore recommended to think more deeply and sensitively to the relationship between land-use planning, urban design and environmental effects. Refocusing investment to where the advances of improvements is possible, reviewing the procedures of actions and addressing the environmental topics must be the aim of current strategies. The emphasis on “sustainable doing” to help reduce the environmental damage must be of a wider vision than the one of those social and economic purposes. That present innovative new thinking of global strategy should be considered the real value of sustainability.

An introductory basis on ecological ways of planning and design was discussed in the preceding volume *Bioclimatic Design & Urban Regeneration for Sustainable Development*, published in 2003. This new volume explore deeper the conceptions on sustainable cities and the attention that has to be paid by a responsive design process to urban regeneration and development. The continually

evolving task of ecological view of towns and cities, which was drawn by the authors' experience in researching and teaching, adopted key means of addressing interdisciplinary concerns.

Furthermore, this book came from the valuable teaching experiences of the author team at the University of Florence on an innovative *Intensive Programme/Workshop* within *Socrates/Erasmus Programme*. The Intensive Programme on *Bioclimatic Design*, which took place on June 2003 and was co-ordinated by Dimitra Babalis, provided valid principles and interdisciplinary concepts on this complex subject.

How can qualities of cities be recognized in ecological planning and design and of how can we respond to treat environmental values and perceptions?

The key recommendations on the basis of live, work and leisure are the perception of a "global strategy", including planning, urban and architectural design to be undertaken for urban regeneration and development processes. In detail these might be indicated in a comprehensive discussion as follows:

- Planning Strategy in terms of a sustainable physical form, movement patterns, land use;
- Urban Design Strategy in terms of local character, mixed uses, traffic movement, core areas, green areas and sense of place;
- Architectural Strategy in terms of right location and orientation of buildings, design of new sustainable typologies, use of green low energy materials.

Although it is essential to propose innovative and sensitive design solutions that will bring huge environmental benefits and can underline urban and social advantages, it is necessary to be sure of what is the real movement towards sustainability.

Contents

This volume is divided into five parts. The first four parts explore some theoretical issues in further detail with respect to what was discussed by the contributors during the *Intensive Programme*; whereas the last fifth part develops a general view of an ecological framework for urban design at the local scale, as the result of students' Workshop, and reveals many ideas for a coherent design.

In **Part I, *The Quality of Urban Design in a Reformed System***, (Chapters 1, 2 and 3), the authors examine and explore the key considerations on eco-sustainable planning and design in the investment for urban quality. The key recommendations that are discussed on enhanced development and regeneration do not necessarily cost more to deliver, they are the least easy way to add value by increasing social and environmental benefits.

Recent studies show how it is important to face the complexity of towns and cities by relearning from the past, rethinking the planning process behind environmental regulations in a more understandable way of land use impact, revisiting urban design within development decisions, by respecting local character of sites, by co-existing activities and attractive core areas, by using flexible urban patterns, by minimising resources use and waste of land and maximise greenspaces. (*Better Urban Environment to Live by Ecological Key Design Considerations*)

To redesign towns and cities, looking at the existing patterns, is a comparative analysis of urban forms that comprehends block, lot, building sizes, in order to demonstrate that certain physical qualities or 'ground rules' of urban form are more able to accommodate change. These 'ground rules' govern order and complexity, shape, size, dimen-

sion and spatial arrangement; properties that appear to determine flexibility and adaptability over time and as such possess qualities of sustainability that need to be understood. Consequently, when the impact of change becomes more apparent, there is a need for controls to maintain the plan and those urban forms where changes have occurred in a less obvious manner appear to be the most sustainable ones. The 'ground rules' for this form of sustainability would appear to be more universal than hitherto recognised. (*Dimensioning the Sustainable Urban Fabric*)

Creating a real public realm is focused also on the changes of the tangible and the intangible limit between private and public space due to the use of Information and Communication Technologies. It shows that the widespread use of the Internet and the wireless communications make the sense of privacy disappear assembling a flowing and consecutive space. At the same time, the applications of ICT to education, work, commerce and trades transform their character by moving their domain into a new hybrid space. Such transitions urge us to reconsider the way in which we conceive and design public space. (*Redefining Urban Space in the Information Age*)

In **Part II, *Built Environment and the Culture of Place***, (Chapters 5, and 6) the authors explain how architectural and urban design and technology mostly are generally characterized by a high degree of complexity. The need is to create activity and intensity of local culture in order to develop a more environmental consciousness about the human-ecological problems. Production and maintenance of artefacts of Interior, Architecture, Town, and Physical planning need a third of the worldwide available resources in terms of energy and materials. This gives a wrongly understood high comfort to a "happy" few

in our world, but miserable conditions for the majority of humankind as well as for the natural environment. For a health survival of the growing world population as well as for a vital natural surroundings for all of us – and not last for World Peace – we need a new and integral approach. We have to understand for our whole life circumstances and we have to learn acting non-violently to gain a harmonious urban regeneration towards a Sustainable Development and a prosperous New Culture without alienations. (*Sustainable Architecture Today. Pleading for Harmonious Building*).

In a time of a growing environmental consciousness about the human-ecological problems, also created by the way in which architecture, urban planning and technology are developed and applied, we have to consider a (more) harmonious “collaboration” with the energies and resources or briefly the natural base on and within which (human) life can find its vital conditions. (*Method Holistic Participation*)

In the Architecture of the past we identify general principles that are pursued by architectural works in their time. Some of them are: the integration and adaptation of structures in the natural environment and landscape, the appropriate use of local materials and construction methods as well as the relationship of indoor and outdoor spaces – relevant mainly in Mediterranean Architecture since a large part of everyday life takes place in outdoor and semi-outdoor areas. These principles might be the inspiration for the architecture of today, revealing a way of thinking that has been underestimated or neglected in modern structures and communities. (*The Architecture of the Past as a Driving Force for an Environmentally Friendly Architecture of Today*)

In Part III, Sustainable Building for Responsive Environments, (Chapters 7, 8 and 9), the

authors underline how building design process based on ecological issues can be focused on the lowest impact on humans and nature and how building techniques and material considerations are about to define valid definitions and methods to be applied for sustainable building.

The outcome of three years development by a consortium of European Institutions, both academic and industrial, funded by the EU Leonardo Programme, was produced in a CD-ROM. The collaborative effort was focused on the production of learning material, suitable for tertiary education, which put a premium on building design from an ecological point of view. The purpose is to provide the basis for developing a design process, where ecological issues and environmental impacts are fully considered. (*ECOBUILD: An Interactive Guide to the Design of Environmentally Friendly Sustainable Buildings*)

To define, firstly, what is sustainable building and discuss briefly the impact of the building process on the environment and, secondly, to propose a process of evaluating building techniques and materials according to their environmental impact is relevant for built environment. For this an attempt is being made to define environmental behavior and develop controlling mechanisms. Finally, sustainable design axioms are put forward in order to answer the architects predicament for the environmentally friendly building. (*Sustainable Building. Evaluating Building Techniques According to their Environmental Impact*)

The possibility of achieving sustainable development based on the non-use of fossil fuels in urban dwellings is also examined. Based on an energy consumption model of a standard dwelling, it analyses the possibilities and cost of replacing the current energy sources. Solar energy and energy efficiency are the means to achieve much of re-

sult. (*Energy Efficiency in Urban Dwelling. The Case of Barcelona*).

In Part IV, Training Schemes and Projects Performances, (Chapters 10, 11, 12, 13 and 14), the contributors set out the significance of responsive urban design frameworks, development briefs and master plans on social and environmental impact. There is a more understanding way on how design, that is based on effective planning and design guidance, can be delivered. The debate is on how good design and layout schemes, including traffic movement, can enhance quality of life involving the communities and promoting attractive development and urban regeneration. The presentation here of some case studies and training schemes are looking at how sustainable design can provide a range of environmental benefits and create strong social and economic advantages.

The creation of an Urban Design Framework Plan for Manorhamilton, commissioned by Leitrim County Council in Ireland, was undertaken by ICON Architecture and Urban Design. It identifies consultation processes as the generator of a methodological structure; an example of *learning and refining the process as the project develops*. The project was planned as a working example of sustainability in practice, and explored the creation of innovative three-dimensional tools to communicate design proposals in an accessible way. The four main issues in the strategy were: heritage conservation as a precondition for a dynamic development programme; landscape protection in and around the town; a series of projects within the built area of the town, prioritised as immediate expansion; long term growth strategy which would guarantee a harmonious balance between natural and built environment, retaining the quality of the town within an outstanding local

landscape. (*Model Sustainable Rural Communities – learning by doing. – An Urban Framework Plan for Manorhamilton, Sustainable Town in Ireland for the 21st Century*)

Suitable design policies has to be considered for a large built up area developed during the 1960s and the 1970s whereas successful design strategies can improve the existing conditions of the site. A good urban design framework should give an idea of what can be done for the local community to enjoy the environment and urban lifestyle in a small town. The S. Concordio specific area in Lucca appears today disjointed and without any “continuity” and real structure but with essentially residential functions. The existing layout on the site, which also includes several school buildings, is based on an old fashion way of planning of “modernist” time. It is therefore important to study future eco-sustainable improvement on the site in order to encourage planners, architects and others and to brief them about new schemes that will enhance the built up area and the open spaces. (*Sustainable City and Strategic Urban Design. A Concept for an Eco-friendly Urban Project in Lucca*)

Two training projects of research and practice were made by students who particularly focused on sustainability. The first regards the urban regeneration of the Sorgane Estate in Florence, mainly aimed at infrastructure planning and traffic movement in order to improve the urban quality and the pedestrian safety of the place. The project takes advantage of traffic calming techniques in order to design a better urban environment. The proposed training project is focused on the physical design issues in existing streets and open spaces in order to determine particular requirements of enriching the quality of the place. The second proposal of research is about the recovery and the maintenance of open spaces in the historical centre of Bibbiena, a small town in

Tuscany. This work is based on the analysis of existing stock of urban buildings in relationship with urban context and aims to promote deeper thought and greater awareness about urban maintenance that motivate successful residential and cultural environments. The inspiration is the need to face the problems of improvement or regeneration of the historical built environment. (*Urban Planning: Mobility Management and Urban Maintenance as Strategies for Sustainable Development*)

The proposed intervention in the Southern East part of Milan is of great relevance both for aims of urban design and for the research results undertaken by the “Urban Unit 3”. The intervention which is developed along the railway link of “Porta Vittoria” is based on the following two objectives: the elaboration of a system of new functions that can regenerate the whole area in a framework of dynamic urban processes; the recovery and re-interpretation of the existing urban fabric well integrated in the circuit of new interests, activities and open spaces. The detail training design had increased the hypothesis of a fluid system and characterises the project in its formal and semantic form, enthralling the re-interpretation of the existing structures, and the method for planning the area. (*The Challenge of Sustainability Towards a Design for an Eco-compatible Urban Environment*)

The restructuring of central and outlying urban areas should have attractive and viable core areas and ability to create specific urban microclimate environments. It is necessary to mitigate the negative consequences of the urban heat island largely presented in the contemporary urban centres, especially of Mediterranean countries, resulting in thermal stress in urban spaces and excessive use of air-conditioning in the interior spaces of buildings. Moreover, better understanding of the effects thorough appro-

priate analysis is important to attempt possible solutions for the improvement of microclimatic conditions of densely built urban centres. (*The Urban Microclimate of Athens: Bioclimatic Interventions for its Modification*).

Looking at the natural resources the water has always been an element of great importance for human beings. Today, water is treated as an important and valuable resource that must be preserved especially for urban centres improvement. Water-related issues should be viewed from two different angles: the environmental point of view that deals with its protection as a valuable resource and the bioclimatic point of view that relates to its use as a microclimatic regulation element. This approach includes a brief analysis of problems related to the presence, consumption, preservation and use as a regulator of microclimatic conditions of water in contemporary cities with particular attention of those of Mediterranean countries. (*Water in the City of Athens: An Environmental and Bioclimatic Approach*).

In Part V, *The Workshop: An Eco-village in Florence*,

The topic of students’ Workshop was the urban regeneration in Mantignano, an outlying area in southwest of Florence. The whole area is of predominantly residential character with no real focal points to give to the place an identity. The present of the strong rural character is of relevance but the lack of social, cultural and commercial activities is of great evidence. The existing layout is lacking of real infrastructure connections with the rest of the city of Florence and its surroundings.

The training urban design framework is aimed on the creation of an “eco-village” located in a strategic point of Mantignano. The new development is based on the following key headings: the ecological view on

urban form, the mix of uses; the easy movement pattern, the creation of good public spaces and a core area, the protection and integration of the rural landscape (the existing vineyards) and enhancing social environment. Another important aspect of the public realm to be taken into account is the microclimate of spaces: solar orientation of streets, natural ventilation, greenspaces and other land use considerations. The methodological basis for the study framework is represented by a sustainable model to live, work and leisure, whereas the design process is adapted to the characteristics of the place and its inhabitants.

All students' proposals addressed principal urban design issues and carrying out of buildings. The eco-sustainable development had fully understood by the students as well as the idea of the integration of the existing buildings and rural landscape. Great attention was paid to the urban form and quality in terms of movement pattern and environments concerns. All proposed schemes employed the seasonal and daily course of sun and attempted in using nat-

ural ventilation principles. An aspect of great relevance was the right location of facilities and of greenspaces and preservation of existing vineyards. As part of the study, the proposed buildings are based on a good orientation and on technical solutions of indoor comforts by developing passive cooling and heating purposes, the design of wind towers or wind and water gathers. Some new typology solutions, taking inspiration from the past, are proposed but are nonetheless innovative and the use of environmentally friendly materials is considered.

It was of great importance the mixture of students from different countries in the various groups, characterised by a common ground, but eventually it appeared distinctive to the proposed urban frameworks the individual local context peculiarities of the different countryside. Therefore, the merit of this training projects was to involve students, in order to generate good practice on sustainable design.

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