

INTRODUCTION
by
Francesca Sartogo

*"If You ask me how will be
the future sustainable City
I will answer: I hope that she
will be similar to the "City of the Past"
"The architect responsibility" by Renzo Piano*

The book "***The sustainable traditional buildings in Iran - a climatic analysis***" by *Vahid Ghobadian* arrives at the right moment, when the actual *Climate Change* put on the table the important responsibility to redefine concepts and principles of the City design. It is always more and more difficult to ensure the standard urban comfort, that our society has reached in the last century, without compromise the future generations.

The City is a complex organism, is not only buildings, roads, squares and gardens, is more than that, she is the mirror of the real citizens life and where everyone tell his history. Is not designed, but it grows homoeopathically during times physiological very slow.

Looking back at our urban studies, it appears evident how the **design** of the **city** was never a **chance effect**, but a precise result of the relationship between a system of rules, land division, building aggregation and road network, strictly connected with the climatic conditions and solar orientation". City was an organism, a compact aggregation, iso-oriented. polycentric, within an organized hierarchy of gravitation nodes, flexibility, accessibility, safety, and in a circular cycle of its metabolism.

Some important planning "*myths*" of our century, as that of *zoning, mobility, high technology* and the *macroplant* have perhaps made us forget the original structure of the city made of parts as scalar sub-systems of strongly interrelated organisms. All this has proliferated in an unlimited growth often without sufficient interrelations and in contrast with the surrounding environment. The city has become a collection of objects, no longer an "organism", but moreover, its communication is a conversation proper of "**dead language**" between specialists. We are losing the **structure**, the **grammar** and the **syntax** of the formative basis that generated the city itself, its *cultural roots* settled in the *long formative process in continuity with the Community* that lives, uses, and renders it vital. **History, climate, and typology** are the important matrixes, for the Architectural and Urban ecological language.

The Community builds its houses with the millenary experience of the other houses that were built in the same cultural area using the construction modality and methodology of the individual artisans and types of building materials that were suitable to the **geomorphology**, and to the **climatic conditions** of the area. This "*spontaneous conscience*" recognises the great role of the **sun**, the **water**, and the **wind** conditions. The city and its buildings are perfectly coherent and consequent, in the formal explications of their components, to the environmental conditions; they are born together with the **location** and its **microclimate**. The realized building is the global synthesis of the "*ratio, firmitas and venustas*" of *Vitruvius*, (1° cent b.C) of its own "*concept of house*" reached at the moment of its construction, as the expression of all the experiences matured in preceding periods and as a matrix for those that follow. A fundamental characteristic is the *flexibility* of its behaviour, which codifies the typological process of the building and also allows it to place itself in organic sequences of building types, of concepts of houses and in a system of connections between them.

I met Vahid Ghobadian in the IEA/SHC Task 28 “*Sustainable Solar Housing*” during 5 years international programme, in which fourteen countries and experts of different part of the world tried to analyze the result of the realized “solar sustainable buildings”. Today the progressive “*changing of climate*” force us to redefine concepts and principles of “*sustainable and bioclimatic design*”. Currently sustainable housing appears to place emphasis on “*energy as the main environmental impact that should be reduced*”. This definition can be found from the aims of the International Energy Agency IEA/SHC programme. Until now, such housing, in an advanced north European theoretical and applied research, achieved his performance, primarily by reducing heat losses through *compact building form, thick insulation, air tight construction and mechanical ventilation*. The number of such buildings is growing, within a market penetration with the production of very well-insulated house and increasing energy gains by passive solar design, active system for hot water and space heating and PV electric supply systems. In this case the Architectural form is not so important; as far as the thermal plant efficiency.

If all that can be appropriate for *Northern climate*, for any other context of *Southern temperate and warm climates*, a different configuration of these parameters has to be achieved in designing Solar Sustainable Housing. On *Northern Latitudes*, where “*heating is the dominant requirement*” following strategies are effective: *Low surface to volume ratio; maximising solar gain; reduction of the surface area facing north, or exposed to prevailing wind; insulation of building envelope; control of ventilation and infiltration; use of draught lobbies to separate heated spaces from the unheated spaces and from the outside; location of the entrance door away from prevailing wind; use “buffer spaces” on northern or exposed facades, unheated conservatories of “sunspaces” on the south.*

On *Southern Latitudes*, where “*cooling is the dominant need*” following strategies may apply: *Minimising solar gain; reduction of the surface area facing south; provision of overhangs, arcades, shutters and canopies to shade building envelope; use of ventilated walls and roofs; insulation of building envelope, particularly the roof; control of ventilation; provision of solar chimneys to encourage stack ventilation; location of openings on shaded side of building or so as to catch prevailing winds; use “buffer spaces” on southern facades; use of strategy of passive cooling system: ventilation, night-sky radiation, evaporative cooling; use of “courtyards” to form reservoir of cool air close to building and introduce daylight to deep building open spaces and open to prevailing wind (“A Green Vitruvius” J&James 1999)*

In warm climates, in order to obtain an efficient thermal comfort on buildings, importance has to be given to *summer cooling* more than *winter heating* or in the some quantity, while the role of *natural ventilation and day lighting* become fundamental. An important issue assumes the relationship between buildings and the external spaces in a different scale organization from the building to the district and to the City form as a whole.

The “*Bioclimatic Housing – innovative design for warm climate*” James &James 2007, is the result of the work of the “*International Cooling Group*” from *Iran, Malaysia, Australia, Japan and Italy* under the auspices of the IEA/SHC project on “Solar Sustainable Housing”; The Iran contribute was given by Vahid Ghobadian and was the only one that put together sustainable technological and typological solution sets either in the ***traditional ancient architecture*** or in ***the new modern buildings and cities***.

During the past centuries, the Iranian Architecture was so closed to Climate that we can really say that this complex zone between, Middle East and Central Asia, in some way, is the **place of birth** of the “***Bioclimatic Architecture***”. In those 4 different climate Regions from cold to hot arid, hot humid and temperate climate, where the use of heating and cooling is necessary, we can find many climatic appropriate answer for the beautiful architectural form and components of the first Bioclimatic Architecture.

Each climatic region has different approach to architecture, building typology and city structure, still present and efficient today. In the “*cold climate*” region, the city is a compact south orientated structure, protected on the internal and external spaces from cold wind . On the “*hot-arid*” and on the “*hot-humid*” regions the city is more open to the environment, organized through the “*courtyard typology*” that become the central “*core*” of building as a perfect and efficient thermal mechanisms having the function of protection from “*sand storm*” and open to sun, wind and water gains. The compact city became a more various design of closed and open spaces. Sun shading, wind ventilation and water features are the main characteristics. The city and the buildings are designed in order to catch the pressure and the air flow of the local breeze more as possible. A various typology of “*wind catcher*” transform the urban compact structure in a “**kinetic three-dimensional cityscape**” trough a very original ecological design of a new “*living organism*” that *perspires, cool and heat* itself from its **architectural form** and **local microclimate**.

Today, even if Iran has a vast reserve of oil and gas the Government policy switch from oil to gas in order to reduce environment pollution in cities, but at the some time renewable energies, especially solar, wind, water and geothermal energies have gained a lot of attention. Iran promote its original high cultural **Architectural Image** in order to answer to the actual environmental crisis and to the Kyoto protocol.

For that reason the resumption of its cultural identity through analysis of the traditional bioclimatic traditional buildings characteristics. so deeply analysed by Vahid Ghobadian in this recent book is so important.

Is not a purpose to go back to traditional way of living , but the collection of a big repertory and attentive lecture of the past rules and concepts, still available for our modern architecture and urban design, can address us to the new city development design. Taking this Iranian architectural language as climate relationships model, we will find the guide lines for the energetic and bioclimatic reconstruction, of the **City of today** and the **continuity** for the shape for the **City of tomorrow** in our South–European or Mediterranean very similar climate,