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Housing Policies and Urban Economics – n. 1 / 2014

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<i>Preface</i> <i>Barbara Ferri e Antonio Maturo</i>	pag. 1
The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes <i>Luigi Fusco Girard</i>	pag. 3
Laboratorio Pescara. La ricerca di connessioni tra aree marginali e nuove centralità <i>Raffaella Radoccia</i>	pag. 29
Safe evacuation of historical buildings content <i>Zdena Rosicka</i>	pag. 35
Las Corralas y la situación de la vivienda en Sevilla <i>José Luis Sarasola Sánchez-Serrano, Cristina García Adones, María Pérez Lagares</i>	pag. 47
Recent developments in affordable housing in China <i>Nicholas You</i>	pag. 61
Energy sustainability of buildings during construction-phase <i>Monica Cannaviello</i>	pag. 71
The ecological network for environmental regeneration of the city <i>Raffaella De Martino</i>	pag. 79
Green and blue infrastructures to naturalize built urban contexts <i>Rossella Franchino</i>	pag. 91
Public Open Spaces and Cultural Heritage: an integrated approach to the urban regeneration <i>Caterina Frettoloso</i>	pag. 103
Evaluation and evaluativity in operational dimensions of social programming <i>Francesca Pia Scardigno</i>	pag. 113
Abitare Mediterraneo Integrated approach of a sustainable building management in Mediterranean context: think tanks network sharing an open platform to integrate technological and architectural innovation for low energy building <i>Antonella Trombadore</i>	pag. 137
A smart journey to transformation <i>Francesca Verde</i>	pag. 149
Sustainable building site: indicators to manage the transformation <i>Antonella Violano</i>	pag. 163

Preface

Housing Policies and Urban Economics (HoPUE) is an international scientific online and printed review focused on housing policies and integrated urban planning, analyzed in the wider disciplinary context of the urban economics. Contemporary urban planning is the main object of investigation; it is seen as an opportunity to develop the economic, social, cultural and environmental dimensions of regeneration for ancient city and changing areas.

In agreement with the epistemological character which is pertaining to the other journals of Eiris, HoPUE is a tool of research in urban transformations; it collects contributions, studies and best practices to address the emerging challenges which require characteristics of competitiveness, efficiency, inclusion, presence of network, services for cities.

Honorary Editor is Antonio Maturo, Full Professor of Mathematical Methods for Economics, a scientist of the Mathematical Models of Social Sciences and Architecture. In 1995 we began a research on mathematical models to support the evaluation of urban plans at the Faculty of Architecture in Pescara. The study started from the *complex programs of urban intervention* instituted in Italy in the early 90s; these programs required tools to analyze the *feasibility* of investments for transparency and fairness of the interventions and to support decisions characterized by complexity and uncertainty.

Since then on, urban policies have experienced profound changes: strategic documents of the *EU program* have placed the need for a broader view of decision-making; the experience of the *Strategic Plan of the City* has introduced the need for a “shared vision of development” through which to interpret the urban context, considering the local needs and involving several institutional, social, economic and cultural stakeholders; *territorial integrated projects* have fostered effective systemic effects of interventions,

through objectives and works centered in specific areas; the most recent orientations of urban planning have proposed *structural and operational* approaches, with the consequent overcoming of the traditional tools for territorial governance.

The themes for Housing Policies and Urban Economics concern: national and international debate on the problems of contemporary living, analyzed both in urban and building terms, both in relation to the administrative and participatory aspects to encourage investments; evaluative questions to compare and guide the public decision-making in the transformation and regeneration of urban areas, analyzed in the framework of the relationship between territory and economic activities; conservation and enhancement of value of architectural heritage in ancient or more recent cities; externalities arising by the processes of cultural planning; issues relating to the use of public space and territorial welfare, with reference to accessibility to services, conciliation between life and work times, and suitable functions required for the “urban living”; issues of sustainable urban mobility, analyzed also in relation to the policy objectives of the European urban transport; regeneration of the suburban areas and preservation of agricultural land and landscape.

The members of the Editorial Board represent all the above themes: university professors and researchers related to the fields of urbanism, evaluation and economics applied to territorial issues, architectural historians, location theorists, macro-economists, sociologists, mathematicians, statisticians, technologists, epistemologists.

We thank Prof. Franco Eugeni for his active and continuous engagement in the dissemination of Science, Philosophy and issues pertaining to the relationship between Economy and Territory; Prof. Ezio Sciarra for his skilful contribution to research on the issues of Welfare; Prof. Giuseppe Manuppella, promoter and curator of the Information technology (IT) services of HoPUE.

Barbara Ferri and Antonio Maturo

The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

Luigi Fusco Girard¹

Abstract: The contribution of this paper concerns how to extend the implementation of the approach of the Cultural Urban Landscape into the ‘regenerative city’ strategies: as it is possible to stimulate and to multiply the bonds and the circular relations, that is the circular virtuous processes, and then synergies, symbiosis and hybridization processes for the local development. The paper moves in the direction to contribute toward a new “urban science”, characterized by transdisciplinarity and hybridization. The landscape is a good example of issue that structurally requires a transdisciplinary approach. The hybridization is becoming a leitmotiv in the growth of globalization, creating a “third space” from which new plus-value arises.

Keyword: Regenerative city’ strategies, cultural urban landscape, circular virtuous processes, symbiosis, hybridization

1. Introduction

The city’s organizational structure is being increasingly questioned. It produces economic wealth, but also consumes ecological and social wealth. The city as a complex dynamic adaptive system should, therefore, rethink its organizational structure, to

*Invited paper

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L. Fusco Girard, *The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

become more and more characterized by circular processes, like the functioning of natural bio-eco systems. These new loops, which express the new city metabolism and conserve natural resources, energy, and water, can reduce land consumption and contamination, waste and costs/times. As a results new economies and plus values can be produced from synergies, which increase the city wealth.

Cities therefore need a new comprehensive type of organization which is able to imitate, as much as possible, the processes of natural ecosystems: adopting new circular organization processes for conserving and improving their wealth.

The circularization processes and synergies, which promote resilience and creativity and then sustainability (Fusco Girard, 2013a) should be transferred from a sectorial approach (waste management, etc.) to the whole organization of the city, its economy, its social system, its governance (Fusco Girard et al., 2014) to improve the urban productivity.

In this way, they can be able to make the city really more resilient, prosperous and socially equitable.

To achieve this objective, it is necessary to rethink the processes, restructure them in a circular way (just like nature does, which must become the great teacher of cities) and identify cyclifier.

All living systems are characterized by circular processes, with no waste; they are able to conserve and reproduce themselves. Circular processes through reuse, recycling, and the regeneration of components and energy, make cities regenerative. Examples of circular processes should characterize the relationships within and among the single forms of capital (water, land, energy, man-made capital, financial capital, etc.). An example is the man-made infrastructural capital that stimulates/sustains economic flows (and productivity), and, in its turn, this increase in economic resources allows new resources to be used for new infrastructures. The social cohesion stimulates synergies between people and between people and city institutions, thus increasing the economic flow of benefits, which determines new investments, with new employment, etc. Many examples concern the relationship between economic attractiveness and landscape quality. The capacity to capture a percentage of plus-

values coming from new development and planning initiatives as a public benefit reflects another form of the circularization of processes. A further example is the mutual exchanges which do not pass through the market system, as in the socio-economic system, etc.

Currently, the concept of a circular economy is being here promoted for sustaining and regenerating the city economy.

Historic cities possess assets of both cultural and economic values, with high potential for growth in a sustainable perspective.

Built cultural heritage has value in itself, but empirical evidence shows that it is also considered as a resource for sustainable human development, economic growth and job creation. In this regard urban heritage and urban landscape are cultural capital assets, and integrated conservation becomes a crucial investment.

The background is consistent with the holistic approach mandated by the recent declaration of the Council of the European Union on the need of the mainstreaming cultural heritage in the national and European policies in order to achieve the Europe 2020 strategy goals (Council of European Union, 2013).

The contribution of this paper concerns how to extend the implementation of the approach of the Cultural Urban Landscape into the 'regenerative city' strategies: as it is possible to stimulate and to multiply the bonds and the circular relations, that is the circular virtuous processes, and then synergies, symbiosis and hybridization processes for the local development. The circular processes (that are those that mimic the organization of natural systems, which are able to self-reproduce themselves and 'support' other systems at the same time) and synergies are identified as key principles to increase both the wealth and the city resilience.

The thesis here is that the wealth of the city depends on a new organizational structure that can be improved through cultural and strategic planning, if suitable institutional capital (rules, norms, laws etc.) is available. The challenge for supporting cultural and strategic planning is the evaluation process. This also concerns the critical knowledge of all the inhabitants (not-expert evaluation). The transition towards a prosperous city requires not only innovative rules/norms and tools, but also shared ways of life: regeneration on the

L. Fusco Girard, *The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

cultural dimension, for regenerating the community as a living bio-eco system. A comprehensive city landscape should be created, which is able to combine and recombine ideas, talents, the various forms of capital, and opportunities for mutual benefit. To the extent these processes are multiplying and also relate to the way of thinking of city dwellers, which is moving towards a 'relational' perspective, and thus to the 'cultural regeneration', (that is, of their mindset and way of life), this model is instrumental to achieve transformations/valorisation of the Cultural Urban Landscape able to contribute to the local economic development.

2. Towards the urban ecological economics

Cities have to transform their traditional urban economy into a new perspective in order to improve their comprehensive wealth. The urban ecological /economic base is not an option: it is necessary. Eco-efficiency allows eco-business and eco-profits, ('factor 4' and 'factor 10': Von Weizsacker et al. 1998, 2009) with new green jobs (Costanza et al. 1991; Martinez Alier and Roca 2000).

The implementation of the regenerative-city strategy starts with the introduction of green economic processes/productions. Regenerative city strategy decouples economic wealth production from environmental negative impacts (Flint and Raco, 2012). The regenerative city not only implements actions to conserve its wealth, but increases it, regenerating all kinds of capital (forests, water, land, man-made infrastructure, cultural heritage, social capital, etc.).

The regenerative economic model starts with initiatives for: saving, maintaining, re-using, re-cycling, re-generating materials, and using renewable energies. All these activities, included in circular economic processes (and thus into synergistic networks), become economically advantageous.

The regenerative city model aims to reproduce positive relationships between the city and the eco-system, and also with the social system. It not only stimulates the reduction of economic circuits at a local and regional level, reinforcing the chain of value creation (in

the construction, in the food industry, etc.) but it repairs damage, thus restoring values, and producing new plus-values. It is characterized by environmental high-technology industries, with networks of small and medium-sized enterprises which produce with low environmental loads new (and traditional) goods, and services, by recycling and reusing materials, water, waste (and thus reducing the resource and energy needs).

City and industrial areas become really integrated first of all if urban waste is transformed into inputs for the local industrial system. The next step is to transform the city imports (of industrial and urban waste) for recycling/regenerating them into exports materials, after biological, chemical and mechanical processing, in a win-win perspective.

The circular processes of the city's ecological economy are based on and implemented through synergies between system components.

Synergies can be produced between public institutions (which identify incentives to invest, to innovate, etc.); between financial institutions (which reduce costs and increase businesses, etc.); and between public and private institutions, to stimulate new positive dynamic trajectories.

Many examples of synergies are regarding the relation between components of the same economic/productive activity; between different enterprises; between private enterprises and research institutions; between private bodies, public institutions and University institutions (Etzkowitz and Leydesdorff, 2000); between the above agents and the civil society; between public institutions at different levels of government; between different social groups, etc.; between city centre and periphery; between different uses of land; between residential and industrial system; between green areas and built areas, and so forth.

3. The general model for the urban regeneration

The model has the basic aim of rebuilding links on different levels starting from landscape regeneration. From the density of links

L. Fusco Girard, *The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

development activities arise: added value and work/employment are produced and then the ability of humanization of development, because work is the main discriminating.

So the model takes on the synergistic, circularization and symbiosis processes as tools to multiply links/bonds. These in turn generate new synergies, circularity and symbiosis.

So, the idea of symbiosis becomes central. This notion should not be limited to the industrial field and the production of waste, but must be extended to the urban and social sphere. The circularization process should be transferred from industrial field to organization of the city itself, its economy, its social system, its governance (Fusco Girard, 2013a, 2014).

In particular, the following general relations between local productivity and circularization processes can be proposed.

- Economic Productivity = f (attractiveness capability)
- Attractiveness capability = F (landscape quality)
- Landscape quality = f (intensity of synergies and of symbiosis / circularization processes among different form of capital).

Symbioses are based on circular processes and on the density of synergies. They are characterized by interconnection/interdependence levels which can be established between different components. There are some examples of symbiosis that characterizes the animal/plant world, but also the social system, as well as the economic system, and also the cultural system.

A possible model of more general circular urban economic base is based on processes of value creation that are triggered by the symbiosis between production activities; between cities and production activities; and between cities and countryside—leading to new wealth and new jobs, as in the Japanese experience (Fujita, 2012).

These circular processes, reproducing resources, bonds, shared knowledge, values and meanings contribute to enhance the territory productivity: to the promotion of resilience, and thus to the city's prosperity.

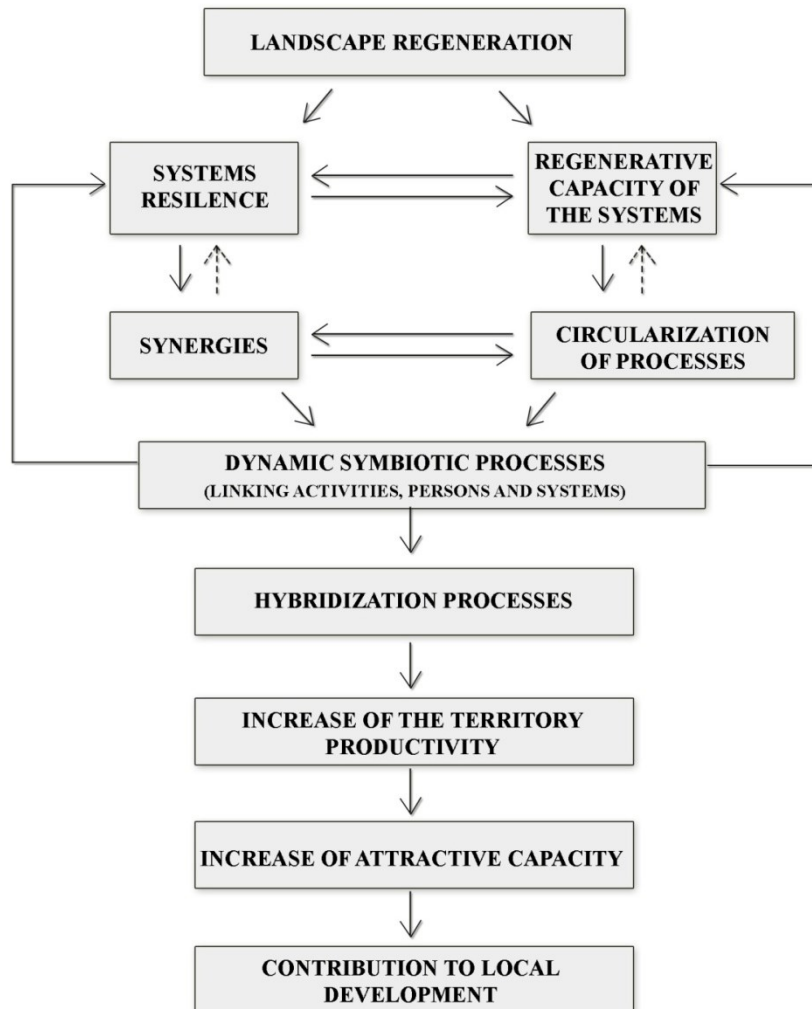


Figure 1. The general model

L. Fusco Girard, *The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

4. From symbiotic processes to hybridization processes

The notion of symbiosis can be compared to that of hybridization, because both start from the existence of dialectics duality (namely from the existence of pairs of opposites, sometimes, conflicting). Both have as a result the production of plus-value and namely of mutual benefits. The hybridization is becoming a leitmotiv in the growth of globalization and of related aspects of integration /crossbreed/ fusion/juxtaposition of originally different or separate identity.

Actually, hybridization is not the connection or even the fusion heterogeneous elements among them (or even incompatible), but rather the deliberate combination of these different entities, going beyond the binary logic of either/or, namely overcoming the traditional dichotomies or dualisms to promote co-existence, creating a “third space” from which new plus-value arises.

In other words, the hybridization process is associated to the process of production of value, which accompanies the transition from the contrast/contradiction to a mutual interdependence which creates new value. This original variety produces greater productivity and greater efficiency, and then new centrality in space, new attractiveness in the city, new ability to catalyze events/activities (manufacturing, commercial, cultural, social, etc.). These centralities promote in turn regeneration in urban/local scale.

In this sense, the notion of hybridization has been extended to the world of genetics which recalls the crossbreed and the graft, and also refers to the architectural and urban phenomenon, considered as an expression of a living organism characterized by dynamism, complexity and evolution capacity.

Today the adjective “hybrid” is used in order to indicate the crossbreed between different components in architecture, urban planning, economics, sociology, but also in the more general field of culture and politics. Indeed, it emphasizes the discrepant/contradictory nature of elements that are combined intentionally or unintentionally sometimes, even referring to incongruous logics. The result, therefore, can be negative: lack of purity, lack of homogeneity, but also lack of

real and operational results, therefore can be more positive because it is able to produce plus-value.

For example, in architecture a living space which also has a space for work, directly enjoyed by users is defined hybrid: that is a space in which are intentionally integrated residential functions and manufacturing or production functions on the ground floor. More recently, expression of hybridization are roof garden, green wall, etc.

The holy/religious architecture is an example of continues hybridization. For example, the churches were, in general, subject to continuous adaptation to the dynamic urban context, undergoing dynamic changes/additions and consequent juxtapositions over the centuries with a continuous metamorphosis which has given shape to the Romanesque, Gothic, Renaissance and Baroque, to Neoclassical, etc., often with a symbiosis between art and science, the sacred and the profane, between the physical and the metaphysical, between the finite and the infinite....

So have been overcome traditional expressions such as “purity”, with a series of connections that over time have produced plus-value, making living the architecture and then giving it a regenerative capacity.

In urban planning was introduced the concept of hybrid landscape (urban/rural), for example in the suburbs, to highlight the coexistence of different organizational structures, natural or artificial.

The hybrid landscape is characterized by the coexistence of multiple identities.

The square itself is an example of an hybrid space, with heterogeneous elements, because it is able to combine private aspects/needs with general and public aspects/needs/interests, taking shape as a space that produce value due to the increased density of relations/exchanges that can take place in it. The square, as hybrid space, thus becomes the engine for greater productivity in the city.

The link between hybridization and production capacity becomes key issue.

The result is a multi-functionality which increases the overall efficiency and then the regenerative capacity of resources, also economic ones.

L. Fusco Girard, *The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

This hybridization produces in general (when it is successful) a number of particular “places”, capable, indeed, of attractiveness capacity and as such of regenerative capacity, as catalyst for new activities/functions. More generally, the hybrid space is an open space for new opportunities and paradigms: for this reason the hybridization process is linked to that of urban regeneration.

Joseph Fenton emphasized long ago as the hybrid architecture expresses the effort of urban revitalization and the search for greater efficiency in the use of the soil resource (Fenton, 1985).

In the economic field, the hybridization processes refer to the loss of a clear separation among different productive/organizational logics. They consist in putting in relation intentionally different aspects, characterized by specific organizational architectures in order to produce plus-value, to improve the competitive capability. An example is the relation between profit (enterprise competitive in the market) and non-profit (social enterprise, cooperative enterprise, etc.) sectors which generates a new mutualism, as well as forms of co-production, co-operation, which share not only the means but also the aims. For example, the city of Loppiano (in Central Italy) expresses this hybridization logic between public and private.

The implementation of the so-called circular subsidiarity implies the creation of new relations (with a sense and meanings), between public institutions and private entities, organized according to capitalist logic of the market and individuals who do not recognize themselves in this capitalist organization of the market, but that share its objectives and recognized sense, and also their common interest. Another example is the combination of different business models in opposition among them, but which may become complementary under some conditions, stimulating chains of cooperative relations.

Other example is the hybridization among organizational industrial models and organizational models in the services sector. The examples can be multiplied.

Obviously new evaluation approaches in the development choices need to verify the productivity, namely the effectiveness of these hybridization processes and to pass from experiment to the proposal (or re-proposal).

In the evaluation field, the Planning Balance Sheet and then the Community Impact Evaluation, proposed by Nathaniel Lichfield, were tools which express the hybridization, meaning that it structurally combines logics from the economics of well-being (cost/benefit analysis, cost/results analysis), with logics from other approaches (government theory, etc. based on the capability to achieve specific objectives). The multi-criteria evaluation methods quanti/qualitative multi-group (fuzzy or not) are a further example of hybridization in the evaluation processes.

The hybridization in cultural field is structurally related to transdisciplinarity. The trans-disciplinary knowledge, which is distinguished from mono-disciplinary, interdisciplinary, multidisciplinary, etc. knowledge is based on general systems theory and complexity theory. It has fueled the ecological economics, the bio-economy, socio-biology, biophysics, art/technology, etc., overcoming the fragmentation of the split knowledge, but enhancing the mutual relations (Zeleny, 2001). Being founded on the relational principle and being characterized by a plural approach, which expands/enhances current disciplinary perspectives of specialized information, the purpose of the trans-disciplinary knowledge is to “go beyond”, namely to transcend current disciplinary specialists approaches, even offering new approaches, new models, perhaps even new paradigms.

Transdisciplinary research is actually characterized by an high level of research of integration; not only in terms of research between specialized disciplines and professionals, between solving problems ability and learning ability, but also between academic and non-academic knowledge, between theoretical and practical knowledge.

The landscape is a good example of issue that structurally requires a transdisciplinary approach.

This hybridization in the cultural field is an expression of the circularization culture, through which new virtuous circles can be created and even those vicious reduced.

The cultural hybridization integrates the objective calculation, (as in the evaluation tool of the economic matrix), with critical judgment and hermeneutic rationality.

L. Fusco Girard, *The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

The hermeneutic rationality is based on experience, learning, on the ability to embody the general principles in concrete contexts but specific and non-replicable.

The economic instrumental rationality is based on the reduction of heterogeneity/multisectoriality/multidisciplinary/complexity, to deduce a “computability” and then a repeatability in different situations in order to derive a convergence.

From the hybridization of these two forms of rationality follows a “complex knowledge” which is also re-generative, which is capable of produce/re-produce new opportunities and new relations and as such it is able to contribute not only to the choice of means but also to the choice of aims.

5. Some Examples of Good Practice of the Circular Economic Model

A number of examples of good practices in the circularization of economic processes at different scales (industrial symbiosis, city symbiosis, etc.) have been implemented in North America (Oakland), Australia (Adelaide, Kwinana), China, and in the EU. In Germany (Ruhr Region, Freiburg, etc.), Denmark (Kalunborg), France (Dunker), England, the Netherlands, and Switzerland many net benefits of circular processes have been achieved: the reduction of the costs of materials, labour and energy costs, and also the reduction of carbon emissions, with other positive impacts. These examples show that cooperation is economically convenient: many economic co-benefits come from waste and pollution reduction together with job production and reduction of environmental impacts (Liang Dong et al. 2013). In Japan it is planned to provide new experiences of urban symbiosis in practice after positive experiments in 26 cities (Fujita 2012; Van Berkel et al. 2009).

Circular processes and synergies in the ecological economy are the first step in promoting a new urban economic base. They should be integrated into tourism and heritage economic development.

In the new ‘circular’ heritage economy, import capability (attractiveness for tourists, talents, capitals, people, etc.) and export capability (handicraft products, art, local identity products/knowledge products, innovative services) will be integrated in wealth creative processes. The reuse, restoration, and regeneration of materials have stimulated these circular processes in building, rehabilitation and restoration/preservation. Cultural Heritage has been considered as the incubator space of new creative activities(creative economy), as often happens within cultural districts.

Some examples of good practice that have introduced elements of circularization have been implemented in cities such as Dublin, Liverpool, Hamburg. Others are more directly related to the ECoC (European Capitals of Culture) programme. The experience of ‘solar urbanism’ in Freiburg, in Daegou (in Korea), the ‘solar city’ in Linz, the eco-city in UAE, the Masdar City, are inspiring new perspectives for urban development.

A circular economic model has been implemented in many others experiences. From the systemic integrations between town and country result symbiotic processes, which enhance self-sufficiency and thus the systemic resilience.

The intention is to promote forms of a ‘relational economy’, i.e. a circular economy that ‘closes’ the circuits, transforming the ‘chains’ into a virtuous spiral.

An example of an ‘integrated economy’ is that anchored in ecology, which mimics natural symbiotic processes: for example, it proposes the processing of waste or its by-products into new resources and wealth, reducing emissions of pollutants and greenhouse gases; and promotes the recycling and regeneration of materials/energy/water (Fujita, 2012; Pauli, 2010). It is also the economy that connects (creating synergies) the private sector of the economy (managed along capitalist lines) with the public sector of the economy and the social/civil/solidarity economy sector. In small cities it becomes easier to move towards cooperative and synergistic behaviours among different actors, because of the existing “social” landscape.

Solidarity/social economics (Hiez and Laurent, 2011), which transforms investments into profits by re-investing to better meet the

L. Fusco Girard, *The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

social demand, is a form of circular/relational economics. The economics of cooperation and of social exchange are forms of mutual market relationships that enhance reciprocity, being based on a virtuous circle: to provide/receive; to donate/return. They change the traditional ‘economic landscape’, and open up a new more open and richer perspective of the ‘human economy’ (Hart et al., 2010).

The maintenance, reuse, rehabilitation, restoration, recycling, regeneration of materials and energy are implemented in a circularized economy. In turn, this circularization has contributed to supporting and financing the maintenance activities of different forms of capital, reuse and regeneration, as further circularizations in the circuit of value management.

6. The future urban economy

The future urban economy should be characterized also by a growing role of the social/civil economy in the management and self-management of specific projects concerning the cultural and natural heritage, etc., which stimulates, in particular, co-working, complementarities, synergies and thus employment and wealth creation, starting from local capital. Therefore, new governance should allow niches of economic organizations (that are alternative to capitalist ones), enlarging and increasing them in the direction of ‘economy civilization’, that is in the direction of the ‘economy of relationships’ (Genovesi 1766). The social/civil economy creates new cooperation spaces between public and private sectors, linking them both to the territory. All these can strengthen local people-based economic competitive capacity, as some examples of good practice confirm. Resilience can thus be increased.

An example of “integrated” economy anchored in the ecology is the “Blue Economy” that mimics natural symbiotic processes. For example, it proposes processing of waste or by-products in new resources and wealth, reducing emissions of pollutants and greenhouse; and promotes recycling and regeneration of materials/energy/water (Pauli, 2010). It is also the economy that

considers benefits not only for an entrepreneur who invests, but also to other subjects that are involved by external effects.

The solidarity/social economics, which transforms investments into profits by re-investing to better meet the social demand, is a form of circular/relational economy as well as the economy of cooperation, of social exchange are forms of market that enhance reciprocity, being based on a virtuous circle: to provide/receive and to donate/return. They change the traditional “financial/economic landscape” and open up new and richer perspectives of “human economy” (Hart et al., 2010).

Maintenance, reuse, rehabilitation, restoration, recycling and regeneration of materials and energy are enhanced in a circularized economy.

In turn, this circularization has contributed to support maintenance activities of different forms of capital, reuse and regeneration as further circularization in the circuit of output value.

New processes of value creation are triggered with the symbiosis between industrial activities, between cities and production activities, between cities and countryside; leading to new wealth and new jobs (Fujita, 2012).

In fact forms of local economies based on territorialization and “short” circuit country/city/country (models of agricultural development in small scale, 0 km), as well as strategies adopted for overcoming the crisis of natural ecosystems require circular processes. The economy of cultural heritage requires the capacity to attract (visitors/tourists), but also an ability to “export” goods and services outside of the areas of use.

These circular processes, that contribute to the promotion of resilience and thus to the sustainability of the “landscape system”, have particular implementation if there is a strong social landscape.

7. The notion of “complex urban landscape”

The challenge is to create landscapes that are organized as living processes: landscapes of circular relationships, synergies and dynamic

L. Fusco Girard, *The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

symbiosis that ‘tell’ of and in turn, promote new connections, relations of reciprocity, and interdependencies that increase the territory productivity. In this complex and multidimensional perspective, the landscape becomes not only an important tool for the reconstruction of memory, and then of collective identity and of community ties; but also the first element with which to reconstruct ‘attractiveness’, and thus work and development.

The ‘complex urban landscape’ consists of combinations of, and interaction amongst, six perceived landscapes (see Figure 2): natural, man-made, man-made/cultural, financial, social, and human landscape. The specific character of a city, its particular identity (its attractiveness) derives from the particular intensity and reciprocal combinations of these landscapes (Fusco Girard L., 2013a).

- The *natural landscape* is composed of existing natural capital, (biomass, biodiversity, parks and urban corridors, agricultural areas, natural ecoservices, lakes, rivers, energy resources, etc.). It connotes particular geographical/territorial city, and in any case depends on the type of use/management that is made by the inhabitants of this particular natural capital: it depends on environmental management of water, energy, and waste (management that can be human/wildlife co-evolutionary or conflicting).
- The *infrastructural man-made landscape* is composed of built infrastructures and the equipment system (roads, ports, airports, cycle paths, aqueducts, sewage, energy and ICT networks and communications, housing, public spaces, etc.) designed to improve the quality of people’s lives, to promote social welfare and economic development (improving economies of agglomeration and scale, etc.).
- The *cultural man-made landscape* is produced in the course of history. This is the heritage (cultural memory) of past generations, to be transferred to future generations (historic centres, urban ‘places’, squares and historic buildings,

landscapes and sacred sites, etc.) as a fundamental element of identity.

- The *Social landscape* is represented by social/civil networks, density of associations, the third sector, voluntary sector, proximity networks, that enhances relations, bonds and the social cohesion.
- The *human landscape* reflects the expertise, local knowledge, local entrepreneurship, and creativity of individuals. It helps to determine the 'human scale' of settlement, and also provides a sense of unity (between human beings and earth ecosystems: the perception that all human activities are sustained by nature) and relational openness.
- The *financial landscape* is made up of local credit institutions, 'community-based' lenders, foundations, co-operative banks, organizations of the third sector, and/or religious organizations that provide micro-credit, and institutions that promote the financing of district projects (initiated by inhabitants, etc.).

High quality of the complex landscape enhanced the city attractiveness - through more dense circular, synergistic and symbiotic processes - and thus stimulate a new demand and a new development perspectives.

The "historic urban landscape" (UNESCO, 2011) is similarly interpreted as the result of the dynamic interaction between the six different landscapes.

L. Fusco Girard, *The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

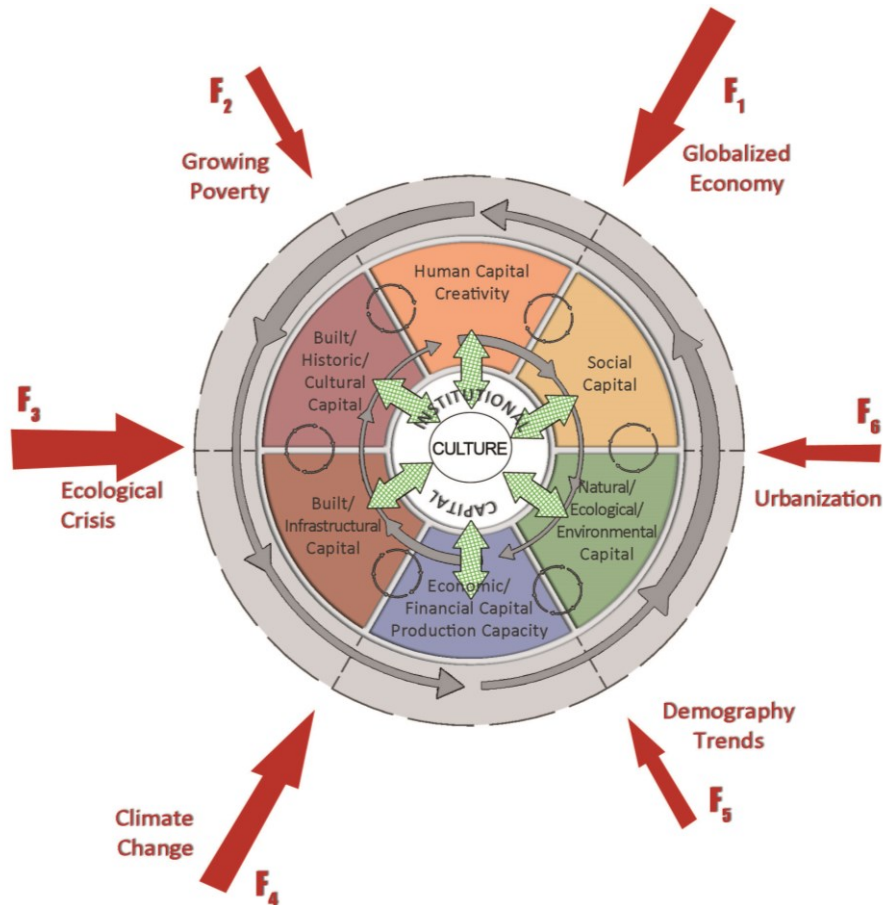


Figure 2. The six different forms of capital and the corresponding landscapes (From Fusco Girard, 2014)

8. Landscape and culture

The quality of places, of infrastructure, of human and social capital of a territory and the institutions therein, that is in general the quality of the "landscape", increases or decreases the productivity of a territory.

Essentially a landscape of quality, which is an accelerator/catalyst of attractive capacity and productivity, is the result of cultural processes; but in turn it changes knowledge, ideas and values of an territory, and that is its culture.

The landscape, as a result of identity and mutual combination of different forms of capital, which is configured through the institutional capital, finds its foundation in the culture and knowledge of a territory (see diagram in figure 2). It is the culture of a community which shapes the landscape where the community lives. In turn, such landscape triggers particular processes/choices.

For example, the expertise and professionalism in a territory generate a comparative advantage compared to others, which is an attractive ability that transforms itself into productivity and wealth.

The creativity of human capital also depends on the ability to weave together new relationships, new bonds, which in turn increase productivity.

Talking about knowledge / culture means talking about ideas and values of lifestyles and also about people: about their creative and interpretative intelligence, about their collective/cooperative capability, their willingness to weave together new bonds with a shared sense, to develop “driving ideas”.

The people are bearers of a real knowledge that differs from academic one because it is closely linked to the context and life: to adaptive capabilities, experimentation, learning, evaluation and re-evaluation.

The presence of quality human/social capital feeds these virtuous circles processes.

From the close relationship between culture and landscape it therefore follows the Strategic Plan for Culture becomes the foundation itself of the Local Development Plan.

In the current globalization, each territory is trying to identify its specificity that makes different one territory from another and is trying to exploit these differences in order to be more attractive as to production factors, that is to increase productivity (from which its strategic positioning achieves).

L. Fusco Girard, *The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

Productivity is closely linked to the ability to activate circularization processes. The basis for the research work for greater productivity and therefore of circularization processes is the research for a use (or re-use) of the knowledge produced in a specific territory.

Knowledge means “driving ideas”, being able to express ideas in a particular context. The "driving ideas" are ideas able to bring together different interests and objectives, creating in turn new bonds, that is new synergies and thus new projects of new activities characterized by symbiotic bonds and they determine the components of a supply chain that generate in turn a new economic value.

The “driving ideas” determine new relationships / links with a shared sense of the actors, and then a new value. In turn, this new value increases bonds and relationships generating / regenerating shared sense, new knowledge in a circuit tending to be self-sustaining from a certain threshold onwards. So, the regeneration of the local resources, which feeds on the activation of the circular processes, is triggered.

Such circularization processes are realized in different forms of synergy, symbiosis, hybridization.

In summary, being culture / knowledge and landscape one of the other product, the Strategic Plan for Culture becomes the fundamental tool to improve the transformation of the landscape, because the landscape plan and/or urban planning are not enough in order to maintain going forward the produced plus-values.

Many cities are therefore equipping of new tools, including the Strategic Plan, in order to face with new challenges of change:

- a) a more intense and difficult economic competition to the global / international scale that requires the introduction of more effective innovation processes, and then training;
- b) an increasing unemployment (above all of young people), which in turn produces disintegration / social fragmentation;
- c) an increasingly ecological/environmental degradation, with negative impacts on the health and well-being of inhabitants.

The common element is to recognize the culture as the “key element” for local development and, therefore, the necessity of investing on the strengthening of cultural basic urban, as a prerequisite

for greater overall productivity. Culture is the true force that guides the change, and who can guide the transformation of the city. Cities that are investing in culture appear more flexible and resilient, capable of self-organization.

Indeed, the culture produces trust, which is the principle on which all the economic and public / political activities are based.

The Strategic Plan has its foundation in the Strategic Plan for Culture because it supports the entire urban development policies (urban, of inner cities, economic, environmental, etc.), triggering primarily a dense horizontal communication process among all hubs of the cultural urban network, towards a polycentric cooperative organization.

But above all, it is aimed to identify strong ideas, that is capable to coagulate agreement, to build social glue, that is, the ability to stay together, and therefore a shared vision of the future, which triggers the production of new value....

The Strategic Plan for the culture has to "go beyond" and stimulate the reintegration of knowledge: between knowing to do (know how) and critical knowledge (know why). Only through the critical knowledge it can be possible to choose the most appropriate priorities in a context of so accelerated changes, and the reasons for these priorities.

This plan aims to contribute to the construction of the general interest of the city, re-politicizing its inhabitants, that is making them re-builders of the city. The transition to the human and sustainable city requires the citizens and institutions participation.

The process of *Local Agenda 21 for Culture* allows the strategic plan for culture to start from the bottom.

The *Local Agenda 21 for Culture* is a new "public space" for dialogue, through which it is possible to build specific responses of the city to the three major challenges of our time. This can become a fertile process to promote an urban cultural strategy for growth and identity, social responsibility and citizenship, which are essential ingredients for development.

The private operator neither the local government in general is not interested in the promotion of *The Local Agenda 21 for Culture*,

L. Fusco Girard, *The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

which aims to identify a cultural project for the city, which is essential for its strategic development. Only particular institutions, such as Universities and the world of education / training / research have real interest in it and skills to activate this process intended to "cultural regeneration" of the city, as the foundation of urban regeneration.

Certainly the *Local Agenda 21 for Culture* should not be reduced at a "technical" process, which involves only "expert knowledge", but it should be open also to common knowledge, and then able to educate for critical comparison of different values, visions, impacts.

With a constant educational approach, starting with the young, people should be encouraged to listen to public arguments, in an interactive process, open to different forms of rationality of the various actors (not restricted to an instrumental rationality). But people should also encourage a culture-led urban economy.

9. Conclusions

Cities and regions are more and more investing in the knowledge economy, redirecting financial resources from housing, traditional infrastructure, and business supports in order to stimulate investments in knowledge production, in promoting knowledge city, creative city.

Knowledge economy is urban centred: schools and universities are at the heart of the new knowledge economy. They are becoming the excellent pole for knowledge production. The network of schools and universities are the endogenous development poles that can be interpreted as the system of actors of the new knowledge economy.

Universities and schools become key components of the wealth of the city. They are poles of innovative knowledge production and thus poles in the knowledge economy. The network of universities is the structural network of knowledge in the local, regional and globalized economy, required to face more and more difficult choices, in a general context of globalization, economic crisis, migrations and climate change. From the University network can start a new "urban economy", as a bridge between the Academy and the city.

Culture means not only ideas, values, ways of life, that shape the landscape ; not only cultural heritage but also knowledge production to help decision makers to balance economic efficiency with social cohesion/equity and sustainable environmental in required trade-off.

The capacity to promote a new “urban science” with a more future oriented mindset is the general challenge: the capacity to make a transdisciplinary, holistic, integrated approach that is in the same time more operational, based also on non-academic expertise, on practical/professional expertise, overcoming the silo’s approach that characterise universities departments, towards a post disciplinary/transdisciplinary perspective.

Possible topics of the urban research, in promoting the transitions towards a new circular urban economy, can be:

- The role of intangible capital in the wealth of cities production;
- Urban symbiosis, urban metabolism, the hybrid processes: new management models for improving city conditions;
- Good/best practices through specific evaluations tools;
- Multidimensional impact evaluation in the urban context;
- Finance and sustainable development; Entrepreneurship and eco-innovation; Entrepreneurship in the social economy.....

The common element of all these initiatives has been represented by acknowledgement of the central role of culture (in this multiple dimensions of knowledge, cultural heritage, current way of thinking) in shaping a more desirable future landscape .

The paper in this issue moves in this direction : to contribute toward a new “urban science”, characterized by transdisciplinarity and hybridization. They stimulate a set of benefits in the form of cost/waste reduction, production of new jobs, reduction of environmental impacts. In so doing, cities can activate a process of ‘transition’ toward a new model of development, based on the interpretation of the city as a living organism, reintegrating the nature into the city and regenerating co-evolutionary and culture-led relations. In short, cities should improve their natural/man-made/human/social and financial landscapes. This is definitely a necessary step for improving the urban productivity and the local economy.

L. Fusco Girard, *The role of cultural urban landscape towards a new urban economics: new structural assets for increasing economic productivity through hybrid processes*

Notes

¹ For example, among mushrooms and algae, among plants and microorganisms and among animals of different species, arise interdependencies naturally favorable. The mushroom eats organic compounds produced by alga, while the latter receives from the mushroom, which collects water (from the morning and evening mist) and minerals. Other examples concern different species (hermit crab and sea anemone, etc.) and man/microorganisms.

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Laboratorio Pescara. La ricerca di connessioni tra aree marginali e nuove centralità*

Raffaella Radoccia¹

Sunto. Il Piano di rigenerazione di Fontanelle-Sambuceto, selezionato dall'Istituto Nazionale di Urbanistica quale buona pratica di pianificazione, si propone come una straordinaria esperienza di collaborazione territoriale tra Pescara e Chieti, ma anche come un percorso orientato alla progettazione di residenze sociali e di nuovi spazi aperti per lo svago e per la didattica, e mirato alla costruzione di relazioni solidali tra giovani e anziani, alla ricerca di forme di risparmio energetico e di riqualificazione ambientale.

Parole Chiave: spazio pubblico, pianificazione partecipata, strategie di area metropolitana, collaborative planning.

1. Introduzione

Il 26 marzo 2013 il viaggio nei Comuni delle Buone pratiche della Biennale dello Spazio pubblico ha fatto tappa a Pescara, attraverso lo svolgimento del Laboratorio "Connessioni" organizzato dal Comune di Pescara e dal Comune di San Giovanni Teatino nell'ambito del Piano di Rigenerazione di Fontanelle-Sambuceto.

Il Laboratorio si muove sulle azioni che le amministrazioni comunali stanno avviando per la riqualificazione di aree periferiche, dismesse o in recente trasformazione, poste nella frangia tra Pescara e la valle fluviale, con l'obiettivo di capire come favorire la mobilità interna e la connessione degli spazi pubblici, dopo anni di forte espansione edilizia.

*Paper invitato

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In particolare questo Laboratorio pone l'attenzione sulla capacità del Piano di introdurre nuovi spazi aperti ed attrezzature per la mobilità, rispondendo alla più recente domanda abitativa e lavorativa, in un contesto segnato anche da problematiche sociali, strutture produttive in dismissione ed infrastrutture viarie strategiche.

In parallelo il Laboratorio di Pescara si è sviluppato come un percorso partecipativo rivolto a chi abita quel territorio e si svilupperà quindi attraverso 3 focus tematici mirati a rilanciare l'insieme delle questioni a tecnici ed esperti ma anche alle altre amministrazioni locali, coinvolgendole nel Viaggio delle Buone pratiche.

Il Piano di rigenerazione di Fontanelle-Sambuceto si colloca inoltre all'interno della rete europea Urbact e tende così a proporsi come una straordinaria esperienza di collaborazione territoriale tra Pescara e Chieti, ma anche come un percorso di co-pianificazione orientato alla progettazione di residenze sociali e di nuovi spazi aperti per lo svago e per la didattica, e mirato anche alla costruzione di relazioni solidali tra giovani e anziani, alla ricerca di forme di risparmio energetico e di riqualificazione ambientale.

2. Percorsi partecipativi e scenari emergenti dagli orti sociali alla soft mobility

Il Laboratorio di Pescara ha prestato una particolare attenzione alla introduzione di nuovi spazi aperti, legati sia ad innovativi usi del suolo (parchi e orti urbani), sia ad attrezzature per la soft mobility, sulla base delle più recente domanda, posta da chi abita e si trova a lavorare in questa parte del territorio pescarese e chietino.

Il Laboratorio di Pescara ha portato avanti un percorso partecipativo, rivolto a chi abita e lavora a Fontanelle attraverso 3 focus tematici, mirati a raccogliere le istanze locali rilanciarle nel dibattito in corso all'interno del Viaggio delle Buone pratiche, condotto dalla seconda edizione della Biennale dello Spazio Pubblico. I focus-tematici sono stati rivolti ad esperti e studiosi, perlopiù locali, ai tecnici dei Comuni limitrofi e delle Province di Pescara e Chieti, agli stakeholder coinvolti direttamente nel processo partecipativo

attivato dal Comune, ai rappresentanti di categoria e dei cittadini e naturalmente ai cittadini stessi quali destinatari diretti e indiretti delle azioni del Piano di rigenerazione di Fontanelle-Sambuceto.

Per questi motivi le domande per i focus sono state mirate a discutere e quindi a rilanciare alcune questioni nel percorso di copianificazione. I Focus tematici su Orti Urbani, Parchi Urbani e Greenways hanno approfondito i temi progettuali sviluppati nell'elaborazione del Piano di rigenerazione urbana, ma hanno anche raccolto le ulteriori proposte provenienti dal territorio, attraverso un confronto parallelo tra i diversi portatori di interesse.

I focus tematici hanno avuto la partecipazione di circa 50 tra residenti, professionisti e rappresentanti di enti locali e di servizio, diverse amministrazioni coinvolte nel processo di rigenerazione, organizzazioni sociali ed economiche, Università e Ordini professionali ed esperti dell'Istituto Nazionale di Urbanistica.

Il Dibattito conclusivo del Laboratorio si è svolto in seduta plenaria consentendo il confronto dei diversi partecipanti intorno a questioni interdisciplinari e multi-scalari. Durante la riflessione sono emersi elementi per la rigenerazione del tessuto di Fontanelle e spunti di riflessione sociale ed economica che possono essere ricondotti a parole chiave per ciascun tema, come:

- porosità, rendita dei suoli, rendimento economico collettivo, valore sociale, didattica ed ecologia;
- collegamento, permeabilità del sistema di trasporto, trasversalità del paesaggio, parco didattico, mobilità dolce, pedalata assistita;
- flessibilità dell'uso, gestione, sicurezza, qualità dello spazio, creatività, servizi per gli abitanti, incontro e integrazione sociale, attenzione alla disabilità e allo svantaggio.

3. La città per tutti e i nuovi spazi pubblici

Alla scala pescarese il tema della *città per tutti* sembra così specificarsi attraverso l'apertura di nuovi spazi, destinati ad ospitare le diverse forme della attuale mobilità urbana, che mostrano l'intenzione

di rispondere alla nuova domanda di spazio aperto e pubblico, che sta emergendo nell'intera area medio-adriatica italiana.

Il Laboratorio ha inteso discutere in forma allargata la questione della mobilità interna ed esterna al centro urbano pescarese, quale occasione per ragionare sulle modalità e sulle esigenze di distribuzione dei flussi commerciali, produttivi, abitativi, all'interno dell'intera area costiera e valliva pescarese.

In questo senso il Laboratorio è stato finalizzato a presentare e discutere alcuni progetti di trasformazione di grandi spazi aperti in fase di riconversione, destinati ad ospitare servizi amministrativi e privati, oltre che nuove abitazioni e attività commerciali.

Le aree coinvolte sono tra il centro urbano e importanti direttrici di traffico e attrattori urbani (Tiburtina Valeria, SS 16, Pescara nova, Molino de Cecco). Gli interventi sono al centro di 2 piani particolareggiati, che recuperano le indicazioni del PRG di Pescara e le aprono a un sistema di progettazione pubblico/privato, in maniera innovativa ed estendibile a buona parte del sistema abitativo, costiero e vallivo, abruzzese (cfr. mappa geo-referenziata sul sito).

Quindi questo Laboratorio può essere interpretato come una prima occasione di approfondimento, come un seminario aperto al confronto tra competenze e allo scambio con esperienze innovative sulle tematiche connesse alla mobilità, all'agricoltura urbana e alla gestione ambientale.

Per questo durante il Laboratorio sono state presentate e discusse le forme (spaziali, abitative e relazionali) degli spazi aperti di Fontanelle sulla base delle indicazioni poste dal PP4 e dal PP7, quindi sulla base della loro capacità di soddisfare la richiesta posta dai nuovi spostamenti abitativi e lavorativi.

Per queste ragioni al Laboratorio hanno partecipato non solo esperti nazionali e facilitatori locali, ma anche i referenti delle associazioni che hanno preso parte ai percorsi e ai forum partecipativi, coordinati dal Comune di Pescara durante il percorso di programmazione europea, di co-progettazione partecipata e di comunicazione pubblica.

Extended Abstract

The Plan for the regeneration of Fontanelle-Sambuceto is part of the European Network Urbact as an extraordinary experience of territorial cooperation between Pescara and Chieti; the Plan is the result of a process of co-planning oriented to social housing and new open spaces for leisure and for education, and also aimed at building relationships of solidarity between young and old, looking for forms of energy conservation and environmental regeneration.

The “*Connections*” Laboratory, organized by the Municipalities of Pescara and San Giovanni Teatino, deals with the actions for the redevelopment of peripheral, abandoned or in recent transformation areas placed between Pescara and the river valley, in order to understand how to promote internal mobility and connection of public spaces, after years of rapidly building expansion.

Through a participatory process directed to those who live in that territory, the Laboratory has sought to deepen and discuss some projects to develop new open spaces and mobility equipment, responding to the most recent needs for housing and employment, in a context characterized also by social issues, production facilities in decommissioning and strategic road infrastructures.

Ultimately, the Laboratory can be interpreted as workshop open to dialogue and to exchange of skills based on innovative experiences about issues related to mobility, urban agriculture and environmental management.

Safe evacuation of historical buildings content*

Zdena Rosicka ¹

Abstract. Damage to historical buildings and its content in case of emergency has to be minimised. Quality of logistic support can affect how fast and safe movable cultural heritage items can be salvaged; evacuation is considered as one of methods how valuables can be saved. Most emergencies are water related, i.e., the result of flooding, leaking water transport system or extinguishing fire. In order to reduce loss or possible theft, relevant detailed documentation should be available.

Keywords: evacuation, historical building, protection, emergency

1. Cultural heritage pools

Damage or deterioration of movable cultural heritage resulting from crisis situations affects represent serious harm to cultural treasure of every country. Cultural as well as natural heritage keeping and preservation should become inseparable component of public interest; devastation or damage of any significant part of cultural heritage is always an irrecoverable loss. Life and heritage are linked; it is a part of the indivisible whole. The efforts to secure one should serve to strengthen the other and we should be able to find one common language.

*Invited paper

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The term cultural heritage is comparatively comprehensive; there are covered historical buildings, archive documents, historical typographical art works, manuscripts and book collections, letter masterpieces, stage design art, cinematography, television and audio-visual pieces, museum and gallery collections, fine arts, paintings, utilitarian masterpieces, folk art, industrial monuments and technology pieces, etc.

Unfortunately, the cultural heritage protection is not included in every constitution and therefore we cannot find there desirable formulations such as 'everybody is obliged to protect and improve environment and cultural heritage; nobody is allowed to break the law and threaten or deteriorate environment, natural resources and cultural heritage items'.

Cultural heritage comprises cultural heritage pool, which covers movable and immovable items promulgated as national cultural heritage monuments, cultural heritage reserves and cultural heritage zones (Fig.1). The term cultural heritage monument covers movable items including valuable museum and gallery collections (hereinafter movable cultural heritage monuments) or immovable valuable cultural heritage items, which are classified as cultural heritage items because of their protection.

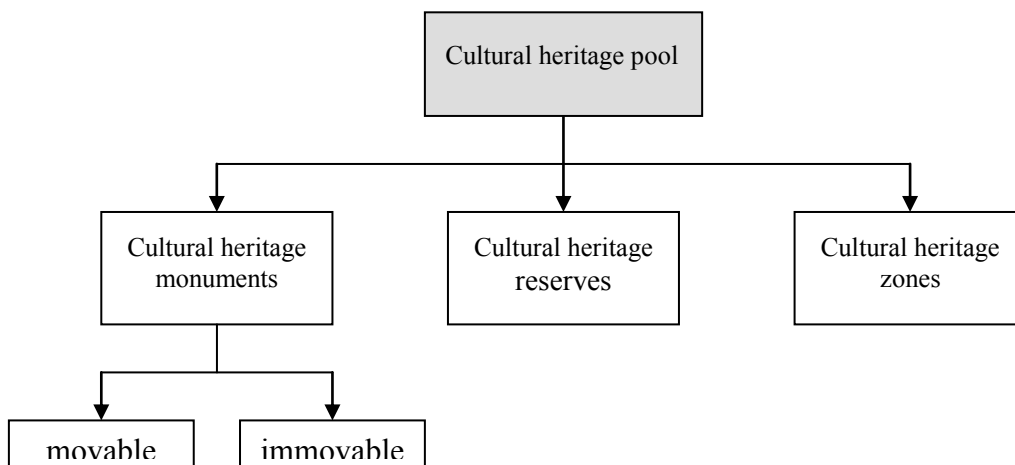


Fig.1 Cultural heritage pool structure

Reasons of damage or complete devastation of cultural heritage monuments vary. They can result from anthropogenic affects, for example at social unrest, economic, religious, national conflicts that might further result in armed case (war threat). Movable cultural heritage monuments threatened by terrorist attacks can be classified as risks caused by human factor. Another threat can be caused by natural disasters (rain storm, hail-storm, floods, high water, fire, earthquakes) and environmental affects (release of hazardous agents).

2. Protection measures

Fundamental protection of any movable cultural heritage item can be characterized as a complex of legislative, organizational, technical and material activities and measures carried out in order to prevent threat, deterioration, damage or theft of cultural heritage items; they are focused on continuous keeping the cultural heritage itself as well as its environment and monitoring whether the cultural heritage is used or presented as required, i.e., by historical value and technical condition.

Protection of movable cultural heritage has to be arranged in close co-operation of authorities as follows:

- state administration authorities,
- municipal authorities,
- owner (state, church, physical and juridical entities).

State supervision over the cultural heritage pool protection is accomplished through a regional ancient monuments authority, which, in addition, renders professional and methodological assistance to municipalities, physical and juridical entities to save movable cultural heritage items threatened at emergencies as stipulated by the methodological resolution; it accomplishes close cooperation with crisis management authorities or relevant district offices and autonomous regions. Being a part of preventive measures, regional ancient monuments authorities are obliged to solve the risk analysis of threats to movable cultural heritage and its location before the

emergency occurs and they are also obliged to ensure activities as follows: specific protection of a particular cultural heritage entity, prior selection of location for further accommodation of movable cultural heritage entity; crucial responsibilities for movable cultural heritage protection activities are on their owners or founders or establishers (e.g. museums, galleries, etc.). Completeness and quality of logistic support can significantly affect how fast and safe movable cultural historic items are salvaged in case any emergency occurs.

Promptness and effectiveness of evacuation procedure requires from involved responsible individuals to use every available means in order to save and salvage maximum cultural heritage items with minimum strength and means. Complex protection procedure of cultural heritage is a complicated problem depending on various factors. Movable cultural heritage item can be relocated without a decision of state administration body in case it is immediately threatened by damage or destruction, an emergency occurs, and at the time of war and state of war. Evacuation can therefore be considered as one of methods how movable cultural heritage can be saved.

When a disaster strikes, the evacuation of people is often made immediately. When the staff is allowed to re-enter the site, it is couple of hours later and often for a limited time. However, it is essential that a building is secured and entry is allowed for a limited period, particularly at the beginning. Everybody knows that especially in case of a flood, it is necessary to act as soon as possible because two-three days are enough to ruin water-damaged documents. This is why we have to carry out emergency response very urgently. Nevertheless, there should be realized that it is always better to spend a few minutes to decide on the best emergency strategy than hurrying around chaotically, which can only lead to mistakes. Using common sense prevents making mistakes.

Disaster plan is a document but there is always a long way from theory to practice. The staff should be trained: time devoted to theoretical training has to be complemented by disaster workshops. Topics should include handling damaged documents, which needs time and money. Workshops should be dedicated to specific problems, starting from discussing equipment and response measures to the

handling documents necessary to get in touch with emergency services which might be called for help in case of a disaster. Organized teams of volunteers should be arranged; we should make lists of human resources, equipment and service off-site.

3. Water – the most urgent calamity in the Czech Republic

Most disasters are water related, i.e. the result of flooding caused by high water, storms, leaks of water and water and other agents used to extinguish the fire. However, floods are one of the most common hazards in the Czech Republic. Flood effects are local, affecting a neighbourhood or community, or very large, affecting entire river basins and multiple regions. However, not all floods are alike: some floods develop slowly, sometimes over a period of days. Flash floods can develop quickly, sometimes in just a few minutes and without any visible signs of rain. They have a dangerous wall of roaring water carrying rocks, mud and other debris and can sweep away most things in its path. Overland flooding occurs outside a defined river or stream, such as when levee is breached, but still can be destructive. Flooding can also occur when a dam breaks, producing effects similar to flash floods. We should be aware of flood hazards no matter where we live, but especially if we live in a low-lying area, near water or downstream from a dam. Even very small streams, gullies, creeks, culverts, dry streambeds or low-lying areas, which appear harmless in dry weather, can flood.

Moisture damage also results from leaking joints or broken pipes in water and water transport system within old buildings. As pipes are generally enclosed within walls and floors, leak may only be noticed long after hidden moisture may have increased wood rot or weakened plaster walls and ceilings. Water and humidity can cause particular damage to objects, fittings, furnishings, collections, libraries and archival records. Damage can include loss, separating or removal from original setting or context; rusting or corrosion of metals; dissolution of finishes, paints and surfaces; erosion of masonry mortars and

deposition of waterborne impurities in the pores of masonry units; warping, splitting and cracking of wood and organic materials and increased susceptibility to rot; deposition or contamination from waterborne chemicals and microorganisms.

Considering broad experience from repeated floods in 1990s (damaged archives and libraries in Prague, Olomouc and other cities), further flood disaster plans include detailed lists of emergency procedures and recommendations, as well as updated lists of resource people to contact when the crises arise, lists of suppliers and service providers. In case of movable heritage evacuation from buildings, there are lists of types and number of vehicles including passable roads available. The flood disaster plan also includes the list of people who might be able to help in case of disaster and the extent of their intervention, kind of responsibility they have, external staff working in other neighbouring cultural institutions, packaging material, cardboards, freezer companies, decontamination centres, etc. Finally, the plan also includes location of collections, rescue priorities, handling damaged collections according to various types of water damage. Placing rescue kits or carts with essential response equipment in strategic sensitive points of the building also helps to avoid losing time later on. Such a disaster plan is intended for entire staff of the institution; different members of the staff are provided with specific responsibilities according to their abilities not to their status. That is why a storage area employee who has been working at the building, e.g. an archive, library, gallery, museum, etc., let us say for 15 years, is more qualified than a recently appointed boss to select water-damaged items to be evacuated from the shelves. The boss's job consists in coordinating operations within the emergency services and keeping in touch with the local services.

4. Handling and removal of library and archival materials

Book trucks should be used to move books to the stacks from processing, circulation or in any case of emergency. A salvage team must concern itself with the issues involving those materials to salvage

and those to replace. These triage-based decisions must take into account the cost of material, its value to the library, its availability if replacement is necessary and the labour involved in acquiring and processing it. If only a small amount of material is affected, it is possible to review each item for salvage or discard. Usually there is no time during a package time. Once the material is frozen, it can be reviewed at a more leisurely place. That is why it is better to have some idea ahead of time as to which collections should be recovered first. Many libraries as well as archives give priorities for package and salvage (it was the case of Karlin archive in Prague) to records and collections containing information needed to establish or continue operation after a disaster and aid recovery operations. All the materials are grouped into four or five priority categories in the event of a disaster in advance.

First priority is given to the bibliographic records of the collection or some types of magnetic or electronic storage devices. High priority is always given to special collections, rare or restricted materials or materials, which would be too costly to be replaced or are not available at any price. There are included materials and items, which should not be frozen and further, air-dried. Next are materials, which are replaceable but to get them is time and money consuming. When the disaster strikes, the time is the essence. Decisions must be made quickly about which materials to sacrifice and which to save.

For historic properties, the response plan should include an inventory and documentation of fragile and significant building elements, objects and fittings, which may require special attention and possibly salvage removal and conservation.

5. Adequate documentation

In case of any disaster, in particular, during and after accomplishing evacuation, transport and relocation activities, there is a high danger of theft or even illegal trade and “further export”. Therefore, detailed documentation and records should be available at any time. Written description, photographs, microdots, chips

application, DNA database, etc. are of crucial importance for further search for lost, stolen and sold objects. What particularly should be recorded for further identification?

a) Type of the object where the artefact is located: castle, chateau, museum, gallery, monastery, depository, archive, library...

b) Permanent location: code system applicable to buildings, rooms, shelves, drawers, boxes...

c) Actual location: it is permanently displayed, relocated within a museum, borrowed and displayed somewhere else...

d) Object characteristics: archaeological, secular, religious...

e) Type of the object: painting (oil, charcoal, gouache...), fresco, engraving (lithography, linocut, wood-engraving...), sculpture (stone, wood, gypsum...), religious aids, weapon (thrusting, cutting...), furniture, fabrics (carpet, embroidery, uniform, national costume...), jewel (ring, bracelet...), musical instrument (string, brass...), product of nature (precious stone, fossils...)...

f) Author, manufacturer, producer, date of origin, weight, price, dimensions, shape...

g) Surface treatment: polychrome, golden-plated, coat...

To identify and minimize potential damage and liabilities, significant gains in reducing risk can be achieved by using various systems in coordinated efforts: local, regional and national inventories of historic sites, emergency works, advice service, object ID, etc. Standards for inventory and object ID are set at national level: therefore, much work can be delegated to the local level.

J. P. Getty Trust initiated a project Object ID in 1993 and launched it in 1997. UNESCO classified the Object ID as the international standard for recording data on cultural property in 1999; the system is currently promoted and used by museums, insurance companies, art dealers and appraisals, law enforcement agencies, Scotland Yard, FBI, Interpol and everybody who owns a valuable piece of art.

Object ID is an international documentation standard for the information needed to identify art and antiques, i.e. movable cultural heritage. It responds to the failure of the practice of recording objects to enable owners, dealers, customs officers and police to identify objects confidently and fast.

Object ID recommends that the information is gathered to fully document the object, i.e., the title, the author, the date of the object, a written characteristics of an object, the material it is made of, the technique applied to its final appearance, physical dimensions, possible inscriptions and any distinguishing features. Written descriptions should be supported by photographic documentation, as it is particularly helpful. All these characteristics should be a part of an appropriate art theft database and a copy should carefully be saved as well to be available when needed.

The FBI adopted Object ID for its art theft database, i.e. the National Stolen Art File. In order to keep an object in the database, it has to be unambiguously identifiable, be historically significant, has an artistic value equalled at least to 2,000 USD, and the law enforcement agency must raise the request to be searched for as a part of a criminal investigation.

6. Conclusion

Considering logistic support, movable cultural heritage evacuation from historical buildings is ready to solve the possible problems as follows:

- to determine in advance the place for further location,
- to select appropriate trucks, vehicles and handling equipment considering the specificities of load bearing capacities of historic yards, bridges and gate widths,
- to work and keep instructions how to manage and handle safely particular cultural heritage items,
- methods, how evacuated items are removed out of the buildings and loaded on and into prepared means of transport,

- methods and routes of transport to relocation places.

Evacuation of movable cultural heritage is one of way of its protection. Particular characteristics of movable cultural property, its storage and location represent a serious problem at the process of protection and saving. Successful solution how cultural heritage can be saved consists, among other, in professional preparation and training of individuals involved as well as in relevant documentation, competent and complex logistic support of every evacuation activity.

Extended abstract

Every cultural heritage object and its content has its unique character and calls for an individual approach considering safety, protection, security and risk-preparedness. The public usually know about high-value losses of cultural property caused by burglary, fire or flood when the mass-media report them; however, physical care, including environmental and conservation control, property transfer and transport, personal access, thefts from exhibits during the day, incidents of smash bring about higher-cost internal losses, which are sometimes not reported at all. Therefore, consistent care for collections security intensified in terms of detailed safety manuals covering record keeping and inventory systems, handling procedures and better trained protection managers caring for collections stored in and possessed by an institution could permanently be improved. In case any disaster strikes, harm to cultural treasure is sometimes serious and losses irreplaceable unless relevant measures are taken in time. Disaster plans are ready to be followed and flexibly modified, the staff regularly trained, well organized and willing to protect and save the valuable stuff, relevant storage places for further location determined, appropriate trucks, handling equipment and packaging pre-contracted, handling manuals available, evacuation routes tested, and heavy-duty communication means ready for immediate use.

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Las Corralas y la situación de la vivienda en Sevilla*

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Abstract: The article analyses the housing situation in Spain, specifically in Seville, by the phenomenon of Corralas. We're going to start with a short introduction about the housing laws in Spain, than we describe Corralas using a specific real case to better understand the bases of this phenomenon, why it happens, what the aim is and whether it achieves its goal. At the end, we'll show our conclusions and we'll submit some suggestions to improve the current situation.

Keyword: Corralas, housing laws, eviction.

1. Introducción

Durante los últimos años estamos viviendo en España una crisis financiera (provocada por la burbuja inmobiliaria) que está afectando a multitud de personas, produciendo diversos problemas sociales. Uno de éstos está relacionado con la vivienda, ya sea por el hecho de no tener la capacidad de acceder al disfrute de ella en propiedad o en alquiler, o bien por no disponer de recursos económicos suficientes para poder hacerle frente al pago de la misma, lo que termina en riesgo de embargo o desahucio, generando exclusión social.

Está problemática, debido a su envergadura e impacto social, debe ser atendida por los poderes públicos, es decir, las distintas administraciones con competencias en materia de exclusión, vivienda y políticas sociales. La vivienda se ha convertido en un negocio del

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que pocos aprovechan sus beneficios (empresas constructoras, inmobiliarias y entidades bancarias), olvidando las consecuencias que sufren los ciudadanos, quienes precisamente deberían poder acceder y disfrutar de ellas. Según datos proporcionados por el Gobierno de España, de 2008 (comienzo de la crisis) a 2012 se produjeron entre 4.000 y 15.000 desahucios de primera vivienda. En los dos últimos años, la cifra ha seguido subiendo respecto a los anteriores, manteniendo una escalada imparable.

La vivienda digna es uno de los pilares básicos del bienestar social al que todas las personas tienen derecho y así aparece recogido en la Constitución de 1978, artículo 47, donde se cita:

Todos los españoles tienen derecho a disfrutar de una vivienda digna y adecuada. Los poderes públicos promoverán las condiciones necesarias y establecerán las normas pertinentes para hacer efectivo este derecho, regulando la utilización del suelo de acuerdo con el interés general para impedir la especulación

A pesar de ello, nos encontramos a diario con familias y personas afectadas por desahucios, embargos, falta de ingresos para adquisición de vivienda, finalización de contrato de alquiler, hacinamiento en el hogar y emancipación cada vez más tardía. Y en este contexto, la obligación de los poderes públicos de prestar de forma universal una vivienda a los ciudadanos que la necesiten (adaptándose a las circunstancias personales en la que se encuentren los individuos) desaparece.

Estas personas se encuentran en un callejón sin salida: sin vivienda, y sin apenas legislación que les ampare (en parte porque nunca se había producido este fenómeno a esta escala). De hecho, la reforma de la ley hipotecaria de 2013 ha sido declarada este mismo año 2014 ilegal por el Tribunal de Justicia de la Unión Europea. Los Servicios Sociales por su parte tampoco son capaces de ofrecer

soluciones alternativas, e incluso han visto reducidas las partidas presupuestarias debido a la precaria situación económica.

En este sentido, uno de los pocos logros del movimiento ciudadano (representado por la plataforma de afectados por la hipoteca, y el “movimiento” 15-M, entre otros) ha sido la creación en Sevilla de los PIVE: Puntos de Información a la Vivienda y Encuentro. En ellos se ofrece información y asesoramiento gratuito en temas de vivienda, así como se fomenta la organización de los afectados para intentar buscar soluciones colectivas. Otras reivindicaciones de estos movimientos se están centrando en la dación en pago (prácticamente inexistente en España hasta hace poco), la bajada de los precios de los alquileres y el aumento de los alquileres públicos.

Ante la situación de desahucio, en la mayoría de los casos se busca refugio en la familia extensa, y cuando no es posible, sólo queda recurrir a situaciones de infravivienda (locales no habilitados, vehículos, camping, chabolas...), o solicitar plaza en albergues sociales. Por último, hay otro grupo de personas que, al no encontrar alternativa, deciden “okupar” viviendas inhabitadas, en la mayoría de los casos sin dueño (son de pertenencia de alguna entidad bancaria o del sector de la construcción, pero no han sido vendidas a particulares). Cuando los vecinos que han okupado un mismo bloque de viviendas deciden unirse para reclamar sus derechos, se denomina “corrala”. Ampliaremos este concepto y el fenómeno de las corralas en el siguiente apartado.

2. El concepto de Corrala y su incidencia en Sevilla

Aunque es un fenómeno reciente y aún no hay una definición clara de lo que es una corrala, cuáles son sus características, o ni apenas bibliografía sobre el tema, si seguimos las líneas comunes a todas ellas y la opinión de sus principales grupos de apoyo (como el movimiento 15-M), podemos decir que son edificios vacíos en los que se realojan

personas afectadas por el problema de la vivienda, con el apoyo de activistas y miembros de comisiones de vivienda de las asambleas de barrios y pueblos. Mediante estas ocupaciones colectivas y públicas, a la vez que se responde a una situación de urgencia habitacional, se pretende visibilizar la problemática de la vivienda, propiciando cambios políticos y legislativos en esta materia.

La ocupación, entendida como la apropiación de una vivienda abandonada y/o sin dueño para uso personal, es un fenómeno antiguo, conocido ya en la Antigua Roma. La “okupación” (con k, que representa su carácter transgresor incluso en las normas ortográficas) sin embargo como movimiento social es mucho más reciente, y aunque en nuestro país está presente desde los años 80, es en la actualidad cuando cobra de nuevo fuerza como reflejo de la problemática con la vivienda que hemos comentado.

Sólo en la provincia de Sevilla encontramos 11 corralas: siete en la capital y 4 en otras localidades. En el siguiente cuadro presentamos la situación de las principales de ellas, ya que de otras no hemos podido encontrar información:

Cuadro 1. Lista de las principales corralas de Sevilla. Elaboración propia.

CORRALA	Nº DE FAMILIAS	FECHA DE REALOJO	ESTADO ACTUAL
Corrala Utopía	36 familias	Mayo 2012	Desalojo abril 2014
Corrala Conde Quintana	5 familias	Junio 2012	Desalojo marzo 2013
Corrala Alegría	5 familias	Agosto 2012	Desalojo septiembre 2012
Corrala La Ilusión	18 familias	Noviembre 2012	Desalojo abril 2013
Corrala La Libertad	7 familias	Diciembre 2012	Contrato de alquiler de las viviendas ocupadas
Corrala La Esperanza	5 familias	Diciembre 2012	Activo
Corrala La Liberación	25 familias	Enero 2013	Activo
Corrala La Dehesa	30 familias	Febrero 2013	Activo
Corrala La Unión	8 familias	Marzo 2013	Activo

Esta falta de información sobre algunas de las corralas no debe sorprendernos. Aunque en la mayor parte de los casos el apoyo de los medios de comunicación y la difusión que éstos hacen es muy

beneficiosa para que se conozca la situación de las familias afectadas, se ejerza presión sobre los poderes públicos para solucionar el problema y se favorezca el acercamiento de posturas entre los implicados, suele haber también cierto hermetismo entre los propios okupas. Los motivos esgrimidos por ellos suelen ser que los medios de comunicación presentan información sesgada, manteniendo prejuicios muy extendidos sobre la ocupación (deterioro de la vivienda ocupada, delincuencia, desempleo, suciedad, marginalidad, etc.), por lo cual a veces mantienen una actitud hostil.

3. Un caso concreto: La Corrala “Utopía”

La Corrala Utopía nace en la barriada de la Macarena, Sevilla a comienzos de mayo de 2012, formada por 36 familias carentes de viviendas. A esta ocupación los propios vecinos la denominaron en un proceso asambleario Corrala Utopía. Cabe destacar que la mayoría de las okupas son mujeres. Fue la primera en Sevilla, la que dio el “pistoletazo de salida” para el resto de las que se establecieron después. El nombre de “Corrala” fue elegido porque recuperaba el sentimiento de unidad, vecindad e incluso familiaridad que se da entre los habitantes de la misma, al estilo de los antiguos patios o corrales de vecinos andaluces. A raíz de éste movimiento empezaron a surgir nuevas corralas. En poco tiempo empezó a extenderse por los medios de comunicación (televisión, prensa, internet...) llegando las noticias hasta otros países como Estados Unidos, Alemania, Grecia y Francia.

El edificio, ocupado durante dos años, era un inmueble deshabitado, casi terminado, propiedad de una entidad bancaria denominada Ibercaja. Ni siquiera contaba con suministros de luz y agua al no estar acabado, por lo que los vecinos debían utilizar baterías y surtirse de una fuente cercana para beber, limpiar, lavarse y cocinar.

En un primer momento, dichas familias cuentan con el apoyo de la plataforma 15M, e intentan negociar con el banco un alquiler social,

siendo éste un tipo especial de arrendamiento a personas que han sido desahuciadas. Entre otras características, el piso de alquiler debe ser ofrecido por la entidad bancaria que ha ejecutado el desahucio de la vivienda anterior del actual solicitante; tiene una duración máxima de dos años, y su precio variará entre 150 y 400 € al mes, estableciendo como precio máximo el 30% de los ingresos de la unidad familiar.

Sin embargo, tras varias tentativas de negociación no se llegó a ningún acuerdo, manifestando la entidad bancaria que sólo 4 de las 36 familias demostraron interés en la recogida de documentación exigida para realizar un informe para estudiar su situación a través de los Servicios Sociales del Ayuntamiento de Sevilla. Al final sólo tres familias fueron las interesadas, consiguiendo éstas el realojo en otro inmueble de la entidad financiera mediante el programa “*Llaves solidarias*”, que consiste en avalar a las familias para que accedan a un alquiler social de un año.

Ante la negativa de retomar las negociaciones con las familias restantes de la Corrala Utopía por parte de Ibercaja, éstas, junto con el apoyo el 15M llevaron a cabo una serie de actos de protesta buscando una solución a su situación. Finalmente, no llegando a un entendimiento entre la entidad bancaria y los vecinos, se inició el procedimiento de desahucio. Es en este momento cuando se produce una disputa entre el gobierno local (Ayuntamiento de Sevilla) y regional (Junta de Andalucía): mientras que la Junta de Andalucía consideraba que estas personas tenían necesidad de ser realojados en una nueva vivienda sin tener en cuenta los requisitos necesarios, el Ayuntamiento esgrimía que debían cumplir una serie de condiciones y someterse al mismo proceso que el resto de familias de la localidad.

Sin llegar a un acuerdo entre ambas partes, se produce, el 6 de abril (domingo) el desahucio, de manera tranquila y ordenada. Aunque hubo despliegue policial, no fue necesaria su intervención. Los vecinos, ahora sin casa, se dirigen en ese momento a la plaza del Ayuntamiento (Plaza Nueva), donde acampan a fin de presionar para que se les entregue otra vivienda.

De nuevo, se repite la situación: mientras que el Ayuntamiento de Sevilla se negaba a priorizar estos casos frente al resto de solicitantes, el gobierno regional consideraba que había factores para que fueran realojados de inmediato. Para comprender mejor la envergadura de esta disputa, debemos tener en cuenta no sólo que hay dos administraciones implicadas, que comparten hasta cierto punto competencias, sino que son 3 los partidos políticos afectados: por un lado, el ayuntamiento de Sevilla, con el Partido Popular (derecha) en mayoría; por otro, la Junta de Andalucía, donde gobierna con mayoría el Partido Socialista (izquierda) pero donde hay una coalición de gobierno con Izquierda Unida (izquierda), siendo precisamente éste último partido el que tiene la Consejería de Vivienda, a la que afecta el caso.

Según el Ayuntamiento de Sevilla, el listado municipal de demandantes de viviendas de alquiler social era de 12.300 personas en 2013, 388 de los cuales tenían prioridad sobre las familias de la Corrala Utopía, por lo cual, si se priorizaba su caso se estarían incumpliendo las normas de adjudicación. Aun así, la Junta de Andalucía realizó sus propios informes técnicos que acreditaron que los okupas estaban en situación de exclusión social y necesitaban un realojo urgente de modo excepcional.

Llegados a este punto, y contraviniendo al gobierno municipal, la Junta de Andalucía procedió al realojo temporal de las familias, hasta que sean realojadas definitivamente en unas viviendas en construcción en otra barriada de la ciudad. Sin embargo, debido a las presiones del gobierno local, la Junta de Andalucía revisa la situación de las familias y determina que realmente sólo 8 cumplían con los requisitos necesario, por lo cual, finalmente, ambos gobiernos (local y autonómico) se pusieron de acuerdo y de este modo las familias que no han podido beneficiarse de un alquiler social pueden permanecer en la Corrala hasta que la Consejería de Vivienda encuentre una solución.

La disputa por la situación de esta familia tuvo tal repercusión que causó una crisis de gobierno en la Junta de Andalucía, siendo retiradas las competencias de vivienda a Izquierda Unida y se iniciaron medidas legales contra la consejera de Vivienda, aunque finalmente la denuncia fue archivada.

4. Conclusiones

El fenómeno de las Corralas parece, en la actualidad, esfumarse con la misma rapidez con la que apareció. De las 11 que hay en la provincia de Sevilla, apenas quedan 4 en activo, y la mayoría fueron desalojadas en poco más de un año. La más duradera de todas la Corrala Utopía, cuenta ya con dos años de historia, aunque también con un desahucio de por medio.

Una de las principales causas es que, aunque probablemente muchos puedan no estar de acuerdo, no cumplen con su función. Entendemos que la Corrala es precisamente una situación transitoria para quien reside en ella, y cuyo último fin es poder obtener una vivienda a un alquiler que la familia pueda asumir. Sin embargo, la inmensa mayoría de los vecinos de las Corralas no sólo tienen bajos ingresos, sino que en muchos casos no disponen de ellos o son irregulares. ¿Cómo se puede hacer frente entonces a un alquiler, más los gastos de agua, luz, enseres, vestuario, alimentación...? Sin trabajo es imposible poder pagar un alquiler. Y precisamente, trabajo, es algo que no nos sobra: la tasa de desempleo española es del 24,5%, el doble que la media de la Unión Europea. Por otro lado, parece que a los ayuntamientos les sale más rentable mantener un amplio stock de casas vacías (la mayor parte de nueva construcción) que alquilarlas a bajo precio. Estos factores explican en gran medida por qué hay tanta lista de espera en alquileres sociales.

Otro de los motivos del decaimiento de este tipo de iniciativas es el descenso en la repercusión social de movimientos informales como el 15-M, principal sustentador de las Corralas desde sus inicios. Los ciudadanos parecen haber comprendido que si bien es una plataforma

útil y necesaria como medio para expresar el pensamiento colectivo, en nuestro país no logra ejercer la presión necesaria para producir un cambio social y político. Así, precisamente de este tipo de movimientos, están surgiendo nuevos grupos pero esta vez formales y organizados, como el partido político Podemos, que en menos de un año se ha convertido en la tercera fuerza política de España. Los cauces establecidos legalmente parecen ser el camino más adecuado para poder realizar los cambios que la ciudadanía exige, ya que los principales partidos políticos han fallado en su labor de corresponder al pueblo y a sus votantes con las modificaciones necesarias que el nuevo momento económico exigía.

Por último, los medios de comunicación también han perdido interés por el tema. Si al principio se hacía un seguimiento casi diario de las diferentes Corralas, con retransmisiones en directo, debates y hasta pequeños cortos y programas de investigación centrados en las mismas, ahora que ya no es novedoso ni resulta atractivo apenas se presta atención al tema.

En conclusión, creemos que las Corralas no han sabido aprovechar todo su potencial. Si bien la idea de base era buena, pues suponía una nueva manera de llamar la atención sobre el gran problema de la vivienda y el desempleo en España, al estar cimentada en un acto ilegal como es la ocupación, no podía obtener de ningún modo el respaldo suficiente como para tener un impacto significativo en las políticas de vivienda. Está claro que no podemos conformarnos con una situación que a nadie satisface, pero quizás el problema sea más de fondo, y haya que escarbar aún mucho más y cambiar, eliminar y añadir muchos elementos de nuestro entramado político y social para solucionarlo.

Extended abstract

Trough this article we analyse the state of housing in Spain, specifically in Seville by the phenomenon of “Las Corralas”.

To better understand the current state we need a short historical perspective, by analysing the role of housing in Spanish Constitution and how laws molded it. But these laws aren't suitable for the current context and produced a fall in house's prices, but maintaining an high eviction level. This is the cause of social movements like 15-M, caused by the manifestation of march, 15 in Madrid, famous all over the world. They wanted, by pacifical protest, a reform which allowed a more direct democracy with laws closer to the citizens. This and others informal initiatives affect housing through "corralas", or occupied houses with particular characteristics.

In this article we will define them, what they are, what exists in Seville's province, and we use a specific case in order to understand how they work, analyzing its history from its foundation to the present to know why it happens, what the goal is, and whether they achieved the goal. Finally, we present our finding about the current situation of housing and the impact that corralas have had on public laws, and we make some proposals to improve the current situation.

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Recent developments in affordable housing in China*

Nicholas You¹

Abstract: Affordable housing is becoming a challenge for cities that have invested in improving quality of life and global competitiveness. Two cities in China, one large and one small, are using innovative approaches to solving this ubiquitous problem. Instead of subsidizing the housing product they are empowering those with limited income with alternative housing options. This is a distinct departure from a supply driven system to a demand driven system that is easier to manage, is more transparent and introduces less distortion in the housing market.

Keywords: Affordable housing, housing options, empowerment of low income groups.

1. Introduction

Many cities around the world have made substantial efforts in recent times to become attractive places to live, to do business in and to visit. With few exceptions, however, many of these same cities are experiencing an affordable housing challenge.

From Beijing to London, for capital cities, and from Mumbai to New York, this challenge is becoming a political issue for a good reason: if current trends in housing price increases are allowed to continue, they could contribute to a housing crisis that undermines the reasons why people and enterprises decide to locate to these urban centres. These reasons include well-functioning infrastructure and

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basic services; good transport facilities and alternative modes of mobility; and good educational, health and recreational facilities.

The common denominator to all of these contributing factors to the attractiveness of cities lies in the people – the teachers, the police, the health care professionals and the numerous workers and technicians responsible for the operations and maintenance of the public facilities, utilities and services that make an urban centre work efficiently. These people are for the most part moderate wage earners. For them housing affordability is not only critical to their quality of life, it determines their capacity to either becoming upwardly mobile or finding it difficult to make ends meet.

At the same time it is estimated that more than 800 million people are living in slums and in informal settlements. This represents just under one-third of the world's urban population. While slums may include everything from high rise tenements to shacks made from cardboard and plastic, they are invariably over-crowded; often lack access to basic services; and their inhabitants run the risk of displacement or expulsion without adequate compensation.

While arguably many of these people belong to the category of the poorest of the poor, a significant portion belong to the category of lower and moderate income groups. The latter, be they in Medellin or Cebu, often chose to stay where they are because of the lack of affordable alternatives, especially if those alternatives are located far away from potential sources of income and economic opportunities.

The purpose of the present article is to look at how two cities in China, one a major metropolis and the other a growing secondary city are tackling this challenge of affordable housing¹.

2. The City of Guangzhou

With a population of over 12 million Guangzhou is known as the southern gateway to China. As the third largest metropolis in China it attracts substantial investments, people and institutions. Like all major metropolises in China, those with limited income are the people that help make the city work. Also like other cities and major metropolises

in China, the housing market has been experiencing a boom for almost two decades. This has left a part of Guangzhou's population in need of subsidized housing.

In order to better target its affordable housing policy, the city conducted between December 2007 and March 2008 a city-wide survey on housing conditions among low and limited-income families. This survey identified 77,177 households, or close to a quarter of a million people, that were unable to access affordable and decent housing. This led the city to embark on a new affordable housing policy starting end of 2008. By the end of 2011, or one year ahead of the scheduled target date, all of these households benefited from affordable and decent housing.

Guangzhou's approach to affordable housing is quite novel in China. It consists of the following key elements:

1. While most cities in China auction off development rights to developers with the proviso to supply a given number of affordable housing units, this does not always work and is difficult to enforce. Guangzhou decided in 2009 to adopt a different approach, namely that of setting aside land each year for affordable housing so as to render real estate operations more transparent for developers and beneficiaries of subsidized housing alike;
2. Rather than asking developers to cross-subsidize affordable housing units, Guangzhou decided to allocate 13% of revenues derived from land-leases and development rights to subsidizing affordable housing. This makes the use of subsidies more transparent and accountable;
3. Instead of providing low-cost housing which often cuts corners on norms and standards, Guangzhou decided to apply green building design principles for the construction of subsidized housing. This reduces maintenance and running costs for the beneficiaries; and
4. Applying total transparency in the allocation processes, procedures, rules and regulations for subsidized housing, including public scrutiny.

3. The City of Laiwu

Like many other secondary cities in China that are seeking to climb the value chain, Laiwu City has been experiencing rapid economic growth for more than 15 years. It is a city of 125,000 inhabitants, small by Chinese standards, but also has its fair share of low-income families who cannot afford to rent or own their houses, even with favourable mortgage terms and financial incentives for developers.

Not dissimilar to other cities in China and to the case of Guangzhou, the local government used two approaches to housing for low-income groups. In the first approach the government built low-cost rental houses for low-income families. This practice revealed many shortcomings. First, the local government is not usually a very effective or efficient housing estate manager and over time, this approach proved to be costly and unsustainable. Second, this practice of public housing tended to group all low-income people into the same neighbourhoods. This created, over time, ghettos or “new slums” which results in various forms of social inclusion, especially affecting school-age children and the self-esteem of youth (see the photo).



The second approach consisted of giving real estate developers tax incentives to build affordable housing units within larger housing estates. The problem with this approach of hidden subsidies is that the subsidy is given to an object – this case a housing unit – rather than to people. As in the case of Guangzhou this practice has shown that there is a substantial risk that the object ends up in the wrong hands, namely that it benefits people who are not the intended target group.

In both cases, public housing ends up being perceived as a perpetual entitlement rather than a benefit which expires should a household's income situation improve. This poses many other problems that are difficult to resolve.

The above factors have also tended to accumulate over time and studies have shown that 35 percent of disputes and conflicts that have gone to mediation in Laiwu City are attributed to inadequacies and contradictions in housing for low-income groups.

This situation led the local government of Laiwu to revise its affordable housing policy and to try out a new approach. Thus approach consists of the following key elements:

1. The first element is the pooling of all grants and subsidies into a housing fund, all aspects of which are open to public scrutiny. This involved all previous subsidies for rental housing, tax holidays, land price differentials and preferential tariffs for developers and a fixed percentage of revenues derived from development rights². This enabled the local government to ascertain, for the first time, the total amount of subsidies that had been used and where and how those subsidies ended up.
2. On the management side, the new housing policy distributes the funds to households in need for the rental or purchase of their house of choice. This is a revolutionary practice in China as, to date, subsidies have been given to “bricks and mortar” rather than to people and processes.
3. On the economic side, this new policy also represents a reversal of past practice as it is clearly aimed at stimulating demand rather than increasing supply and should thus reduce

distortions in the housing market which can be significant in a small city;

4. On the social side, the interface between local government and the beneficiaries is being assured by grassroots organisations that are closer to the people;
5. Last but not least, the new housing policy provides for differentiated solutions according to household circumstances. Very low-income households are encouraged to avail themselves of rental housing to begin with. As their economic prospects improve, they are free to choose ownership without losing any benefits.

Over the period 2006-2009, 7,384 households have benefitted from the programme, 6,221 of which are enjoying rental subsidies and 1,163 are benefitting from soft loans for house purchase and ownership. The results in terms of social impact were very encouraging which led the government of Laiwu to extend the benefits of the system to migrant workers (often referred to as the floating population) and the rural poor. By 2012, the policy had been applied successfully to 4,000 of the lowest-income rural households.

Perhaps the most significant outcome of Laiwu's new affordable housing policy is the empowerment of low-income households by giving them the "right to choose". This reduces the social stigma associated with subsidized housing by empowering low-income households to become legitimate renters, buyers and home owners on the housing market.

4. Some concluding observation

The cases of Guangzhou and Laiwu represent a radical departure from the housing policy of the recent past in China. Previous policies were almost entirely supply-driven, focusing on providing low-cost housing rather than facilitating access to housing by low-income groups. Strict rules regarding the maximum size of housing units ended up creating an undesirable product. This meant that if a low-

income family purchased its housing unit, its value per square meter would be less than the prevailing market price for similar quality and location. This is a lesson that applies to all housing systems that target the poor and disadvantaged, be it public housing or slum upgrading: namely the imposition of an array of limitations - albeit intended to protect the interests of the poor - ranging from lower standards, lower quality and conditions for selling and transfers that in the end prevent the urban poor from realising and eventually leveraging the true value of their assets.

Notes

¹Both case studies are derived from submissions for the 2012 and 2014 cycles of Guangzhou Award for Urban Innovation, see: www.urban-innovation.org.

²One of the principal sources of financing for the fund comes from the earmarking of 10 percent of the net income derived from land lease transactions. Any shortfalls have been met by budgetary allocations. In 2013 the fund total amounted to 97.7182 million RMB (USD 15.7 million) of which 57.61 million RMB are derived from land leasing revenue; 6.92 million RMB from the value-added revenue of housing accumulation funds; 27.1782 million RMB from local bonds, and the remaining 6.01 million RMB from provincial subsidy funds.

Summary

Many cities around the world that have invested in becoming attractive places to live and to do business in are facing the challenge of affordable housing. The cities of Guangzhou and Laiwu are no exceptions. Guangzhou is a large metropolis (12 million population) and is known as the southern gateway to China; Laiwu is a small city (125,000 population) but is rapidly climbing the value chain. In both cases the people who make the cities work, namely those that operate and maintain public services (health and education; transport and infrastructure; water and sanitation; etc.), are those that are finding it difficult to access find affordable housing. In both cases, like most

other cities in China, the previous affordable housing policy was supply driven. This consisted mainly of two options. The first one consisted of building low-cost housing estates. The second consisted of giving tax breaks and other incentives to housing developers to provide a mix of low-rental or cheaper housing within their housing estates. In the first scenario, many of the low-cost housing estates ended up becoming ghettos of low-income households. Poor quality of construction and poor estate management meant that many of these low-income estates became like slums with all their attendant social problems. In the second scenario, the incentives to developers to provide housing for low-income groups became impossible to monitor or control. The subsidy having gone into a product (in this case a housing unit) and not to a person means that the product, and therefore the intended social benefit that supposedly comes with it, can easily change hands.

Both the cities of Guangzhou and Laiwu decided to adopt different approaches to providing affordable housing to those in need. In case of Guangzhou, the city decided to set aside 30 percent of revenues derived from the sale of development rights to build affordable housing units. In addition, it established a transparent and participatory approach to identifying deserving households to access the housing. In the case of Laiwu, the city decided to pool the value of all previous tax breaks and subsidies into a fund. This fund is used to assist households in need to either rent or purchase the house of their choice on the open market. In both cases, the cities have shifted from subsidizing a product to subsidising a process. In the case of Laiwu, the subsidies are clearly used to stimulate demand as the subsidies are either provided in the form of a rental subsidy or a one-time grant towards the purchase of a housing unit.

For the social perspective, both systems guarantee that the subsidies are benefitting the right people. In both cases, but especially in Laiwu, the new systems are also eliminating the stigma associated with living in low-income neighbourhoods or “ghettos”. From the economic perspective, both systems are reducing distortions to the housing market that characterized the previous supply-driven approach. By eliminating tax breaks and incentives to developers, the

two cities are “liberating” the developers to respond effectively to market demand, including demand for more affordable housing. In the case of Laiwu, the subsidies are used to boost effective demand on the open market and can thus be seen as distortion free. Last but not least, from the governance perspective, both cities are making the process of access to affordable housing a much more transparent one.

The cases of Guangzhou and Laiwu represent a radical departure from the housing policy of the recent past in China. Previous policies were almost entirely supply-driven, focusing on providing low-cost housing rather than facilitating access to housing by low-income groups. Strict rules regarding the maximum size of housing units ended up creating an undesirable product. This meant that if a low-income family purchased its housing unit, its value per square meter would be less than the prevailing market price for similar product quality and location. This is a lesson that applies to all housing systems that target the poor and disadvantaged, be it public housing or slum upgrading: namely the imposition of an array of limitations ranging from lower standards, lower quality and conditions for selling and transfers that, in the end, prevent the urban poor from realising and eventually leveraging the true value of their assets.

Energy sustainability of buildings during construction-phase

Monica Cannaviello¹

Abstract. During their life cycle, construction works absorb resources and contribute to the transformation of the environment. A fundamental objective of sustainability is to reduce the total amount of non-renewable primary energy. In building construction, the life cycle energy consumption is made up not only of operating energy, but also of embodied energy.

The research investigates, in particular, the issues related to the initial embodied energy that represents the energy used from “cradle to site”.

Keyword: Sustainability, energy efficiency, construction-phase, Operating energy, Embodied energy.

1. Operating Energy and Embodied Energy

Over their life cycle, construction works absorb resources and contribute to the transformation of the environment. They can have impacts not only on the environment but also on the human health.

There is an active process aiming at the formulation of standards for the assessment and declaration methods about sustainability aspects of buildings construction.

Energetic concerns are very important for sustainability. Actually, there are limits to the quantities of natural resources on the planet. We

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need to decrease our consumption of non-renewable resources (matter and energy).

A fundamental objective of sustainability is consume as little energy as possible and “doing more with less,” using sustainable technologies.

“One strategy for minimizing consumption in creating the built environment is improving the technological efficiency of our materials and processes” [5].

The indicator proposed by ISO 21929–1 is “Consumption of non-renewable energy”; it measures the consumption of non-renewable primary energy.

“The total amount of non-renewable primary energy shall be assessed on the basis of life-cycle assessment methods and/or information modules following the basic principles given in ISO 21930 and ISO 21931-1”

Therefore, this mean that, to achieve sustainability in buildings construction is essential to minimize energy consumption in creating, operating, and decommissioning built facilities.

The consideration of consumption during construction phase might not be necessary only when measuring the use of non-renewable energy for existing building.

It is very important to study the total energy use during the life cycle to identify phases of largest energy use and to develop strategies for its reduction.

In building construction, the life cycle energy consumption is made up of two components:

- Operating Energy
- Embodied Energy

Operating Energy is the non-renewable energy requirement for building during its life from commissioning to demolition (for example, the energy used for heating, cooling, lighting, hot water...).

The embodied energy is the non-renewable energy required for building construction: for extraction, processing and manufacture of building materials, for their transportation to construction site, for installation and final demolition.

The embodied energy is considered an indicator on the overall environmental impact of building materials and systems.

Embodied Energy is expressed as the quantity of non-renewable primary energy per unit of building material, component or system. It is generally measured in mega joule per unit of weight (MJ/kg) or mega joule per unit of area (MJ/m²).

Previous studies have focused only on operating energy, but it is also necessary a detailed analysis of the embodied energy to quantify the energy and environmental impact of buildings.

Moreover, as the energy efficiency of a building increases, (reducing operational energy), the embodied energy will also become increasingly important.

Recent researches have indicated that the embodied energy used in residential buildings could account for up to 25-40% of the life-cycle energy used in residential buildings.

The choice of construction system, technologies and materials influences the EE.

Especially for buildings designed to be “net zero energy”, the energy used during construction phase become significant.

2. Initial Embodied energy: energy consumption during construction-phase

Embodied energy in building can be divided in initial and recurring one.

The initial embodied energy in buildings represents the energy consumed in the acquisition of raw materials, their processing, manufacturing, transportation to building site, and construction.

The recurring embodied energy represents the energy consumed to maintain, repair, restore, refurbish or replace materials, components or systems during the life of the building.

It is important to emphasize that the total embodied energy is the life-cycle energy of the building, from cradle-to-grave, but not includes energy required to utilize the final product (operational energy).

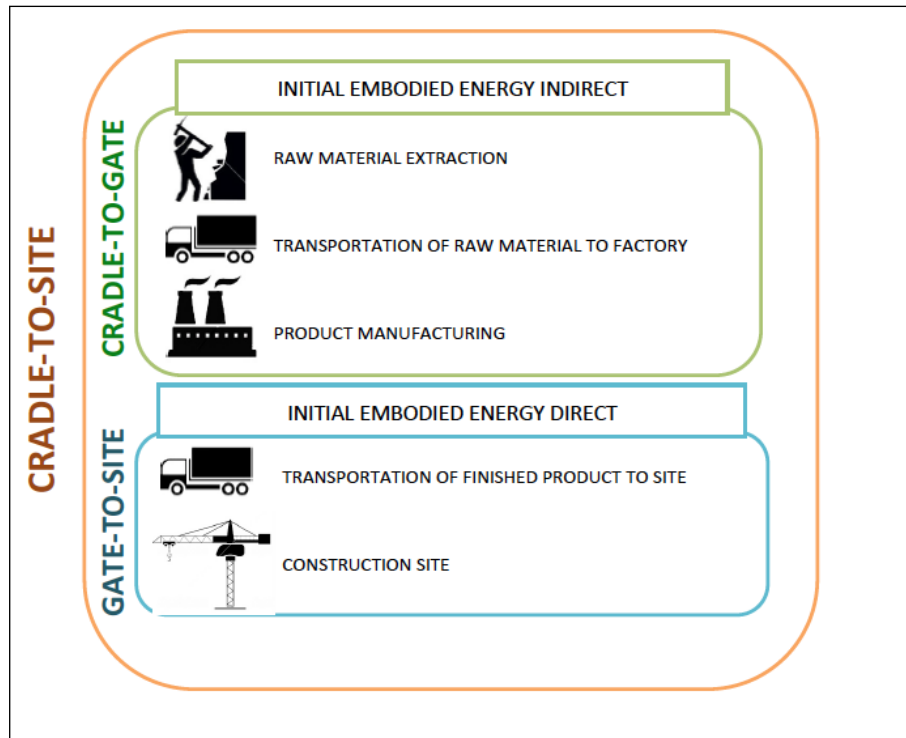


Fig. 1 -Energy consumption from “cradle-to-site”

The initial embodied energy has two components:

- direct energy, used to transport building products to the building site, and then to construct the building;
- indirect energy, used to acquire, process, and manufacture the building materials, including any transportation related to these activities.

Therefore, the initial embodied energy indirect is the non-renewable energy used from “cradle to gate”. It is the energy required to produce the finished building materials.

The Inventory of Carbon & Energy (ICE) is an embodied energy and carbon database for building materials, created by Geoff Hammond and Craig Jones, researchers of the University of Bath [6]. The embodied energy data provides the energy consumed to realize a building material, and plays a large role in the choice of building

material. Instead, to value the energy sustainability of building site (construction stage) we must focus on initial embodied energy direct.

Initial embodied energy consumption depends on many factors as the nature of the building, the construction system (wood, steel and concrete....), building-site location, used materials and source of these materials.

The choice of building materials is very important. In the United States the energy used to manufacture and transport building materials, represent 6% of all energy consumed. Moreover, the materials with higher embodied energy require more resources and cause more waste, instead the choice of lower embodied energy materials helps to reduce the building's total energy footprint.

It is also important where building's material are manufactured, because large amount of energy is required to transport materials to construction site.

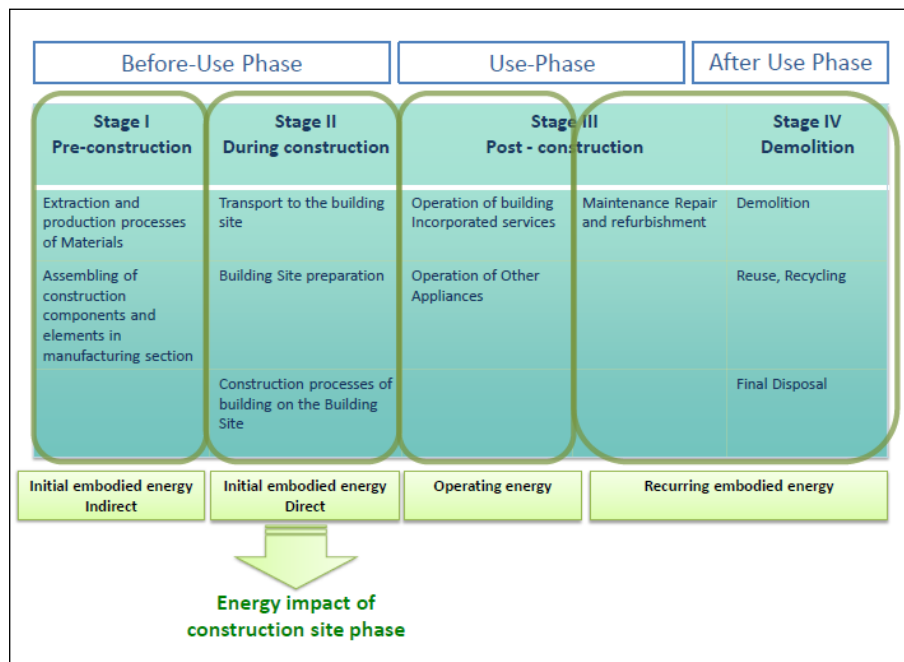


Fig.2 - Energy consumption during life cycle of a building

Particularly, the energy required to transport building products to the building site is a function of:

- the transport method (rigid truck, articulated truck, rail, sea, air...)
- the distance travelled
- the material weight.

3. Energy consumption of the Construction site

The 'Construction-phase' includes also energy consumption associated with the construction processes, including, for example, building site preparation, major earth works, excavation and filling, installation of tower crane, concrete pouring, pre-casting, shuttering and mortar preparation.

Energy used during construction processes of buildings on the Building Site depends on many factors such as the choice of construction system (wood, steel and concrete....), the materials used, the layout of building site, the seasonality of the work (winter heating or summer cooling), the energy efficiency of machinery.....

The majority of energy sources used during construction phase are fuel and electricity.

The diesel fuel is generally used by earth moving equipment for the preparation of the construction site, which is the first step of construction phase. Fuel is also consumed for operation of construction machinery.

Energy used during the site preparation depends mainly on:

- layout of site
- characteristics of the soil
- energy efficiency of earth moving of equipment.

The total consumption of electricity in the construction site are generally attributable to:

- lighting systems (lighting of construction site area, emergency lighting, traffic signal....)
- Site offices and other buildings (operating energy for heating, cooling, lighting, hot water, computer system...),

- different processes for the construction (equipment and machinery).

The incidence of each item on the total energy consumption is variable and depends on the type and the size of construction site and on the duration of the construction phase.

4. Conclusion

It is necessary to identify appropriate measures to reduce energy consumption during construction phase, in order to reduce initial embodied energy of a building.

The choice of construction systems and materials with low embodied energy is the first step in this direction.

A large amount of diesel fuel is consumed to transport building materials to construction site.

To reduce this energy is preferable to use local sources materials, and however of lightweight building materials. It is also important to reduce energy consumption on the construction site.

For example, the design of construction site layout might to be oriented to reduce the travel distance of excavating equipment. This is a solution aimed at improve process efficiency, resulting in fewer equipment hours and less fuel used.

A significant factor is the energy efficiency and the regular maintenance of equipment and machinery, to ensure optimum operations and fuel efficiency.

In regards to electricity consumption, it is important the energy efficiency of lighting system, but also the switching off office equipment and lights when not in use! It' could be better to install lighting control devices where appropriate, and linking to photoelectric dimming.

It has also required a greater energy efficiency of construction site trailer to reduce energy consumption for heating and cooling.

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The ecological network for environmental regeneration of the city

Raffaella De Martino¹

Abstract: The uncontrolled growth of cities, with consequent settlement, infrastructural and productive phenomena, have led to profound changes in the urban ecological structure transforming the natural spaces in isolated fragments depleted of their environmental peculiarity. The redevelopment and connection of these spaces are the prerequisites for the formation of a network capable of contributing not only to improving the overall environmental quality of the city, but also to its social and economic development, thus playing a key role in the processes of urban regeneration.

Keyword: urban ecological network, greenways, ecological graph

1. Reticular connection of urban open spaces

The city is a complex artificial ecosystem with interactions similar to those found in a natural ecosystem, but it is made of both natural and artificial elements, whose mutual influences are conditioned by not only natural, but also cultural, political, economic and social factors. Urban ecosystems, such as natural ones, are defined by their structure and function. The structure refers to the individual parts of the system and therefore recognizes the spatial characteristics, such as shape, size and number. While, the function is the set of processes that take place in the ecosystem, which binds together,

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through flows of energy and transfer of matter, the structural components [1].

The city, like any other ecosystem, consists of biotopes with different degrees of naturalness: artificial biotopes (buildings, industry and infrastructure), semi-artificial biotopes (gardens, boulevards and urban allotments), semi-natural biotopes (large parks, urban forests, parks and agro-ecosystems) [2]. The urban ecosystem can be considered a young ecosystem and in transition, where human activity does not allow it to reach a state of stability or any form of maturity, the correspondent of the *climax* of natural ecosystems, thus keeping it in a continuous productive and augmentative activity, until, in some cases, completely suffocating the natural component [3].

The uncontrolled growth of cities, with consequent settlement, infrastructural and productive phenomena, has led to profound changes in the urban ecological structure significantly transforming the semi-artificial and/or semi-natural spaces. Natural elements are often reduced to isolated fragments, sparsely connected and strongly compromised in their ecological functionality.

The European Landscape Convention (Florence, 20 October 2000) defines the landscape as *an essential component of people's living environment, expression of the diversity of their shared cultural and natural heritage and foundation of their identity* and establishes its recognition as not only physical, dynamic and complex entity, but also ethic and aesthetic reality, ascribing to all parts of the territory the landscape dimension. In particular, it recognizes the value of urban and peri-urban landscapes to the life quality of the urban population, also highlighting the crucial ecological, structuring, semantic and aesthetic role of natural components and open spaces within the built fabric [4].

In recent years, the concept of ecological network, as a system of interconnected habitats, which protect the biodiversity, although usually applied to vast territorial areas, has been proposed for the reorganization of open spaces in urban areas. This transposition, however, requires some clarifications. The creation of a real ecological network in an urban environment would require, as evidenced by Clorinda Pagano [5], the presence of green spaces with

certain characteristics:

- green spaces intended to be the poles of the network must cover a rather large area as well as be evenly distributed throughout the city;
- between two poles, there must be at least one strong connection element characterized by a surface sufficiently large enough to allow for the crossing of fauna;
- continuity of the space must be followed by the continuity of the main species of flora present in the poles;
- presence of waterways or wetlands is necessary;
- main elements of connection must be supported by others of lesser rank;
- distribution of the different classes of green spaces must be uniform throughout the entire urban territory.

Despite we can never find all of these conditions in cities, the concept of ecological network is still estensible. In fact, we can conceive the city as a connected green spaces system, including both great parks and equipped green areas, and small gardens, squares, whole unbuilt areas or other open spaces (not green) as pedestrian areas, parking lots and roads, the latter especially important in the urban matrix as connecting elements for excellence.

The construction of an urban ecological network is also based on two fundamental assumptions: first, that the spaces are characterized by an adequate environmental quality, the other is that they are connected to each other. It is possible to carry out an ecosystemic analysis of the city (see next paragraph), in order to verify the presence of the two conditions. Therefore, the recognition of the biotic and abiotic components can give a thorough understanding of the urban ecosystem, from the evaluation of *human interactions with these components, of interferences of human activities with natural processes, of the effects of the interventions and of human structures on the environment, highlighting the degree of conflict and the degree of integration* [3].

The creation of an ecological network in addition to contributing to improving the overall environmental quality of the city, it also represents an important opportunity for social and economic

development, thus playing an important role in the processes of urban regeneration.

In fact, urban open spaces offer many benefits related to the fruition and sociality. In addition to making physical spaces usable to people of all ages, they are important centres of aggregation and communication, promoting social cohesion and mutual understanding between heterogeneous groups increasingly widespread in urban areas. Therefore, the open spaces also have a significant positive impact on health, both physical and psychological, as well as on the overall comfort of the inhabitants. In addition to facilitating the structuring of the urban fabric, making it easier to understand and explore, the urban spaces are needed in order to create a shared urban identity by acting as important carriers of far reaching meaning and values [4].

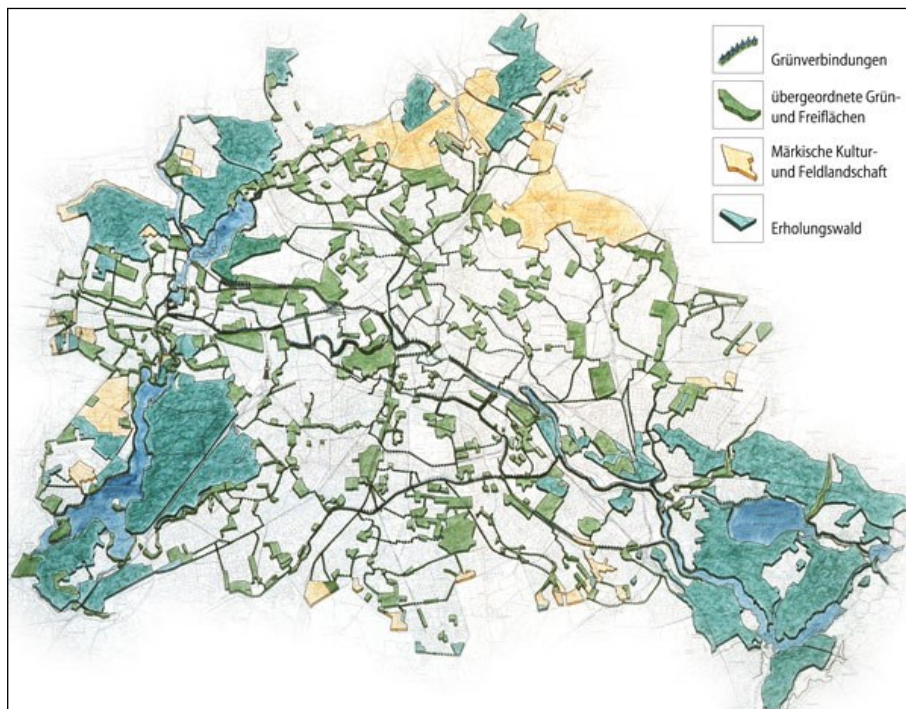


Figure 1: Green network in the city of Berlin. *Landscape Programme including Nature Conservation (Landschaftsprogramm – LaPro)*, 1994.

Source: http://www.stadtentwicklung.berlin.de/umwelt/landschaftsplanung/index_en.shtml

When connecting corridors, in addition to having an ecological value, encourage movement as well as the territorial spread of plant and animal species, while also having recreational, historical, cultural, social functions, through the connection between the green areas, between the city and the countryside, between the residence and the centres of life, they are known as *greenways*. The term *greenways* can be interpreted as a system of linear interconnected territories that are protected, managed and developed to obtain recreational, ecological, historical and cultural benefits.

Greenways therefore indicate pathways that connect people with territorial resources (natural, agricultural, landscape, historical-cultural) and with the “life centres” of urban settlements, both in cities and rural areas [6].

Two fundamental aspects characterize these paths: the *linear spatial configuration*, which implies a dynamic use of the green, and *multi-functionality*. According to Fabos and Ahern [7] a greenway can have the following functions:

- recreational;
- ecological, in order to enable the conservation of biodiversity and the connection;
- preservative of historical heritage and cultural values, aimed at attracting tourists with huge educational, visual, recreational and economic benefits.

2. Urban ecosystemic quality: tools and methods

The ecosystemic analysis is based on ecological indicators and analytical-descriptive methods, already present in current literature and aimed at highlighting the level of the ecosystemic equilibrium of a specified territory and the level of territorial fragmentation. This allows having a clearer vision of the existing ecological system and its possible future scenarios as well as be able to provide development guidelines that are more suited to the preservation and redevelopment of urban natural areas.

One of the most used tools to analyze the state of the environmental health in a specific area and able to return a graphical model that schematically represents the level of ecological connection of a given territory, is the Ecological Graph. It is based on the definition of the environmental system as a *combination of different urban units in structure and function, characterized by different degrees of connectivity and related by exchanges of energy, with more or less rapid evolutionary processes* [1].

This model can be represented by a graph consisting of nodes (urban units), links (energy and matter exchanges) and a set of rules that govern the relationship between the nodes and links. In this context, the urban units are defined as portions of the urban landscape, made up of different biotopes (unit of the physical environment in which the life of a single population of organisms or biological association takes place). They are identified and delimited by elements of the anthropic network (roads, railway lines, settlements) that, overlapping the natural network, divides it into units.

While within each urban unit the circulation of matter and energy is not hindered by the presence of significant barriers, the circulation between the various units is heavily conditioned by the anthropic network elements that produce a barrier effect whose greater or lesser permeability depends on the type and characteristics of the ecotonal elements. Having identified and defined the urban units, the next step involves the evaluation process [1].

The evaluation and quantification of spatial dynamics is possible using some control indexes that allow, in the first instance, to measure the level of organization of the environmental system examined and, subsequently, to verify the disturbance induced by the forecasts of new anthropic interventions. The main control indices used are the level of *bioenergy* and the level of *flows between units*[8].

The first represents the static component of the system, i.e. the resources allocated within the sectors; the value of the flows between units represents the dynamic part of the system and it estimates the amount of possible functional exchanges between the sectors, taking into account the type of sector boundary.

The bioenergy value of the landscape urban units is expressed by the relation:

$$BE_j = (B_{TC_{media}} * Area)_j * (1+k) = B_j * (1+k) \quad (1)$$

where:

- B_j (territorial bio-potentiality) is the ability that a system has to remain in a given biological balance. This value is given as a weighted average of the surfaces of the individual tiles of the eco-fabric (different land uses) multiplied by their specific B_{TC} index, whose values are tabulated (table 1);
- k is a synthetic structural indicator, divided into three parameters: k_f , k_p and k_d , which represent respectively the coefficients of form, permeability and biodiversity.

Classes	Ecotopes type	BTC [Mcal/m ³ /a]
A (low)	Prevalence of systems with allowance for energy (industries, infrastructure, built, bare areas, rocky outcrops)	0
B (medium -low)	Prevalence of agricultural systems and technology or degraded ecotopes (arable land, built shed, herbaceous fallow, river corridors)	1,5
C (medium)	Prevalence of semi-agricultural systems (erborati crops, orchards, vineyards, hedges) with medium strength	2,5
D (medium -high)	Prevalence of natural ecotopes (shrubs, pioneer vegetation, vineyards, poplar groves, afforestation and reforestation, urban green spaces)	3,5
E (high)	Prevalence of natural ecotopes without benefit of energy (coppice, the basal plane and submontale forests, wetlands)	5

Table 1: Classes of territorial bio-potentiality

The value of the energy flows between the units is expressed by the following equation:

$$F_{ij} = \frac{BE_i + BE_j}{2} \cdot \frac{L_{ij} \cdot p}{P_i + P_j} \quad (2)$$

where:

- BE_i and BE_j express respectively the absolute energy value of the adjacent units i and j ;
- $P_i + P_j$ is the sum of the perimeters of the two units;
- L_{ij} represents the perimeter of contact between two adjacent units;
- p is the coefficient of permeability of the barrier that separates the units examined and that takes values between 0 and 1.

Type of barrier	Coefficient of permeability (p)
Urban compact extended contexts	0,2
Urban compact linear contexts	0,3
Linear non-compact building fabrics	0,4
Highways, state roads, river with cemented shores, artificial canals	0,2
Municipal roads	0,5
Railways	0,5
Natural rivers	1

Table 2: Permeability coefficients

The results of this evaluation, conducted on each sector, allow constructing an ecological graph for the environmental system examined.

In a graph, in particular, each sector contains a node (red circle), the diameter of which is proportional to the value of bioenergy, and is connected to other areas by arches (yellow lines). These represent the energy flows of exchange between the different units and have different thicknesses depending on the greater or lesser flow of energy exchanged. Figure 2, for example, represents the ecological graph of an portion of the territory of the Sele River basin: areas marked by larger nodes represent the territorial portions of greater ecological value. Not always, however, areas characterized by high energy content have important connections: weak energy flows depend on the territorial fragmentation caused by anthropic interventions.

To do this, it is possible to use the connection index that estimates the amount of functional exchanges possible in a landscape based on the number of nodes and links present in the network, which consists of the elements of the graph.

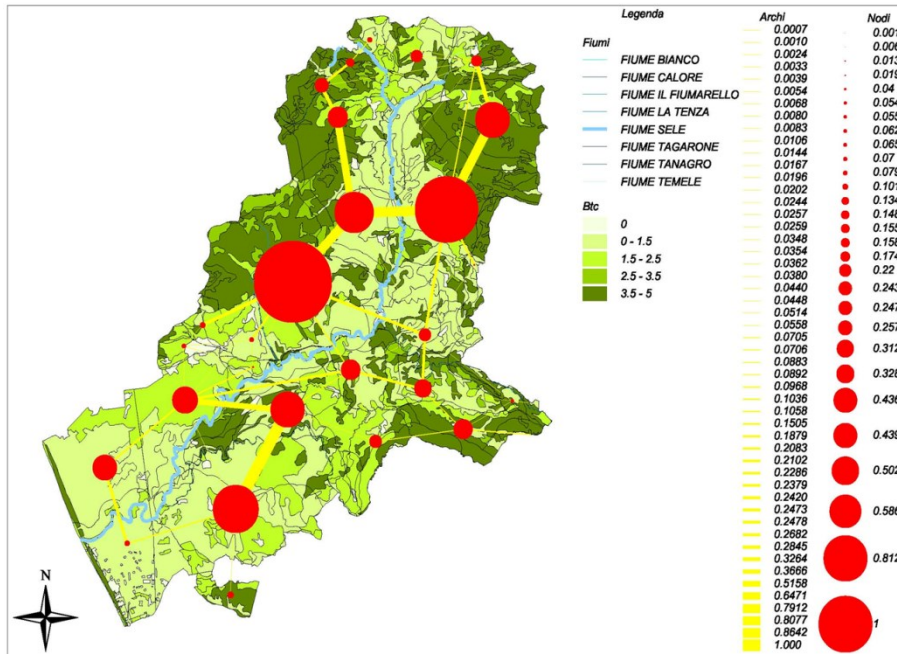


Figure 2: Ecological graph applied on a territorial scale.

The connection index is given by the ratio between the number of ties actually existing between the various nodes of the network and the maximum number of ties possible within such a graph.

$$\gamma = Lg/Lg_{\max} = Lg/3*(V-2) \quad (3)$$

where:

- Lg = number of links;
- V = number of nodes.

In a range between 0 and 1, the higher the value of γ is, the more in “equilibrium” the urban landscape for certain plant and animal species is.

The Ecological Graph allows knowing the trend of the interactions that occur in the analyzed territory and it provides highly accurate and operational directions to guide ecologically sustainable interventions. In fact, it indicates the urban landscape units and

connections of the greatest ecological value to be preserved, the parts of the territory on which to focus on in order to improve the system and territorial portions characterized by good energy contents, and therefore more resistant to any anthropic interventions [9].

The knowledge of the “state of health” of the spaces and their connections is a prerequisite to understand in depth the phenomena of urban fragmentation as well as guide the redevelopment interventions. Through them, it will be possible to retrieve the compromised areas, which may constitute elements of naturalistic spread quality together with the main natural units (parks and reserves). To promote ecological territorial connectivity, we will proceed with the recovery of the existing connecting elements or the new construction of units (stepping-stones) capable of returning functional continuity between the core areas without the need for a structural continuity [10].

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Green and blue infrastructures to naturalize built urban contexts

Rossella Franchino¹

Abstract: A problem related to the increasing urbanization of the last century is that of the protection of local environmental conditions and the impact of development and anthropization. In this context, this paper focuses on the contribution of *green + blue* resources to the environmental re-equilibration of urbanized contexts with the aim of using the principles of nature as a model of sustainable management by stimulating the natural inherent potential in these resources, that remain undeveloped due to considerable anthropization.

Keywords: environmental design, green corridors, rain water management, urban contexts

1. Introduction

To intervene on the development of the urban territory in order to find an alternative to the model that emerged over the last century, transformation and re-equilibration interventions need to address environmental compatibility with particular attention. In this perspective, the territory must be conceived as a body with a dynamic equilibrium that can be achieved through the technological control of complex functions. A compatible and sustainable territory must therefore be configured as an environment with high ecological-environmental standards in which each process is controlled so that the impact and the irreversible degradation induced is the minimum possible.

The territory, which constitutes an “*urban ecosystem*”, with its complex of interrelated structures and relations generates traces in the

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environment that surrounds it. In order to improve its capacity to absorb and control the phenomena of urbanization with a sustainable impact on the ecosystem, it is very important to structure the re-equilibration interventions so that they are compatible with sustainable changes of the environment. In this way it is possible to orient the processes so that the uneliminable imprint is contained as much as possible.

2.The environmental re-equilibration of urban contexts

In order to appropriately structure environmental re-equilibration interventions of urbanized contexts, this paper focuses on the contribution of natural resources, *water* and *green*, with the aim of using the principles of nature as a model of sustainable management by stimulating the potential intrinsic nature of these resources.

In this context, the control of the rainwater flows to the ground is particularly important in order to structure, appropriately and sustainably, assumptions of transformation and re-equilibration of the urban environment since the natural hydrological cycle of water at a local level is strongly affected by urbanization.

In the urban context, the continuous increase of impervious surfaces often leads to considerable problems of erosion and flooding disturbing the equilibrium between precipitation, evaporation, surface runoff and groundwater supply[1]. It is, therefore, evident that a change of attitude in the management of water resources in urbanized areas must accommodate the natural cycle.

The actions to be put in place for the purpose of sustainable management include the re-waterproofing of the ground, as much as possible so as to allow for the infiltration of rainwater and recover it in order to reuse it.

The traditional cycle of water in rural areas, with extensive permeable surfaces and the presence of vegetation and surface water is characterized by high evaporation, high infiltration and low runoff.

In urban environments, however, the water cycle is characterized by less evaporation and less infiltration that involves the reduction of groundwater as well as an appreciable increase in runoff due to the

waterproofing of surfaces. This means that the water must be quickly collected and discharged into the sewer system and therefore does not replenish the water basins.

When the balance of rainwater at a local level is significantly altered as a result of changes in the soil surface, it is necessary to use collection infrastructures, that are costly in economic, environmental and landscape terms[2].

These infrastructures, called *grey infrastructures*, are not particularly sustainable especially in light of potential and future climate changes. Using nature's own ability to control the adverse effects of climate change is certainly more convenient not only environmentally, but also economically since it allows to limit the use of expensive engineering solutions.

The control to the process of rainwater collection can be achieved by replacing or adding to traditional infrastructure so-called "*green infrastructures*" that enable the management of the water at a regional scale with the natural systems that allow the realization of a urban water self-regulating micro catchment that is managed according to the principles of "*design for water conservation*".

These natural systems are even more effective if, in addition to controlling the problems related to water management by human activities in the territories, they also allow for the control of the structure of the green.

This interconnection can achieve real *blue + green corridors* that cross the urban environment and help to connect the existing natural systems as well as contribute to the improvement of the ecological-environmental characteristics of the area as a whole.

The infrastructure systems that enable the achievement of the above objectives are referred to as *green and blue infrastructures* and can ensure a sustainable future for urban areas as well as generate multiple ecological-environmental, social, cultural and economic benefits.

3. The use of *green and blue infrastructures*

The transformation interventions of urban contexts significantly alter the balance of the water at a local level and in order to meet the need to control the water use cycle in urban environments it is possible to replace or complement the traditional infrastructures with the *green and blue infrastructures* in accordance with the logic of *Low Impact Development* (LID) [4] that is an approach to water management that adopts principles such as preserving the environmental conditions of the sites and recreating the natural characteristics of re-using water as a resource. This is an approach to land development that uses principles that tend to recreate the natural characteristics of the area to create a functional drainage of the site so that rainwater can be regarded as a resource and not as waste.

To implement the principles LID, water can be managed so as to use the principles of nature as a model of water management by stimulating the undeveloped hydrological potential of a site. Applied on a large scale, LID systems can help to restore the functions and hydrology, with special precautions, including ecological of the whole water basin. In fact, the transformation interventions of the anthropised territory must focus on, among other things, the ecological conservation of biodiversity so as to protect the natural processes that are the basis of the survival of ecosystems.

This approach helps to solve the problems related to increasing urbanization and the consequent climate change through the use of natural systems to monitor the quality of rainwater, improve air quality, the use of renewable energy, with greater biodiversity and less fragmentation of the territory.

The collection of rainwater as a function of its subsequent reuse can be done either by simple collection systems that either take advantage of the gradients of soil and permeable surfaces (passive systems) or with more complex water collection systems including impervious surfaces such as roofs of houses, paved surfaces, etc. (active systems) [5].

To control the flooding and infiltration of rainwater into the soil permeable paving, properly prepared green belts (green streets), drainage systems and rain gardens can be used.

In the United States of America, there are various examples of the use of *green and blue infrastructures* according to these principles. It is worth mentioning the experiences of Seattle and Olympia (Washington, Portland and Wilsonville (Oregon), Philadelphia (Pennsylvania), Emeryville, Santa Monica and San Jose' (California), Chicago (Illinois), Alachua County (Florida), Stafford County (Virginia) and Lenexa (Kansas)[6].

4. Application of case studies

The following describes three case studies that represent application contexts very different from each other, but with the ability to design similar solutions using *green and blue infrastructures* even though for different types of urbanized areas.

All the case studies involve applications in cities of the Campania region in Italy, with the first dealing with the seafront of the city of Salerno, the second, Piazza Vanvitelli in Caserta and the third Parco Viviani in Naples.

The first case study (Figures 1 and 2) relates to a *green and blue infrastructures* intervention in Via Roma and Corso Garibaldi, two roads of the seafront of the city of Salerno. The design of the rainwater collection system proposed the construction of *green streets* and permeable pavement in Corso Garibaldi and *rain gardens* in Via Roma. The *rain gardens* consisted of a depression in the ground where rainwater is collected from the roofs of the buildings adjacent to the road.

The second case study (Figures 3 and 4) proposed a *green and blue infrastructures* in Piazza Vanvitelli in Caserta, where there is the Town Hall, the sixteenth-century Palazzo Acquaviva well as businesses and hotels. In the square, there is also a garden with a fountain and a monument to the architect Luigi Vanvitelli. The

vegetation is valuable because the plant species are similar to those found in the park of the Royal Palace of Caserta.

The design of rainwater collecting system proposed the implementation of *green streets* formed by green corridors which have strengthened the green already present in the square by extending it to the city. The system consists of a network of green belts along the roads and pavements with gradients that allow for the collection of rainwater in collection areas where it is naturally treated before entering the water basin. The rainwater was also recovered from the roof of the buildings present in the square through active systems of accumulation and reuse. The *green + blue* resources were also further enhanced by the inclusion of a bio-lake with small restaurant and a large solarium.

Finally, the third case study deals with the *green and blue infrastructures* proposal for Parco Viviani in Naples. This park is located in a particularly significant urban context, the Vomero neighbourhood near the historic complex of St. Martin and St. Elmo. The structure of the park develops over on three levels, forming a vertical link between the upper and lower parts of the city high through the scenic routes of the Gulf of Naples. Starting from high up, the first two levels are connected by two paths, the third level which is partly underground is connected to the upper level via stairs and lifts.

The proposed transformation intervention aimed at controlling and re-using rain water (Figures 5 and 6), focussing principally on the first two levels which have steep slopes and paths in order to recover the water that accumulates at the middle level, contributing to the hydrogeological issues that already characterize this site. The intervention suggested the use of active and passive system . In particular, a network of green belts for the recovery of water along Via Girolamo Santacroce was proposed, due to it being the road which that leads to the park, thus transforming it into a *green street*. These greenbelts have gradients that allow for the collection of rainwater in designated areas, where it is naturally treated before entering the water basin. In addition, most of the impervious surfaces have been replaced and equipped with permeable structures and vegetation, thus able to absorb and filter the water and in some cases also store it. As shown in

Figure 5, *rain gardens* were also proposed. The trees planted in the upper layer of the soil naturally treat the rainwater before it is returned to the groundwater basin.

5. Conclusions

This work has discussed the application of *green and blue infrastructures* for the environmental re-equilibration of urbanized contexts with it highlighting, through properly structured case studies, how these systems using natural and sustainable techniques improve the environmental quality of urban contexts in which they are used and can ensure a sustainable future for urban areas as well as generate multiple ecological-environmental, social, cultural and economic benefits.

Notes

¹The tables presented in Figures 1, 2, 3, 4, 5 e 6 were elaborated by students during the course entitled “Design of environmental systems” (lecturer: prof. ing. Rossella Franchino- academic year 2012-13) on the degree course in Architecture at the Department of Architecture and Industrial Design of the Second University of Naples. The table presented in Figure 1 was elaborated by Picardi Sara, Piccoli Alessandra, Tessitore Stefania, the table presented in Figure 2 by Tessitore Stefania, the table presented in Figure 3 was elaborated by Di Donato Sara, Natale Assunta, Oliviero Antonella, Zaccariello Raffaella, the table presented in Figure 4 by Zaccariello Raffaella, the table presented in Figure 5 was elaborated by Coppola Chiara, Coppola Maura, Coppola Noemi, Nichelò Giovanna, Zampella Vincenzo and the table presented in Figure 6 was elaborated by Zampella Vincenzo.

R. Franchino, *Green and blue infrastructures to naturalize built urban contexts*



Figure 1 - *Green and blue infrastructures* - case study of Via Roma and Corso Garibaldi - Salerno (Italy)¹



Figure 2 - *Rain gardens*- case study of Via Roma and Corso Garibaldi - Salerno (Italy)¹



Figure 3- Green and blue infrastructures - case study of Piazza Vanvitelli - Caserta (Italy)¹

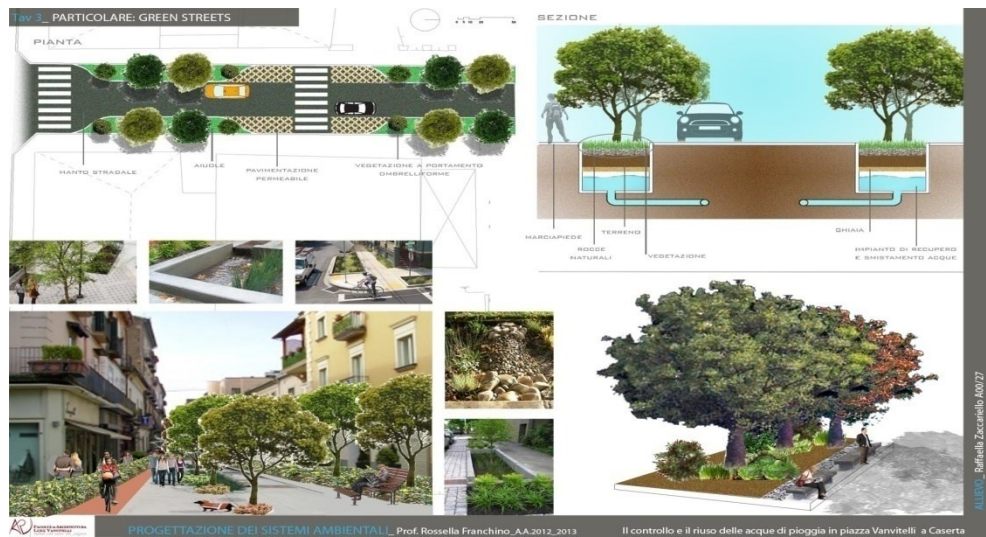


Figure 4-Green streets- case study of Piazza Vanvitelli - Caserta (Italy)¹

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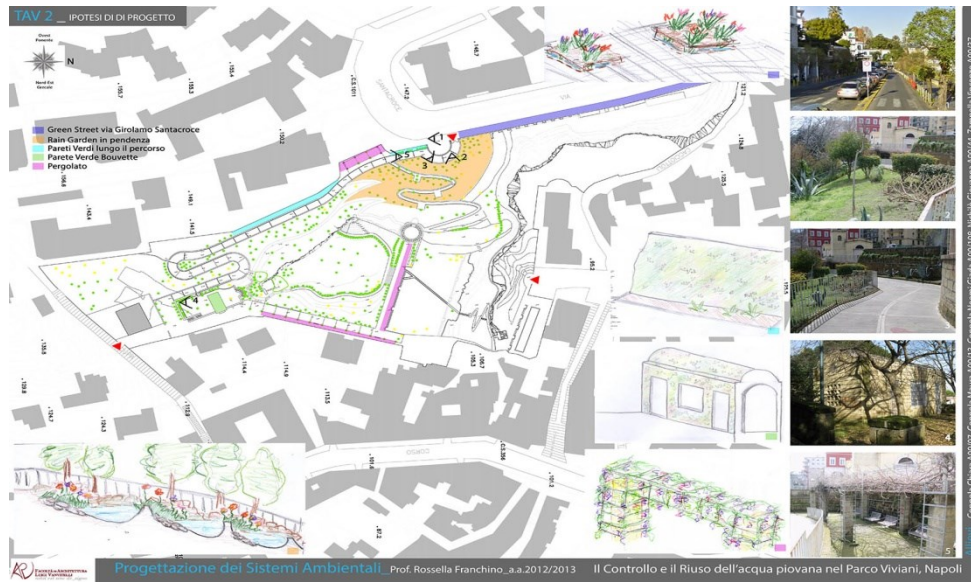


Figure 5 - *Green and blue infrastructures* - case study of Parco Viviani - Naples (Italy)¹



Figure 6 - *Rain gardens*- case study of Parco Viviani - Naples (Italy)¹

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Public Open Spaces and Cultural Heritage: an integrated approach to the urban regeneration

Caterina Frettoloso¹

Abstract: This paper investigates the functional, spatial and cultural relationships that exist between urban open spaces and cultural heritage. It will be primarily aimed at studying the role that the construction of an urban network, made up of the open spaces system and the diffused cultural heritage, can take as part of regeneration strategies of Mediterranean cities in which problems related both to the ecological-environmental as well as technological-design issues intertwine.

Keyword: archaeological heritage, urban open spaces, life quality.

1. Introduction

“Improvement of the quality of urban life can be carried out only by taking coordinated actions on housing, the environment, displacements, services of proximity and culture. To regain deprived areas, means taking into account existing infrastructures and superstructures (road, networks and built inheritance) in order to renew the attractiveness of these zones and recreate a market. There is an important work of identifying the existing structures to be preserved - public facilities such as streets, squares and parks that must be renewed in accordance with public needs- and of the parts that have to be transformed. It is longer and more complex then acting on free grounds” [1].

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This paper will be primarily aimed at investigating the role that the construction of an urban network, made up of the open spaces system as well as the diffused cultural heritage, in particular archaeological, can have as part of the regeneration strategies of Mediterranean cities in which there are intertwined problems related to ecological-environmental and technological-design issues.

The nodes that make up the system, public open spaces and archaeological heritage, preserving the specific functions and meanings, will be connected in different ways in relation to the qualifying aspects of the individual as well as the requirements that guide the construction of the network itself. The idea of connecting these urban elements, characterized by specific design issues, comes from the identification of a common denominator as well as the role that both play as “sharing-spaces” of experiences, social or culture.

The idea is that of reciprocal help: the public open space (existing or planned) could provide support to the promotion of the cultural heritage (in particular, archaeological) which, in turn, benefitting from the functional integration could, through the public fruition, become an attractor element for the urban context, with the resulting consequences in positive terms from a conservative and management point of view.

2. The network subsystems

To clarify the terms of the debate, it is worth starting from the definition of a public open space “as that part of the urban area which contributes to its amenity, either visually by contributing positively to the urban landscape. It is therefore defined as combining urban green spaces and civic spaces, as a mixture of civic spaces and green spaces, to which there is public access, even though the land may not necessarily be in public ownership” [2].

The considerations that follow will focus on archaeological “diffused” heritage, often outside traditional tourist circuits as well as exposed to the risks of a use that is not organized and finalized at educational aims. The adjective “diffused” suggests a distribution,

more or less widespread, of such goods that, for this reason, are enjoyed in a casual and, often, unconscious way.

2.1 Public open spaces

The design of unbuilt spaces along with the prospect to redevelop existing open spaces, often dismissed due to neglect or absence of a plan which clearly describes the forms of use, raises many questions about not only the formal aspects of the project but also related to these concepts, namely, “to several invariants – nature, art, memory, society – that from time to time, prevail and give value to the proposed interventions” [3]. Interpretive criteria related to the role that open spaces have traditionally served as nodal elements of the city system not only in relation to the usability and comfort, but also to cultural identity, thus giving an added value to the urban fabric. A value that is expressed in terms of the ability of these open spaces to play a significant role in the activation of the revitalization processes of the city in both an architectural-environmental perspective as well as a social one, where the environmental, social and economic balance is compromised.

The way the open spaces are organised in the redevelopment interventions must meet specific functional requirements, dictated by the collective life way of life, which is increasingly oriented towards a growing flexibility that does not mean, as often occurs, the lack of a design choice. On the contrary, it means work on the recognition of surfaces and the comfort of spatial elements, in an integrated approach to the project in which the technical and functional aspects are interwoven with social and environmental issues.

In addition to the issues that could be called “acquired”, i.e. relating to the accessibility of the site in relation to its specific functions, even with respect to the types of flows that cross and touch the open space, to issues regarding security, lighting and cleaning, there are further areas of consideration relating to environmental sustainability.

In fact, “as part of a network, strategically planned through the whole urban area, well-designed urban spaces can help to lessen the impact of the heated urban island, thanks to the refreshing effect of

vegetation; helping to regulate the water balance and reduce the withdrawals from the drainage system, allowing for greater infiltration of rainwater; lessening the impact of noise and pollution; constituting an ideal habitat for plants and animals” [4].

3. Cultural Heritage

Recovering the identity of a territory through the valorisation of its cultural heritage is one of the main objectives of current European cultural tourism policies. From a methodological and operational point of view, this results in diversified approaches that are constructed starting from the individual realities in which we operate in order to promote the qualifying elements. The identification, not only of the episodes of particular interest but, in general, of those that characterize the specificity of a place, is considered the first step towards their protection: from the promotion of the artefact to its integration with the context. Integration that can be implemented both through the re-insertion of the heritage within a circuit of cultural and economic development as well as its “attendance”.

The use sets objectives and tools of a valorisation process aimed at knowledge, that in the specific case of archaeological heritage is usually difficult to interpret. The highly stratified nature of Mediterranean cities, if on the one hand contributes to the construction of an image with remarkable historical and artistic values, on the other makes their reading and understanding more complex.

Archaeological heritage, previously defined “diffused”, often constitutes important pages in the history of a city or a territory while remaining, in most cases, incomprehensible to a non-specialist public (Fig. 1). The need to give it a name but, above all, to systematise these episodes with respect to a broader context, urban scale, for example, proposes innovative and diverse approaches.



Figure 1. Roman ruins “*Sacello degli Augustali*”, Bacoli - Naples (Italy).
(Photograph taken by author)

The relationship between archaeology and the context, especially urban, has many variables and problems related both to the mode of use of the user/citizen as well as the need for transformation and growth of the city itself. It often occurs that poorer quality examples are not given the right amount of attention, the appropriate protection policies and are not subject to a proper use. At best, when this does not occur, the conservation strategies seem to be more oriented to the isolation of the heritage rather than its concrete insertion into the cultural circuit of the specific context.

In fact, a fence that does not even spare the archaeological heritage of particular interest, seems to be the main instrument for its protection, thus stopping any form of spatial continuity, cultural and temporal, as well as with the context and the user (Fig. 2). It is therefore necessary to work not so much on the protection in itself but

rather on the development of transformation methods of the territory within a sustainable and compatible perspective.



Figure 2. *Temple of Apollo, Siracusa (Italy). Urban context/archaeological heritage: the visual function, if not supported by a scientific project and tools that orient the user, does not guarantee knowledge of the Heritage. (Photograph taken by author)*

4. The urban-heritage network

“The challenge for the creation of high quality urban spaces is to combine all the requirements of the environmental and ecological needs of the various user groups as well as the needs of a well-structured and participatory design in order to create well-organized and structured urban spaces. The end result should not consist of an anonymous “space” but a living “place”, which has its own particular identity; not just functional areas, but carriers of meaning and values representative of all the groups of users” [4].

In addition, upon sharing the concept of sustainable use in the sense of the rational use of the cultural artefact, it is possible to construct a hypothesis of an integrated system in which the environmental, cultural and urban heritage is represented by the most significant elements, physical or virtual. This hypothesis re-proposes the delicate question of the relationship between the city and the cultural heritage in terms of “borders” and “compatibility” between the different functions. In particular, I am referring to the need to avert the danger of the “fence”, i.e. the policy of delimitation, both physical and perceptual, in order to implement a form of protection [5]. A strategy that has been proven not winning and that, more importantly, tends to raise a barrier between the visitor/citizen and the heritage to be enjoyed. Upon further consideration, however, it is possible to senses that “the problem is not to eliminate the boundaries between archaeology [in general, cultural goods] and the city (...), but rather to be redefined in order to situate their border. A new awareness that sheds light among architects and planners: inspired by the ancient heritage, assuming the themes and issues as material for the project, and not only as a barrier that is opposed to it” [6]. The idea of a border, among other things, that also fits the concept of “diffused museum”, which is a type of museum relating to the idea of a network that is being described.

In fact, the diffused museum, relating to separate elements in a limited area according to hierarchical relationships, attributes great importance to the context, to the territory where “the specific essence of the museum is concentrated” [7], and the system of paths that connect the individual elements. The connection systems fulfil the important role of restoring the apparent confusion in which it shows the landscape by establishing a hierarchy which gives a logic of the same through “various aspects: the *topos*, if the place where the objects were collected coincides with that of the community; the *kronos*, if the memory of the individual events is linked to that of collective events; genius, as the formation processes of ideas involving the existence of the community through its generations” [7].

The idea of the network is profoundly based on the need to select the most significant episodes of both the cultural heritage as well as

the open spaces of the city. One of the selection criteria could relate to the “functionality” of these areas compared to the urban system of relationships that are being built. In fact, such episodes, correctly set up, should meet the needs of the population with respect to the social, technological-functional and ecological-environmental aspects. The concept of selection is now the basis of the most innovative museum logics. It is no longer unthinkable to expose anything that has/possesses a museum. Similarly, in urban areas, it is necessary to work thematically, even when this means excluding some artefacts¹.

The introduction, in the circuit of public open spaces, of appropriately selected cultural nodes, may constitute grounds for enrichment on several fronts absolving, in whole or in part, also explicitly social functions, such as stopping/meeting .

Considering the ideas in terms of the use and conservation of archaeological heritage, of which the first, the idea that part of its aims is the identification of a first level of open spaces in which to overlay a second layer made from cultural heritage so that the functions and values they represent can find a form of integration oriented towards the optimization of the resources available: maximizing the contribution of the individual elements/areas of the system, contributing to the improvement of urban quality and valorisation of existing heritage.

It is worth evaluating, on a case-by-case basis, from which sub-system to start in relation to the status quo (e.g., presence of open spaces with a strong and specialised identity, or heritage already part of a development process, etc.). This, in fact, will be assigned to “public spaces” rather than to “archaeological and cultural heritage”, a greater weight into the design, especially in the setting goals, reducing the variables involved.

In order to structure the relationships system (network model) which will later find different final configurations, it is useful, from a methodological point of view, to identify a set of guiding criteria that enable the designer to make meta-design choices. In this first phase of the research, the criteria mainly relate to: the closeness/distance between two or more selected nodes (open spaces and archaeological heritage); the level of functional integration (in relation to the

dependence, in functional terms, between two or more areas); connection mode (physical and/or perceptual); the fruition of the users (both in individual nodes as well as during both the path that connects them)².

The various configurations of the network derived from it, will, therefore, be strongly influenced not only by the weight that has been assigned to the two sub-systems (“public space” and “cultural heritage”) but, also, by the type of public open space (existing or free area to be designed) as well as the type of public use of the heritage (open/closed area, presence/absence of a controlled access, etc.).

In conclusion, it is worth highlighting that this approach could be used for the realisation of an “enriched” path whose organizational logic, as well as the support tools and technological systems, are directed at recovering a sort of “tranquillity during the visit” of cultural heritage. Even a user who quickly or carelessly passes through these spaces with little motivation could, with proper precautions, enjoy a place of “knowledge”, even if received with “lightness”.

It is understood that the premise of the implementation of any strategy to upgrade and enhance the existing urban heritage is the critical knowledge of the places in which they must operate, the active participation of all public and private entities involved and, not finally, a careful economic planning of interventions to be carried out.

Notes

¹ Cfr. Frettoloso C., *Dal consumo alla fruizione: tecnologie innovative per il patrimonio archeologico*, Alinea editrice, Firenze, 2010.

² Additional methodological studies linked to the construction of the network, at present being tested, will be discussed in subsequent publications.

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Evaluation and evaluativity in operational dimensions of social programming

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Sunto. La connotazione ingegneristica che orienta la teleonomia della programmazione sociale poggia sulla natura empirica dell'intervento sociale, sottostante la teorizzazione sociologica relativa all'analisi del mutamento sociale. Nella sua versione attuale, partecipata e consensuale, la valutazione cambia la struttura tradizionale della programmazione sociale, che diventa relazionale e basata sul modello decisionale riguardante attori sociali (cittadini e utenti) con propri interessi e valori, considerati ora come soggetti attivi delle politiche e dei servizi sociali.

Parole Chiave: Valutazione; Valutatività; Programmazione Sociale; Governo Locale; Politiche Sociali

Abstract. The engineering connotation orienting the teleonomy of social programming is based on the empirical nature of social intervention, underlying the theorizing concerning the analysis of social change. In its actual, participatory, consensual version, evaluation changes the traditional structure of social programming, which becomes relational and decision-making based with social actors involvement (citizens and customers) and their own interests and values, since they are now considered as active subjects of social policies and services.

Keyword: Evaluation; Evaluativity; Social Programming; Local Government; Social Policies

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1. Il carattere ingegneristico della programmazione sociale

La programmazione sociale rappresenta storicamente una delle principali funzioni dello Stato moderno, potenziatasi nel corso del tempo attraverso l'incremento dell'autonomia giuridico-burocratica e tecnico-professionale delle decisioni collettive svolte dagli apparati istituzionali rispetto al tradizionale dominio della sfera politica, secondo una linea di sviluppo che ne ha spostato il *focus* di ruolo operativo da "semplice" legittimazione e manifestazione pubblica del potere costituito a "complessa" procedura di modificazione e ottimizzazione di una situazione esistente ritenuta meritevole d'intervento, ossia attraverso la realizzazione di azioni strategiche capaci di rendere più intellegibile e fruibile lo stato del mondo. Appare utile, al riguardo, la definizione di *intervento* proposta da Bruschi:

«L'intervento è un insieme organizzato di azioni, un sistema di azioni. Questo sistema consiste nell'allocazione di risorse di una particolare situazione per raggiungere un fine. Il fine è uno stato di mondo, diverso da quello esistente, o che si prevede si manifesterà se non interveniamo, dotato di valore per l'agente»¹.

Questa attività ingegneristica si realizza nel momento in cui viene individuato un bisogno: "(...) che è la premessa della formazione di un fine, (...)»². Il passaggio dallo stato di bisogno alla realizzazione del fine non avviene con continuità, ma attraverso un percorso fatto di scelte, costituito sia da una dimensione valoriale, sia da una dimensione empirica dell'intervento.

Tale premessa è utile per comprendere gli sviluppi della logica programmatoria, la quale si è andata adeguando, nelle scelte strategiche ed operative dei decisori collettivi, ai cambiamenti socio-culturali e politico-economici che hanno segnato il nostro Paese.

La programmazione nasce nell'ambito di esperienze collegate allo sviluppo economico e sociale del Paese e alla necessità di governare tale sviluppo in conformità a scelte razionali, evitando in tal modo sprechi di varia natura. In riferimento al ruolo assunto dalla

programmazione, diversificata in termini puramente concettuali dalla pianificazione, Carmelo Bruni scrive:

«La programmazione fa invece riferimento ad un processo in cui viene predisposto uno strumento che individua fini, strumenti per raggiungerli, tempi e costi in un sistema di libero mercato, anche se possono essere coinvolti fattori economici, strutture, organizzazioni, interventi finanziari e soggetti e attori pubblici»³.

In tal senso, parlare di programmazione significa fare riferimento ad un modello decisionale che permette di organizzare adeguati interventi territoriali sulla base di una conoscenza scientifica dei fenomeni sociali e, di conseguenza, poter intervenire nelle dimensioni dei bisogni sociali ma anche di quelli socio-economici. Si tratta di un'idea che per molti aspetti ritroviamo nell'ambito delle esperienze di pianificazione sanitaria (piani sanitari nazionali e regionali) e di pianificazione sociale regionale e locale.

In Italia, la programmazione è arrivata in ritardo e ha conosciuto diverse fasi in relazione ai diversi periodi politici ed economici succedutisi dalla metà degli anni Sessanta ad oggi. La letteratura di riferimento riporta i principali sviluppi della programmazione, attribuendo ad ogni periodo un modello di Welfare, che è stato utilizzato in funzione dei bisogni e delle risorse economico-finanziarie a disposizione, secondo l'elencazione dei modelli di programmazione proposta da Remo Siza (2003). Il punto di svolta si ha con l'approvazione della legge quadro sui servizi sociali 328/2000 e la realizzazione del Piano Nazionale degli Interventi e Servizi Sociali previsto nell'articolo 18 della stessa Legge. Commenta al riguardo Michele Massa:

«La Legge quadro è una “legge sulla programmazione”, in questo caso sulla programmazione dei servizi di assistenza sociale, che presenta – da questo punto di vista – analogie con la pianificazione sanitaria nazionale, soprattutto per come essa risulta nella recente legislazione. (...). In questa complicata architettura, il Piano nazionale è lo strumento con cui l'indirizzo politico nazionale trasmette al sistema dei poteri pubblici le proprie determinazioni, largamente discrezionali, in materia di principi e obiettivi della politica sociale, al fine di individuare i livelli essenziali ed uniformi

delle prestazioni, anche fissando standard uniformi quanto alle strutture ed alla formazione degli operatori»⁴.

La legge quadro trasforma la programmazione da azione debolmente sistematica ad azione obbligatoria e assume un carattere marcatamente decentrato, in cui viene lasciata ampia autonomia agli attori intermedi del governo locale, e prevede la maggiore partecipazione del terzo settore nonché delle reti informali eventualmente presenti. Se a ciò si aggiunge la riforma del titolo V parte II della Costituzione (L. 3/2001), il Welfare Mix trova un ulteriore step evolutivo nell'attuale dimensione di Welfare Community, alla quale corrisponde una nuova strategia di programmazione sociale: la "community planning". Essa, in una modalità comunitaria, partecipata e collaborativa, prevede che nella pianificazione, programmazione e progettazione dei servizi sociali debbano essere coinvolti tutti gli attori presenti sul territorio, oltre che un maggiore coinvolgimento della comunità locale.

Il modello di programmazione e/o pianificazione contemplato dalla legge 328/2000 si modifica quindi a favore di una ricognizione valutativa degli attori presenti sul territorio, ognuno dei quali rappresenta uno stakeholder portatore di interessi e/o punti di vista particolari, di un problema, di un'area di intervento, di priorità etc. Scrive al riguardo Michela Venditti:

«È chiaro che l'integrazione rappresenta uno degli aspetti chiave dell'intero disegno di riforma delineato dalla Legge n. 328/2000, integrazione sia fra i Comuni appartenenti all'ambito territoriale sociale come pure tra i Comuni e gli altri attori del sociale sia pubblici che privati (ASL, non-profit, volontariato etc.). Tale coinvolgimento dei diversi attori nella strutturazione del Piano è anche indice del recepimento delle diverse istanze del comparto not for profit in ordine ad un ruolo attivo nella programmazione e pianificazione dei servizi. In tal senso, il Piano di Zona diventa uno strumento di governance che affida all'Ente di Ambito il "ruolo di regista" fra i tanti attori del nuovo tavolo di programmazione»⁵.

La programmazione sociale così concepita assume il ruolo di un'azione di coordinamento di una serie di attività che trovano

concreta esplicitazione operativa nei progetti di promozione e intervento sociale; inoltre, essa permette di individuare un modello decisionale la cui realizzazione comporta una chiara definizione di passaggi, ruoli e tempi di esecuzione.

In linea generale, pur nella “eterogeneità” dei modelli di programmazione sociale, possiamo individuare alcune fasi fondamentali attraverso cui si articola il processo di programmazione:

- analisi del problema (in questa fase si può optare per approcci più scientifici o per approcci più qualitativi e partecipativi);
- definizione degli obiettivi;
- esecuzione del Programma;
- verifica o valutazione dei risultati.

La programmazione si presenta in una veste unitaria, rendendo cioè effettive le politiche sociali a cominciare dall’elemento legislativo ad arrivare all’esecutivo; tuttavia, tale tecnicismo necessita, in tutte le sue fasi di realizzazione – a partire dall’idea fino alla sua realizzazione – di continue verifiche, le quali prendono il nome di *valutazione*. Bezzi precisa: «(...) valutare vuole appunto dire “dare un giudizio”; ma di sostanza, non di semplice forma»⁶ dare un giudizio “di sostanza” significa capire quali logiche, meccanismi, regole, variabili e sviluppi possano opportunamente realizzare determinati interventi o, al contrario, comprendere i motivi per i quali essi non abbiano consentito il risultato sperato:

«Ecco allora la necessità di valutare, ovvero vedere cosa succede alle nostre organizzazioni, ai nostri *programmi* e *progetti*, di capire ogni volta cosa ha funzionato e perché, cosa non ha funzionato e perché. (...), la valutazione vuole capire le ragioni dei meccanismi sociali e dei suoi funzionamenti, in genere limitatamente a quei processi sociali che sono oggetto di una programmazione. Qui ‘programmazione’ è intesa in senso generale per significare che c’è l’idea di fare una certa cosa e che tale idea deve essere strutturata con tempi previsti, persone che se ne occuperanno, danari che si possono spendere, fruitori della “cosa” programmata, risultati che ci si aspetta di ottenere»⁷.

In letteratura esistono molteplici riferimenti sul ruolo della valutazione, sulle sue più diverse tipologie, soprattutto sulla grande responsabilità che riguarda coloro che si occupano di valutazione. Ma le nuove frontiere della teoria sociologica chiedono agli addetti ai lavori di integrare la valutazione col ruolo attivo della cittadinanza intesa come i cittadini fruitori attivi di un servizio, ma ancor prima, di imparare a saper fare «ricerca valutativa»⁸, ossia: «(...) poter argomentare il giudizio valutativo tramite informazioni verificabili»⁹. L'Autore chiarisce come queste debbano essere raccolte con procedure chiare e accettabili, in modo da garantire una solidità epistemica su cui poggiare le proprie argomentazioni: «il giudizio deve essere argomentato: è l'argomentazione che rende il giudizio valutativo scientifico e professionale diverso dal giudizio espresso dall'oratore politico nella conferenza stampa improvvisata»¹⁰.

Bezzi chiarisce che non ci si può limitare ad una semplice raccolta del dato, ma bisogna invece orientarsi su una scelta puntuale, costruita sulla raccolta e l'analisi di quell'informazione che diventerà, per il valutatore, il fulcro di una valida e affidabile ricerca valutativa.

Un altro studioso, Mauro Palumbo, accetta e fa propria la prospettiva di lavorare sulla valutazione in termini di ricerca, ma propone a sua volta un'ulteriore distinzione tra la ricerca valutativa e la valutazione in quanto tale, che viene così precisata:

«La valutazione, dunque, è essenzialmente un'attività di comparazione fra elementi, condotta secondo criteri predefiniti che implica la raccolta o comunque l'utilizzo di dati empirici, realizzata al fine di formulare un giudizio. (...). Ciò che distingue la valutazione dalla quotidiana attività di produzione di giudizi che orientano l'azione è il rigore procedurale con cui essa viene effettuata, che la rende assimilabile al procedimento scientifico. (...). Ma da questa impostazione deriva l'opportunità di distinguere tra valutazione e ricerca valutativa. Con "ricerca valutativa" intendo quella parte, principale e costitutiva, della valutazione incaricata di raccogliere e analizzare informazioni utili per esprimere giudizi valutativi (...). Mentre la valutazione è un'attività che può appartenere anche a persone non preparate sul piano scientifico, ma interessate ad esprimere giudizi informati, efficaci e utili, la ricerca valutativa viene a costituire l'attività prevalente o comunque ineludibile del Valutatore come professionista e come studioso; è nella ricerca valutativa, nella sua capacità di essere efficace e utile, ma

specialmente affidabile e valida, che si produce il valore aggiunto della valutazione»¹¹.

In realtà, una simile distinzione risulta puramente terminologica, poiché lo stesso Bezzi, elaborando in termini di ricerca valutativa alcuni dei passaggi obbligati che caratterizzano il processo di valutazione, presuppone la figura di un valutatore in grado di giudicare e valutare adeguatamente un intervento. Ad ogni modo, la valutazione diventa ricerca valutativa quando si pone l'obiettivo di ottenere una conoscenza ottimizzante del fenomeno osservato, partendo da due quesiti di chiara matrice positivista:

a. se il programma ha conseguito gli obiettivi definiti in sede di programmazione,

b. se gli obiettivi o i risultati del programma sono da attribuire all'implementazione del programma oppure a qualche altro intervento che ha permesso di realizzare ugualmente il programma nei termini previsti.

2. Modelli di programmazione sociale

Nell'ambito della programmazione sociale, analizzata nella sua progressione storica, incontriamo un primo modello, utilizzato in una dimensione sistematica: il modello sinottico¹². Esso prevede una modalità centralizzata, all'insegna dell'idea di una pre-conoscenza razionalistica e scienziata dei bisogni sociali, socio-sanitari e socio-economici atti a legittimare la necessità e l'esistenza di piani di intervento sociale. L'idea di un modello razionalista di programmazione sociale attinge ad una razionalità positivista, propria dei modelli di matrice soprattutto anglosassone, e propone una visione della programmazione sociale intesa come una serie di atti o processi consequenziali, di stadi successivi e di decisioni individuate a priori.

Il periodo di maggiore espansione corrisponde alla metà degli anni '60, fino alla metà degli anni '70, quando gli interventi sociali venivano erogati sulla base di un principio di welfare universalistico, con una razionalità orientata allo scopo nel rapporto mezzi-fini e con la necessità, da parte del decisore unico, di considerare le variabili

intervenienti al fine di esprimere delle preferenze ordinate e tra di esse non contraddittorie. Scrive Siza:

«Si giungeva in questo modo ad affidare alla programmazione uno sforzo relativo ampissimo (...). L'adozione di un modello onnicomprensivo determinava nella fase di formulazione del piano un sovraccarico decisionale e faceva emergere una incapacità a mediare domande incompatibili e a comporre conflitti»¹³.

Si comprende bene, in tale modello, l'importanza data all'analisi della situazione sociale, alla individuazione degli obiettivi e delle priorità e dei relativi indicatori; di conseguenza, nella programmazione sinottica la valutazione sociale ex-ante assume un ruolo determinante e la valutazione ex-post rileva soltanto le criticità presenti nell'implementazione del programma:

«Simon nel 1947 aveva già magistralmente evidenziato i limiti situazionali, di carattere soggettivo e derivanti dalla complessità strutturale che incontra il decisore che adotta un modello decisionale razionale: è impossibile considerare tutte le alternative e valutare le conseguenze di ciascuno di esse»¹⁴.

Lindblom addebita a tale modello una visione idealizzata del processo decisionale, in quanto applicabile solo in condizioni di certezza:

«(...) le informazioni necessarie per un processo decisionale di tale ampiezza sono praticamente infinite, non sono disponibili o, se lo sono, hanno un costo troppo elevato; i policy makers non possono disporre di un quadro esaustivo della situazione, la loro razionalità è necessariamente limitata dal contesto organizzativo, dal tempo a disposizione, dalla conoscenza possibile della situazione»¹⁵.

I limiti di tale modello sono già indiziati dalla scelta dei problemi sociali su cui intervenire; ulteriori limiti possono essere individuati nelle reali possibilità del decisore unico di cogliere e analizzare effettivamente tutte le alternative possibili utili per ogni specifico tipo di azione definita e programmata.

«L'alternativa ragionevole al modello sinottico è la frammentazione del problema decisionale e l'attribuzione delle varie unità decisionali che compongono una decisione complessa ad una pluralità di soggetti che decidono in modo indipendente»¹⁶.

Il modello decisionale a razionalità limitata impone alla programmazione sociale un *paradigm shift*, poiché le fa perdere la referenza esclusivamente tecnico-scientifica, facendole acquisire una struttura fortemente partecipativa, in accoglimento delle molteplici istanze dei diversi stakeholder compresi nell'orizzonte valutativo della partecipazione, come avremo modo di mostrare.

Nel prestare attenzione ai decisori plurivoci e complessi, essa riconosce che sul territorio c'è una pluralità di attori dei servizi sociali, istituzionali e non profit, inclusa la comunità locale destinataria degli interventi, ognuno dei quali è portatore di punti di vista specifici e di puntuali interpretazioni degli obiettivi e delle priorità sociali. La decisione sociale è connessa al riconoscimento dell'esistenza di limiti cognitivi e di atteggiamenti nell'analisi dei bisogni sociali e nella selezione degli obiettivi e delle priorità, ma in una visione partecipativa, ogni attore sociale che partecipa alla programmazione è portatore di una propria razionalità situata rispetto al proprio punto di osservazione e i propri valori. Di conseguenza, l'assunzione di decisioni partecipate e negoziate comporta – nella pluralità delle ragioni degli attori – uno spostamento dell'attenzione sul processo decisionale ossia – nella modalità partecipativa attraverso cui le azioni vengono assunte - diventa razionale l'iter che gli stakeholder devono mettere in opera per pervenire alla decisione, diversamente dal modello sinottico in cui la stessa decisione è razionale: “per progettare è necessario passare attraverso processi sociali di interazione che sostituiscono l'analisi conclusiva”¹⁷.

La partecipazione include tutti gli stakeholder istituzionali e del privato sociale e i cittadini in quanto beneficiari o partecipi della gestione; essa deve inoltre seguire le diverse fasi della programmazione sociale, dall'individuazione e analisi del problema all'individuazione degli obiettivi fino alla valutazione e interpretazione dei risultati. Leonardo Altieri individua quattro

dimensioni sulle quali si sviluppa l'ascolto e la partecipazione dei cittadini:

«- il livello individuale, riferito alla relazione di cura operatore-utente, al loro rapporto duale, dove ascolto e partecipazione significano costruire le condizioni per consenso informato e compliance;
- il livello relazionale/reticolare, dove siamo ancora dentro la relazione di cura o di servizio, quando entrano in gioco la famiglia, le reti solidaristiche amicali, di vicinato, di volontariato;
- il livello politico della partecipazione collettiva, dove si affrontano in modo più complessivo le scelte connesse ai processi decisionali, organizzativi, ecc., dentro le strutture dei servizi;
- il livello globale, dove entra in gioco il rapporto fra modi di vita e salute del genere umano, da un lato, e qualità della sopravvivenza e salute del pianeta in relazione al rischio ambientale, dall'altro»¹⁸.

Questo modello modifica dunque il processo di valutazione, che presenta adesso la tendenza alla partecipazione pur restando all'interno di una famiglia di approcci che si differenziano in relazione agli scopi cui ciascun modello tende. Nel nostro lavoro metteremo in evidenza di quest'ultimo tipo di valutazione che – qualora realizzata e interpretata con le giuste metodologie di ricerca – riesce a dare importanza valoriale al ruolo relazionale tra gli stakeholders, in particolare quegli utenti-soggetti attivi di politiche e servizi i quali diventano portatori di interessi e valori, che nel panorama politico e sociale contemporaneo non si può più fare a meno di considerare:

«si tratta di tecniche in costante ridefinizione, che si basano tutte sull'assunto secondo il quale i soggetti direttamente interessati a un intervento sono in grado di partecipare attivamente alla sua progettazione o valutazione, qualora siano debitamente informati e siano messi in condizione di interagire con esperti e facilitatori in grado di tradurre gli aspetti tecnici del progetto ai cittadini e di recepire in forma di indicazione progettuale il contributo dei cittadini stessi»¹⁹.

È fondamentale la puntualizzazione di alcuni aspetti: in primis, l'Autore parla di tecniche in costante ridefinizione; quindi non disponiamo di un protocollo prestabilito a cui sia necessario attenersi

per dare valore scientifico al progetto di ricerca, come di norma accade quando lavoriamo su tecniche di tipo quantitativo. In secondo luogo, Palumbo punta l'attenzione sul ruolo dei partecipanti, che devono essere adeguatamente informati ed inclusi in tutte le fasi di lavoro, oltre alla necessità da parte di questi ultimi di essere messi nella condizione di interagire, perché solo in questo modo possiamo osservare ed apprezzare la validità di un simile contributo teorico-operativo al processo di valutazione. Sul coinvolgimento dei cittadini, De Ambrogio scrive:

«L'azione di valutazione in campo sociale non può prescindere dal coinvolgimento degli attori, poiché infatti siamo in un settore nel quale “si producono” benessere, autonomie, soddisfazioni, relazioni significative fra persone; questi elementi non sono valutabili esclusivamente attraverso indicatori oggettivi ma attraverso la messa in comune di diverse soggettività, confrontate con riscontro oggettivi»²⁰.

Tale evoluzione della valutazione e l'importanza dell'utente come decisore attivo viene evidenziata anche nella Legge Quadro 328/2000²¹, che sancisce quel cambiamento culturale da un welfare assistenzialistico ad un welfare che deve promuovere benessere attraverso interventi mirati alla cura e alla prevenzione: questa è la sfida del Welfare Community. Per essere più chiari, tale passaggio culturale viene concretizzato attraverso il Piano di Zona²². Con tale strumento si opera in termini di programmazione locale, resa attuativa dalla logica di lavorare per progetti nel rispetto degli obiettivi e priorità definite dalla Regione con il Piano Sociale Regionale e le esigenze stesse della comunità.

3. Dal sapere sociologico all'intervento sociale

Prima di passare alla descrizione dei livelli applicativi resi possibili dalla enucleazione delle caratteristiche teorico-metodologiche del presente lavoro, allo scopo di evidenziare una possibile differenza tra valutatività e valutazione nell'ambito della programmazione sociale, si ritiene opportuno precisare, seppur sinteticamente, alcuni concetti utili alla comprensione del contesto

entro cui si muove e articola la configurazione concettuale da cui siamo partiti.

La ricerca sociologica annovera, come esito teleonomico della sua operativizzazione, l'obiettivo di comprendere, interpretare e, conseguentemente, agire produttivamente in tutte quelle situazioni problematiche che investono l'ambito delle politiche sociali, nel tentativo di dare necessaria ed opportuna risposta alle necessità e ai bisogni degli individui. Infatti, la sociologia lavora su due dimensioni: una di carattere conoscitivo ed esplorativo, nella quale si producono conoscenze sui fenomeni sociali; un'altra, di carattere empirico o applicativo, nella quale tutte le informazioni acquisite nella prima dimensione si traducono necessariamente e operativamente in interventi diretti sul tessuto vivo del mutamento sociale. L'incisività e l'efficacia di tale binomio teorico-operativo si riflette direttamente nella sociologia applicata, la quale «coniuga la ricerca empirica con l'intervento sociale»²³. Corsi spiega in questi termini quale sia l'oggetto di ricerca della scienza applicata:

«Sono oggetto della sociologia applicata la soluzione di problemi organizzativi dei sistemi micro e macro, i processi di strutturazione, la loro ottimizzazione, la diagnosi dei problemi di una comunità, di un'organizzazione pubblica e privata, la progettazione degli interventi e la loro valutazione in termini di effetti e risultati»²⁴.

Questa precisazione ci permette di comprendere il fatto che un intervento sociale si realizza partendo sempre da un'attenta analisi descrittiva del fenomeno oggetto di indagine. La scelta del problema avviene solitamente in relazione ad alcune variabili, che possono essere:

- il paradigma di riferimento
- i valori del ricercatore (Weber, 1922)
- la metodologia (qualitativa, quantitativa o basata su metodi misti)
- l'unità di analisi (individui o collettività)
- il tempo a disposizione.

In relazione allo specifico argomento relativo alla prassi operativa dell'intervento sociale, è stata individuata una "complessità

fondativa”²⁵ costituita dall’azione di molteplici soggetti che a diverso titolo e ruolo si mobilitano al fine di trattare particolari situazioni o casi in relazione al contesto materiale, simbolico e relazionale all’interno del quale gli attori sociali si trovano; questo assunto comporta che la soluzione di un intervento sociale deve essere trovata e resa attuativa nella stessa società in cui è nata e con gli stessi strumenti di cui la società dispone. Infatti,

«data questa sua complessità fondativa, l’intervento sociale si presenta (e si rende rappresentabile) come un sistema logico, codeterminato dall’azione di almeno 3 ambiti (o dimensioni) distinti, che ne specificano identità e funzioni a livello normativo-simbolico, comunicativo-relazionale, storico-sociale»²⁶.

Nella prima di queste dimensioni, a livello normativo-simbolico troviamo il progetto, ossia «la grammatica e l’architettura entro le quali i partecipanti all’azione trovano costante alimento e direzione per il proprio agire soggettivo»²⁷.

Nella seconda dimensione, l’Autore identifica il «processo»²⁸ che costituisce la struttura comunicativa dell’intervento sociale, in quanto il progetto prende vita dentro un tessuto di relazioni tra le funzioni e i poteri degli attori coinvolti. La terza dimensione è «l’ambiente»²⁹, ossia un contesto fisico e culturale che rende possibile azioni e interazioni, in cui si realizzano gli effetti del progetto e la portata del processo. Tomei conclude:

«Sulla base di queste premesse, valutare un intervento sociale significa esplorarne i costrutti logici e simbolici (progetti); le procedure (processi) comunicative, linguistiche e motivazionali che lo generano; l’insieme delle riverberazioni, intuitive o contro intuitive che siano, che esso produce o segnala nel contesto (ambiente) cui si riferisce»³⁰.

Queste dimensioni sono indispensabili per comprendere dove nasce e come si sviluppa un intervento sociale, tuttavia esse sono ancora prive dell’elemento fondamentale individuabile nel processo relazionale e quindi partecipativo su cui scommettere. Senza questo elemento, abbiamo solo la struttura esterna al progetto.

Risulta quindi opportuno procedere con la nostra descrizione teorica e del conseguente intervento sociale che si ha intenzione di realizzare a livello territoriale, effettuando una comparazione tra differenti realtà territoriali e individuando, almeno per alcune di esse, l'opportunità e l'efficacia applicativa di metodi partecipativi capaci di apportare benefici alla comunità locale, immaginando quest'ultima come "identità residenziale" degli attori coinvolti nel processo decisionale (Di Zio, Pasotti, Venditti, 2011).

4. La programmazione sociale tra valutazione e valutatività

A partire dalla Legge 328/2000, lavorare sulle politiche sociali significa focalizzare l'attenzione sui seguenti aspetti: progettazione, integrazione tra pubblico e privato, lavoro di rete e partecipazione della comunità locale. La legge trasforma, infatti, la programmazione da azione debolmente sistematica ad azione obbligatoria e vincolante per gli effetti delle politiche sociali assumendo, quindi, un carattere marcatamente decentrato, nel quale viene lasciata ampia autonomia agli attori intermedi del governo locale, prevedendo una maggiore partecipazione del terzo settore, nonché delle reti informali eventualmente presenti a livello locale. In particolare, essa segna il passaggio da una cultura prettamente assistenzialistica ad una politica della programmazione e degli interventi sociali attenta alle esigenze e bisogni della propria comunità. Questo passaggio si concretizza nello strumento del Piano di Zona³¹, che «diventa uno strumento di governance che affida all'Ente di Ambito il ruolo di "regista" fra i tanti attori del nuovo tavolo di programmazione»³².

Questi aspetti verranno rafforzati, a distanza di un anno, dalla riforma del Titolo V parte seconda della Costituzione³³, le cui modifiche hanno mutato il quadro complessivo di riferimento dell'intero sistema di competenze sia legislative sia amministrative; inoltre, in riferimento alla potestà legislativa, la riforma ha diviso tutte le materie in due gruppi:

- *materie di legislazione esclusive o riservate allo Stato*, le quali sono indicate nel 2° comma art. 117 lettera m, che riguardano la determinazione dei livelli essenziali di assistenza i quali devono essere determinati e garantiti su tutto il territorio nazionale. Sull'argomento, Tomei puntualizza la questione:

«(...) le modalità per la determinazione dei LIVEAS sono da considerare una sfida strategica non solo per la modernizzazione del nostro sistema di welfare ma anche per introdurre meccanismi di riflessività pubblica assolutamente necessari per garantire il modello di governance democratica e diffusa, già previsto dalla L. n. 328/2000»³⁴.

- *materie di legislazione concorrente*, in cui spetta alle Regioni la potestà legislativa in tutte le materie non espressamente riservate alla legislazione dello Stato. Infatti, le Regioni hanno oggi competenza esclusiva in materia sanitaria e sociale, con potestà anche programmatica.

Questi cambiamenti, unitamente all'autonomia regionale in campo socio-assistenziale, hanno prodotto in questi ultimi anni una serie di piani regionali e programmi differenti tra loro, alimentando in tal modo una frammentazione e, in alcune situazioni limite, una disomogeneità nell'erogazione delle prestazioni sociali sul territorio nazionale, in quanto ogni Regione autonomamente decide, a seguito di un'analisi preliminare dei bisogni, quali sono le situazioni sulle quali intervenire in modo prioritario e quale modello di programmazione più adeguato al contesto. In riferimento a tale frammentazione, Tomei rileva come:

«the subsequent federalist constitutional reform that has shifted a lot of legislative competences to Regions, joint with the lack of definition of the essential assistance levels in the assistance field of policy, the growing level of conflict among regions and state, and the lack of coordination among the Regions themselves, has perversely helped along a growing level of fragmentation»³⁵.

La riforma costituzionale che ha delegato la competenza legislativa alle Regioni – come opportunamente rilevato da Tomei –

ha finito con l'aumentare la frammentazione, con il risultato osservabile, in Italia, di un panorama delle politiche socio-sanitarie e del welfare alquanto differenziato. A partire da tali osservazioni critiche, l'obiettivo che ci poniamo è quello di individuare i diversi modi con cui è stata recepita la L. 328/2000 da parte delle Regioni e quale modello di programmazione hanno adottato. In particolare, si intende prestare una maggiore attenzione a quei modelli di programmazione e valutazione partecipativi, ossia quei modelli che possiamo definire *multirelazionali* perché, in una prospettiva di condivisione e partecipazione complessa di differenti tipologie di attori, diviene promozionale quell'interazione simultanea capace di articolare il processo decisionale, rendendolo attivo e operativo anche nella fase deliberativa e definitiva della valutazione partecipata, a differenza di quanto avviene nel modello classico, laddove la partecipazione viene favorita solo nelle prime fasi di indagine del piano, ma non nel momento valutativo e decisionale. Si tratta, in ultima analisi, di immaginare una valutazione ad *alta densità decisionale* anziché a *bassa densità* (Pasotti, Antonucci, Venditti, 2012).

In termini epistemologici, la programmazione riproduce in effetti, negli andamenti e nelle dinamiche evolutive del processo decisionale, le strutture e le funzioni tipiche di un sistema sociale organizzato. A tale riguardo, giunge opportuna la definizione proposta da Sciarra del sistema sociale come «un insieme di interazioni tra agenti individuali che operano in un contesto di vincoli e possibilità»³⁶; di conseguenza, se il welfare perde la verticalità del potere a favore della orizzontalità delle decisioni, non può prescindere da una strategia di azione sociale orientata alla programmazione e valutazione: in dettaglio, possiamo identificare come elementi epistemici la *relazione*, la *comunicazione* e la *partecipazione*. Letto secondo tale matrice sociologica, il Piano di Zona diventa uno strumento in grado di prevedere e seguire gli andamenti delle politiche sociali e dei servizi che nel suo ambito si realizzano ed è «continuamente sottoposto a ridefinizione dell'azione sotto la spinta dei diversi Stakeholder»³⁷, nella complessità di un sistema sociale dinamico. Sul ruolo della comunicazione in un sistema sociale, Sciarra scrive:

«La complessità in un gruppo sociale offre a tutti i membri varie possibilità di scelta relazionale in rapporto a certe situazioni determinate. La complessità sociale è la differenza sussistente tra il numero delle possibilità relazionali potenziali di scelta dei membri e quelle di volta in volta realizzate in contesti determinati»³⁸.

Si comprende adeguatamente l'importanza dell'interazione comunicativa non tanto in rapporto alle dinamiche della programmazione o realizzazione di un intervento sociale, quanto invece proprio nella valutazione partecipata in campo sociale, in cui l'azione strategica decisionale, come viene promossa dal Welfare Community, non può

«(...) prescindere dal coinvolgimento degli attori, poiché siamo in un settore nel quale “si producono” benessere, autonomie, soddisfazioni, relazioni significative fra persone; questi elementi non sono valutabili esclusivamente attraverso indicatori oggettivi ma attraverso la messa in comune di diverse soggettività, confrontate con riscontro oggettivi»³⁹.

La valutazione è intesa generalmente come un processo di verifica e di convergenza tra le premesse iniziali e i risultati attesi in un determinato programma, nella necessità per quest'ultimo di venire valutato al fine di capire cosa ha funzionato e cosa deve invece essere modificato. Per comprendere al meglio il processo valutativo e il campo di indagine entro cui si esplica, Giuseppe Moro, utilizzando la metafora del gioco, scrive:

«Quello chiamato “valutazione” si svolge all'interno di un campo in cui sono presenti alcuni elementi che, combinati insieme, determinano le configurazioni che assume la valutazione. Tali elementi sono: gli oggetti della valutazione, le sue fasi, i criteri rispetto a cui si valuta e gli attori che conducono il gioco»⁴⁰.

Partendo dalle premesse “istituzionali” della programmazione, vediamo come essa individui normativamente le aree di bisogno, nel rispetto dei tempi esecutivi per la realizzazione degli interventi. La

valutazione si diversifica, invece, nel suo carattere esplorativo e conoscitivo, incrementale rispetto all'oggetto di analisi.

Esiste un ulteriore aspetto della valutazione, da essa logicamente distinto, immerso in un intreccio di variabili di pertinenza cognitiva, di modelli ideali e di convergenze/divergenze decisionali degli attori. Esso si stacca dalla dimensione propriamente esecutiva della valutazione, poiché la anticipa nelle modalità e nei tempi: la *valutatività*. Esiste, cioè, una dimensione preliminare alla valutazione vera e propria, costituita dall'intreccio delle variabili, di pertinenza, assonanza e dissonanza cognitiva, ossia come la dimensione *connettiva, comunicativa e corale* della valutazione.

Nell'argomentare la partecipazione, giungiamo quindi a distinguere due volti della valutazione: uno standardizzabile e uno non standardizzabile, dovuto alla molteplicità dei soggetti, alle idee coinvolte nel processo, all'interazione e allo scambio comunicativo degli attori e le loro relazioni, ossia tutto quell'apparato non formalizzato, ma che tuttavia esiste e coinvolge gli individui nel processo valutativo, sia in fase di realizzazione della valutazione stessa, sia al di fuori degli schemi valutativi già dati, tale da comportare un approfondimento e miglioramento della capacità previsionale dello scenario che sarà poi utilizzato per le politiche sociali.

La *valutatività*, intesa come esplorazione, condivisione e partecipazione, diventa *deliberazione* nel momento in cui tutti gli attori coinvolti nel processo valutativo, attraverso le loro difformità e asimmetrie conoscitive, riescono ciononostante ad arrivare ad una visione unitaria e globale di quel futuro che loro sono stati in grado di vedere:

«la valutazione ispirata alla democrazia deliberativa è un ideale che vale la pena di perseguire, non qualcosa che sia raggiungibile una volta per tutte in ogni ricerca o che possa essere pienamente afferrato. Ma del resto, la raccolta, l'analisi e l'interpretazione dei dati secondo una modalità libera da distorsioni, e che permetta di giungere a risultati accurati, non è a sua volta perfetta. La mancanza di perfezione non è un motivo per smettere di tentare di fare del nostro meglio. Quando si fa riferimento al punto di vista della

democrazia deliberativa, si può concludere che esistono modi migliori e modi peggiori di condurre delle ricerche»⁴¹.

Note

¹ Bruschi A., *L'intervento sociale. Dalla progettazione alla realizzazione*, Carocci Editore, Roma, 2007, p. 25

² Bruschi A., *op. cit.*, p. 95

³ Bruni C., Ferraro U., *Pianificazione e gestione dei servizi sociali. L'approccio sociologico e la prassi operativa*, Franco Angeli, Milano, 2009, p. 20

⁴ Massa M., *Art. 18. Piano nazionale e piani regionali degli interventi e dei servizi sociali*, in: Balboni E., Baroni B., Mattioni A., Pastori G. (a cura di), *Il sistema integrato dei servizi sociali. Commento alla legge n.328 del 2000 e ai provvedimenti attuativi dopo la riforma del titolo V della Costituzione*, Giuffrè Editore, Milano, 2003, pp. 296-297

⁵ Venditti M., *Il sistema sociale locale nelle sue dimensioni valoriale strutturale e funzionale*, Giappichelli, Torino, 2004, p. 143

⁶ Bezzi C., *Cos'è la valutazione*, Franco Angeli, Milano 2008, p. 14

⁷ Bezzi C., *op. cit.*, p. 15

⁸ Bezzi C., *op. cit.*, p. 21

⁹ *Ibidem*

¹⁰ Bezzi C., *Il nuovo disegno della ricerca valutativa*, Franco Angeli, Milano 2010, pp. 23-24

¹¹ Palumbo M., *Il processo di valutazione. Decidere, programmare, valutare*, Franco Angeli, Milano, 2002, p. 51

¹² Detto anche *modello decisionale a razionalità assoluta*

¹³ Siza R., *Progettare nel sociale. Regole, metodi e strumenti per una partecipazione sostenibile*, Franco Angeli, Milano, 2003, pp. 45-46

¹⁴ Siza R., *op. cit.*, p. 46

¹⁵ *Ibidem*

¹⁶ Siza R., *Progettare nel sociale. Regole, metodi e strumenti per una partecipazione sostenibile*, Franco Angeli, Milano, 2003, p. 47

¹⁷ *Ibidem*

¹⁸ Altieri L., *Valutazione e partecipazione*, Franco Angeli, Milano, 2009, p. 112

¹⁹ Cannavò L., Frudà L., *Ricerca Sociale*, Carocci Editore, Roma, 2007, p. 208

²⁰ De Ambrogio U., *Valutare gli interventi e le politiche sociali*, Carocci Faber, Roma, 2004, p. 47

²¹ L. 328/2000, *Legge quadro per la realizzazione del sistema integratori interventi e di servizi sociali*. Tale legge è stata preceduta da altre due importanti normative che hanno promosso per prime un lavoro di programmazione e valutazione di interventi queste sono: la legge 285/1997, *Diritti ed opportunità per infanzia ed adolescenza*; il D.LGS. 229/1998, *Riforma Ter* tale riforma rilancia il tema dell'integra-zione sociosanitaria e contiene riferimenti sul tema della valutazione di qualità, per approfondimenti Cfr: De Ambrogio U., *Valutare gli interventi e le politiche sociali*, Carocci Faber, Roma, 2004, pp. 38-47

²² L. 328/2000, *Legge quadro per la realizzazione del sistema integratori interventi e di servizi sociali*. Art.1

²³ Corsi V., *La sociologia tra conoscenza e ricerca*, Franco Angeli, Milano, 2009, p. 85

²⁴ Corsi V., *op. cit.*, p. 82

²⁵ Tomei G., *Valutazione partecipata della qualità*, Franco Angeli, Milano, 2006, p. 73

²⁶ *Ibidem*

²⁷ Tomei G., *cit.*, pp. 73-74

²⁸ *Ibidem*

²⁹ *Ibidem*

³⁰ Tomei G., *cit.*, p. 75

³¹ L. 328/2000, *Legge quadro per la realizzazione del sistema integrato di interventi e dei servizi sociali*. Art. 19

³² Venditti M., *Il sistema sociale locale nelle sue dimensioni valoriale strutturale e funzionale*, Giappichelli, Torino, 2004, p. 143

³³ Legge Costituzionale 18 ottobre 2001 n° 3

³⁴ Tomei G., *Il contributo della valutazione della qualità alla determinazione riflessiva e partecipata dei Liveas*, in Costa G. (a cura di), *Diritti in costruzione. Presupposti per una definizione efficace dei Livelli Essenziali di Assistenza Sociale*, Bruno Mondadori, Milano, 2012, pp. 128-129

³⁵ Tomei G., Villa M., *Unveiling the rethoric, promoting social practices: the problem of participation in the new Tuscany Welfare System*, in Tsobanoglou G.O., (ed.), *The Politics of Participation and Empowerment: Current Issues and Practices*, Verlag fur Gesellschaftsarchitektur, GmbH, Hildesheim, Germany, 2012, p. 83

³⁶ Sciarra E., *Paradigmi e metodi di ricerca sulla socializzazione autorganizzante*, Sigraf Edizioni Scientifiche, Pescara, 2007, p. 22

³⁷ Venditti M., *Il sistema sociale locale nelle sue dimensioni valoriale strutturale e funzionale*, Giappichelli, Torino, 2004, pp. 143-144

³⁸ Sciarra E., *op. cit.*, p. 32

³⁹ De Ambrogio U., *Valutare gli interventi e le politiche sociali*, Carocci, Roma, 2004, p. 47

⁴⁰ Moro G., *La valutazione delle politiche pubbliche*, Carocci, Roma 2009, p. 27

⁴¹ House. E. R., Howe K. R., *Valutazione e democrazia deliberativa*, (a cura di) Stame N., *Classici della Valutazione*, Franco Angeli, Milano, 2007, p. 425

Extended Abstract

The engineering connotation orienting the teleonomy of social programming is based on the empirical nature of social intervention underlying the theorization concerning the analysis of social change. This analysis is observed through different dimensions of legitimation (cultural-symbolic, political, economic and financial) as they have been time by time reported in the shape of different functions of modern state.

The progressive prevalence of the legal bureaucratic and technical-professional sphere has finally arrived, as a result for programming and social planning, in a differential peculiar element to respond to the needs of different social actors. This has led to the development of a complex process of rational choice characterized by stages of implementation and analysis of the results framework which is based on the planned interventions: the process which is identified with the name of evaluation.

In its actual, participatory, consensual version, evaluation changes the traditional structure of social programming, which becomes relational and decision-making based with social actors involvement (citizens and customers) and their own interests and values, since they are now considered as active subjects of social policies and services. Thus, it's possible to highlight in this paper the double dimension of the evaluation as a regulatory and procedural process, and evaluativity intended as the specific environment in which cognitive, ideal, decisional variables are linking and interacting together within its preliminary and necessarily connective, communicative and choral nature.

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Abitare Mediterraneo

Integrated approach of a sustainable building management in Mediterranean context: think tanks network sharing an open platform to integrate technological and architectural innovation for low energy building

Antonella Trombadore¹

Abstract. *Abitare Mediterraneo* proposes an integrated management action to stimulate the participation of major stakeholders in the built environment revitalization process, fostering the objectives of sustainable project. As open platform of knowledge, the continuous updating of technologies and procedures will redefine a quality-based methodology for integrated conservation of existing buildings: new models and standards of indoor comfort in hot/cold season and a more aware management of the available energy resources.

Keyword: Integrated management approach, Process stakeholder participation, Energy Assessment, Innovation enhancement

1. Mediterranean sustainable vision: 5 ideas to share

ABITARE MEDITERRANEO *Sustainable technological Innovation for mediterranean cities* is a research project funded by the Tuscany Region in CREO POR FESR 2007-2013, led by University of Florence with the main involvement of prof. Marco Sala as scientific coordination and Antonella Trombadore as project manager, developed in collaboration with the and 12 Tuscan companies, in order to create an integrated dynamic management system to increase building energy efficiency: a common platform to

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A. Trombadore, *Abitare Mediterraneo. Integrated approach of a sustainable building management in Mediterranean context*

share knowledge, stimulating the improvement of environmental performance of the building, competitiveness and innovation.

After the promulgation of Energy Performance of Building 2002/91/CE each European Country has to adopt local and national regulations to guarantee high efficient buildings, using appropriated policy in order to consider local climate condition.

This means that it is necessary, in South Mediterranean area, think about winter and summer conditions, trying to support strong collaboration to avoid the copy of North European energy efficiency solutions, giving character to appropriated solutions in Energy efficient Buildings

The political strategy of *Abitare mediterraneo*, driving the selection of common criteria and content, aimed to combine environmental with cultural sustainability of Mediterranean habitat, in order to attribute a strong identity to the architecture traditions and to improve economic, productive, social and regional development.



fig.1 Examples of environmental and cultural sustainability in Mediterranean towns

Five principles underlie the *Memorandum of Understanding of Abitare mediterraneo*, to retrieve and innovate the traditional principles of construction and increase the level of environmental and architectural quality of the interventions of new construction and redevelopment.

1. *Architecture and Climate condition.* The Mediterranean climatic condition requires building appropriate solutions: the problem of energy consumption for summer comfort can not be solved by following the logical construction of Northern Europe. To reduce energy cost, it is necessary to define innovative strategies in the building, which is strongly related to climatic and cultural characteristics.

2. *Inclusiveness and Change.* The fast and dynamic evolution of social and demographic structure of the population of the Mediterranean area suggests a change, that determines the need for new models of urban spaces and residential use, with typological and technological innovations to support new social and intercultural issues.

3. *Identity and Competitiveness.* The Mediterranean ecosystems and environmental assets are based on the knowledge of the art of living, the management of the landscape, the ability to stimulate cooperation on issues of sustainable development, for development of regional identity. And 'on architectural elements and cultural climate in which the distinctive scientific subjects, companies and governments should aim to boost competitiveness at international level.

4. *Urban Transformation and Environmental Quality.* Forced transition to a sustainable city of strategic importance to revitalize the area. To manage the population growth in the Mediterranean, the resulting increase in energy consumption and increased demand for comfort, it is necessary for the construction market provides appropriate solutions to new social needs and more environmentally friendly technologies.

A. Trombadore, *Abitare Mediterraneo. Integrated approach of a sustainable building management in Mediterranean context*



fig.2 examples of deep urban transformation
 fig.3 innovation of the traditional design principles

5. *Innovation and Tradition.* The Mediterranean architectural traditions of the past, full of potential and interesting cultural influences, represent an important heritage of civilization and it is from these that we must be inspired to develop new building components, high energy performance. There is the need to recover and innovate traditional design principles and increase the level of environmental and architectural quality of the interventions of building retrofitting and new construction .



fig.4 Solar radiation and climatic condition in European context
 fig. 5 Integrated action to valorize architectural traditions with strong identity

The *Memorandum of Understanding* is shared by all those who work in construction and in particular from 6 categories of stakeholder, involved in the Open System: Manufacturers, Designers, Builders, Public Administration, Building Manager and Private Clients. Through a mechanism for broad participation, for each category are defined as specific technical requirements, type design and related skills and experiences, giving priority to the exploitation of those in qualification schemes in use, if compatible with the requirements of the Mediterranean context.

2. The *Think Tank* international network

One of the goals of Abitare mediterraneo project is to create an *international network of Centre of Expertise as Think Tank* on sustainable architecture in the Mediterranean area capable of actively involving all the actors who are involved in various capacities along the building process, in the open system of qualification and recognition that allows for the testing of new tools procedural, regulatory and economic-financial actions stimulating other innovative building solutions, as well as the diffusion of knowledge and best practices for energy efficiency, in building life cycle and its components, for retrofitting, new construction and re-functionalization in the Mediterranean context.

Besides, the '*think tank*' Network fosters the exchange of experience and learning local authorities in the field of Innovative concept design and technologies for low energy building in Mediterranean Area, supporting the preparation and application of common legislative measures to improve the practical implementation of sustainable energy policies at local level, based on stakeholders participation.

There are 6 categories of recipients, potentially involved: by producers of raw materials to the purchaser of the building system manufacturers, designers, builders, public administration, building managers and private clients. Through a mechanism for broad participation, for each category are defined as specific technical

A. Trombadore, *Abitare Mediterraneo. Integrated approach of a sustainable building management in Mediterranean context*

requirements, type design and related skills and experiences, giving priority to the exploitation of those in qualification schemes in use, if compatible with the requirements of the context Mediterranean.

Particular attention is given to the definition of tools and methods of intervention on existing buildings, according to a sustainable approach to the problem of reducing energy consumption and environmental compatibility of products and manufacturing processes. Innovation and the environmental quality of building components and procedures for design and implementation of restoration and new constructions are promoted from the local context and architecture of Tuscany, which has all the environmental characteristics and specificity of the Mediterranean microclimate zone.

The *Abitaremediterraneo think tank Network* permits a close correlation between the need for innovation in enterprises located in territory of settlement of the Centre and the services that it is capable of delivering. Besides, through the learning of local authorities in the field of Innovative concept design and technologies for low energy building in Mediterranean area, the networking activities stimulate the improvement of "market penetration" of new products, that foreshadow the impact of the Centre on all the land areas that have specialized technology and production and a demand for innovation-related services that the Centre provides.

2. The *interactive platform*

Designed as a multimedia platform for the integration of technological innovation, the web portal *Abitaremediterraneo* (www.abitaremediterraneo.eu) becomes a network structure able to document and disseminate the development of processes, projects, innovative products and components, allowing different types of users to choose personalized navigation paths. A session of the website is dedicated to sharing the abacus of innovative solutions that allows testing of products, components and technological systems more efficient in terms of energy saving in relation to environmental characteristics of the Mediterranean. The focus for one hand is the

development of a new model of building component catalogue, aiming towards high-quality innovation with environmental and indoor comfort as main added values: for the other hand the demonstration of flexible integration of technological innovation, architectural and energy sustainability during the retrofitting and new building processes.

A special session is dedicated to the *DataBase*. It is a library designed to be easily accessible by non-technical users to become interactive tool for projects solutions evaluation. Interacting on the platform, the designer will have the opportunity to simulate scenarios of technological integration of building systems and components, choosing from a wide range of technology solutions, structured data sheets with three-dimensional images and construction details, with information on temperature-humidity performance , acoustic, ACL and will be able to assess the economic viability as a function of energy-environmental performance of final configurations.



fig.6 The website special session dedicated to the DataBase

A. Trombadore, *Abitare Mediterraneo. Integrated approach of a sustainable building management in Mediterranean context*





blocchi di laterizio con termointonaco La soluzione tecnica proposta si basa sulla combinazione di una muratura massiva in blocchi di laterizio e un intonaco performante termoisolante. In particolare la muratura viene realizzata tramite bl... Vedi i dettagli >>	
2. Involucro (chiusura) > 2.01 Chiusure verticali > 2.01.b Pareti portanti > blocchi di laterizio con termointonaco VAI ALLA SCHEDA	
Blocchi di laterizio ventilata in cotto La soluzione tecnica proposta si basa sulla combinazione di una muratura massiva in blocchi di laterizio e una ventilazione esterna, realizzata attraverso un sistema di aggancio a montanti sui quali v... Vedi i dettagli >>	
2. Involucro (chiusura) > 2.01 Chiusure verticali > 2.01.b Pareti portanti > Blocchi di laterizio ventilata in cotto VAI ALLA SCHEDA	
Parete in blocchi di c/cis ventilata in cotto La soluzione tecnica proposta si basa sulla combinazione di una parete massiva in blocchi in calcestruzzo vibrocompressi e una parete ventilata esterna, realizzata con un sistema di aggancio a montant... Vedi i dettagli >>	
2. Involucro (chiusura) > 2.01 Chiusure verticali > 2.01.b Pareti portanti > Parete in blocchi di c/cis ventilata in cotto VAI ALLA SCHEDA	
retrofitting - Facciata ventilata e cappotto Il sistema costruttivo proposto si basa sull'installazione di una facciata ventilata con isolamento a cappotto in Eps con gafite su una muratura esistente, al fine di migliorare le prestazioni energ... Vedi i dettagli >>	
2. Involucro (chiusura) > 2.01 Chiusure verticali > 2.01.b Pareti portanti > retrofitting - Facciata ventilata e cappotto VAI ALLA SCHEDA	

fig.7 The database "icons" guided research

A. Trombadore, *Abitare Mediterraneo. Integrated approach of a sustainable building management in Mediterranean context*

manufacturing solutions, not only related to the thermo-shrinkage behavior of individual building components, but also to study the interaction and integration more components.



fig.9, 10, 11 High Technological laboratory of energy performance, simulation and monitoring of real thermodynamic behavior of technological systems.



fig 10



fig 11

Besides the research group is involved in Energetic performances' evaluation and Testing of prototypes/products:

- Assemblage and testing of the prototypes in integrated systems and evaluation of the energetic performances
- assemblage and Quality Testing of the project target
- Evaluation of Thermo-Hygrometric and Energetic performances to integrate the new components in case studies, such as new construction or retrofitting and upgrading of building in Tuscany

4. Dissemination and Training Centre

A documentation center has been implemented as *Reference Point* at the Dissemination and Training Technological Center in Lucca, for the diffusion of know-how aimed to the enterprises interested in pushing further towards an innovative production in terms of energy efficiency in the building sector.



fig. 12, fig. 13 The documentation center in Lucca

The permanent exhibition promotes awareness and dissemination of a new building culture and to put in direct contact with the various

A. Trombadore, *Abitare Mediterraneo. Integrated approach of a sustainable building management in Mediterranean context*

actors of the construction process. Inside it has set up a space dedicated to the Tuscan producers, where they will be exposed building components selected on the basis of quality and consistency with the themes of Mediterranean Living research. Each building component or system will be presented through a sample product with attached brochure illustration, components, technical performance, item specifications, certification and dealers / applicators.



fig. 13

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A smart approach to urban transformation and management

Francesca Verde¹

Abstract: The concept of smartness as applied to the built environment transformation has risen as a must in specialized scientific dissemination and in current digital-media communication. Relying on the study of international cases at different scale, this contribution highlights the potential applicability of the smart development approach as urban area management and as technological strategy.

Keywords: Smart City, Management System, Urban Strategy, Appropriate Technology

1. Introduction

In 2009, Smart City was identified, from European Community as a tool to plan into effect the Strategic Energy Technology Plan (SET-Plan).

Through this *smart* work-tool, the European Community is expected to achieve the goal of *Low Carbon Development*, pursuing energy efficiency directed by the three leading sectors of urban development: sustainable transport, buildings efficiency and industrial production.

Member States are currently active in the creation of Smart Cities and Communities channels for projects financing supporting the Horizon 2020 goals, which identifies, through each competent agency,

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the growing sectors of investments [1]. In addition, the Italian Ministry of Education announces the *Smart Cities and Communities* notification (2012), funding 16 different strategic goals from Health to Security, to Resources management [2].

Beyond the international programming of the European States, the journey towards the smartness, certainly, takes its spread to the international European Smart Cities research (2006) from which are deduced the essential characters for development of the urban areas. People, Mobility, Living, Economy, Environment and Governance are the six areas identified as characteristic of the city [3].

As much, the actions are integrated in terms of ability to release positive effects on different growing sectors, as many they are estimated as smart.

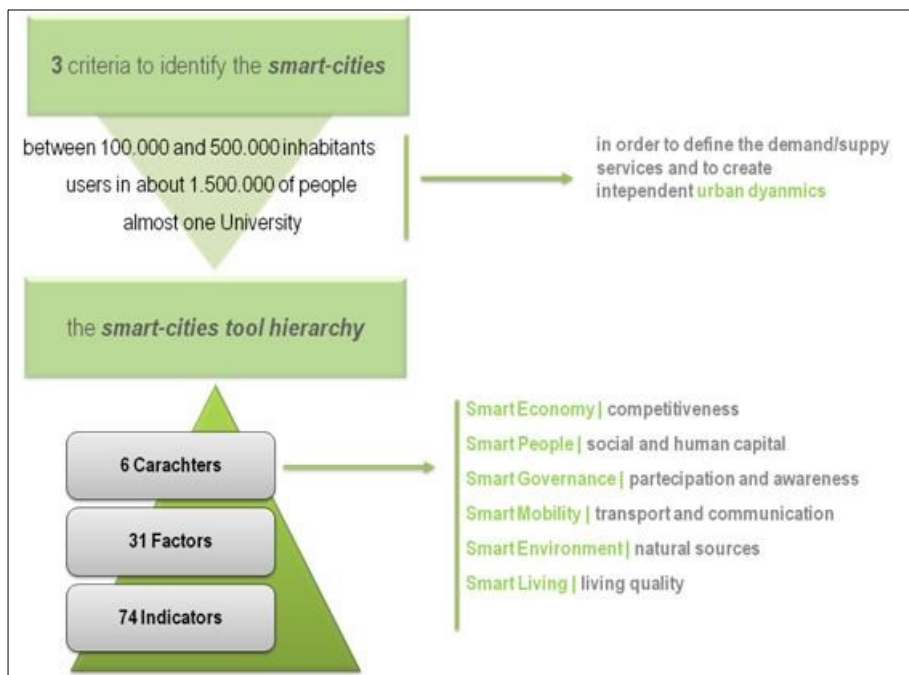


Fig.1- European Smart cities scheme

That research, although developed in economic context, gives an accurate scenario about the European medium-sized cities performances, by a quality-measuring tool, about citizens' life and the attractiveness of policies, in terms of capability of actuate international objectives [4]. The result of the study is double: an interactive ranking, which allows identifying the weakness and strengthens area of intervention in each city, and a global awareness and diffusion of this reading tool about urban smartness.

2. The research method

Currently the smartness concept, applied to urban scale, presents a different interpretation, essentially based on the opposition between a virtual model - a network to lay on every context, and an extremely technological systems, based on the integration of innovative devices aimed at energy efficiency and emissions control.

The study is aimed at pointing out how the smart approach interprets the urban features and transforming them in basilar elements of design project development, diversifying the goals according to the need-performance approach at different levels.

This research follows the main stages, in Europe, which expressed, even implicitly, the spread of this new strategy of urban management through different study cases.

In particular, the research method focuses the analysis of the policies oriented to smartness and the effectiveness of the processes trigger, highlighting the most innovative application of urban strategies and technologies at different operating areas.

Therefore, the first analysis phase considers the level of smart operating strategy at the urban scale, intended as the city management strategy, evaluating the management model and the goals.

The Alborg Chart approval of 1994 determines the beginning of European cities journey to achieve tangible objectives for the territorial sustainable development.

Since the middle of Nineties and afterwards, cities take a key role in defining development trends, because they are reference centres for

most of European population, and so, they are responsible for the economic growth and for the social and environmental conservation.

Moreover, the multilevel governance policies put the urban dimension, besides an organization representative role, also a tangible character due to applied sustainable actions. For this reason, the European cities define the change issues to reach the 20-20-20 goals, for boosting the economic growth and controlling the climate changes risks [5]. Recently, the urban planning approach evolves substantially in a dynamic model adaptation, which evaluates the policies according to priority target to get. Therefore, the European cities become not only a reference point of sustainable principles and guidelines, but also models for land management strategies.

The second analysis phase examines the neighbourhood scale, intended as the development and integration of innovative technologies, considering the role of local stakeholder.

In fact, if the European cities play a lead role in defining the operating direction, the analysis of the micro-sized sustainable neighborhood settlement, allows setting the operating methods.

Formerly the Fifth and Sixth Framework program have launched some basilar technological solutions through the application in urban neighbourhoods.

The neighbourhood adaptation identifies a particular dimension where it is possible to design solutions and to control the cause-and-effect connection of each action.

Most of these projects have started as test areas in order to redevelop, to regenerate or, sometimes, to create new urban realities in brownfield sites - e.g. the most popular of them was the BO01, in Malmo, in 2001- or in existent urban fabric - e.g. Vestebro in Copenhagen or Weingarten in Freiburg, both in 2000- (<http://www.energycities.com>).

The study and comparison of these pilot projects have explained the main pillars of European-planning about the built environment: building efficiency, energy saving and sustainable mobility [6].

These projects, which are both programs and initiatives of communities, meet the local issues, beginning from territorial

awareness and normative sensibility, and develop the best practices as European model to compare.

Afterwards this narrowed approach has become a current practice to manage the innovative transformation of territories, both in beginning from scratch and, mostly, in working on heritage urban context. The most recent applications, in these terms, show the total implementation of the smartness strategic character, approaching to own solutions for local development.

2. Cities management system

As references of the strategic role of European cities are considered the Copenhagen Climate Plan and London Action Plan, which focus, through their provisions structure, the gradual urban transformation towards a smart management model.

These plans organizing structure is similar and it is based on three main issues:

- Screening of territory, analyzing the strength and the weakness of areas, also in terms of quality and energy performance of building heritage;
- Time scanning of objectives, through their organization on medium and long terms priorities;
- Controlling of effects, monitoring the actions through a digital network support for the data collection and the diffusion of results [7] [8].

This type of organization distinguishes, also, the Amsterdam policy, since 2009, in fact the city main goal is being the first World Smart Capital.

The smartness program for the Dutch capital focuses five strategic areas: living, working, moving, citizens policies and open data access, which are developed in different project already started.

All these projects allow the participation of sector companies and investors who are able to support the application models and to survey data, through evaluations of the project feasibility and so the practices elicited.

The distinguishing feature is evident in the close collaboration between companies and workers that allows the realization of transversal positive effects, on the residential, work and mobility sectors, in order to spread the produced knowhow.

There are two main application typologies: the first is the medium application scale, divided into a technological direction and into another approach more social and educative, the second is the small application scale, in domestic field.

The *Almere Smart Society* and the *City Zen* are two interesting examples of large-scale projects application.

The *Almere Smart Society* is a new development Municipality, to the east of the city, which intends to undertake an extraordinary growth during the next twenty years.

Its growth links the application of the most innovative systems of urban management, mainly based on the development of a smart grid to support both the physical infrastructure, that connects it to Amsterdam, and the digital one, that is the nervous system of energy monitoring. In particular, the area is a pilot base for recycling and for waste disposal system, which is able to achieve the zero waste goal in the near future.

The *City Zen* is another extremely forefront project. This project, in the Nieuw West area, is uses a large part of the Smart City operation investments and it is supported by 50% of EU's investments.

City Zen is an international Smart Energy Test Area - the largest in Europe - where are tested innovative technologies and the produced results allow the application of systems based on the interaction between renewable energies.

Essentially, the project is based on the design of a combined system for the realization of building-integrated solar and photovoltaic panels. This technology constantly monitors the neighborhood performance and collects a part of the energies for other uses. In addition, the project involves the realization of storm water drainage system, which produces bio-fuel to power public vehicles.

The project also involves the cooperation of the citizens also through the requalification of the existing housing heritage: the project

goal is to include the most of people in order to generate shared processes and to simplify the creation of knowledge.

This course defines other projects for example *Ijburg: you decide!*, it is essentially aimed to the cooperation of local communities, which can present projects and ideas about their own neighborhood, and answer to questionnaires that collect events of local needs and aspirations.

Moreover, the mobility tackles two points of interest:

- the promotion of alternative transports, both by the dissemination of vehicles powered by natural fuels, and by the creation of different paths with parking areas and stops for vehicle charging equipment;

- improvement and characterization of areas of interest, such as the case of Utrechtsestraat, named the first *Amsterdam's Climate Street*, because of the combination of technological operations points and the constantly communication of produced results in educational key.

The residential projects range from the application of management systems and home energy monitoring, therefore, the automation of home applications aimed at control and at indication of costs as possible suggestions for consumption savings, to wider initiatives affecting neighborhoods as a whole. Domestic dimension shows the forefront of home automation systems, through experiments is evaluated the 14% of CO₂ emissions saving, by the house devices monitoring, by the more awareness of lighting and heating energy consumption, and by the losses through the building envelope.

Particular interesting initiatives are about the public and historic buildings systems adaptation, which integrate precisely these goals, testing the application of Ceramic Fuel Cells Limited, as combined systems that generate energy from fuel reducing by 50% the CO₂ emissions [9].

3. The neighbourhood technology centralities

The neighbourhood small scale, as we can see in Amsterdam project distribution too, is ideal to identify areas for the application of urban smartness, by linking the complexity of uses and of cities' dynamics, while remaining manageable in terms of size - for number of people and dimensions - and informative - for data collection (<http://www.energycities.com>).

This is the case of Bahnstadt neighborhood, which is a new development area in Heidelberg city -Western Germany- located on an industrial brownfield site.

The settlement follows some smart quality management trends; in fact, the smartness is not limited to the strategic vision of the intervention, but also to the testing of the biggest world Passive District, which presents the most advanced technologies for energy supply and for reduction of energy consumption.

The design choices of the intended use and the organization of the district are steered into close collaboration between the Municipality, the incoming citizens and the private companies.

The smart planning policies are based on three fundamental strength points: location, use and energy performances.

Firstly, the Bahnstadt district is based on the accurate connection between main internal and external crossways: the site creates a real node linked to the city and to the neighbouring regions by railway and by roads.

Secondly, the leading principle of the area is the location of the Bahnstadt Campus as knowledge's centre where the *SkyLab* is the heart. This specific use characterizes high levels of work and of research, so impresses a new target for incoming inhabitants. It also guarantees on one hand the promotion of cultural initiatives and knowledge dissemination, and on the other hand triggers attractiveness for direct users and indirect private investors.

Thirdly, the newly emerging Bahnstadt makes the energy its real priority, operating from scratch on new buildings; the plan involves three dimensions of efficiency:

- "efficient building standard" the design technology is the passive house;

- "efficient energy supply" with connection to the district heating of Heidelberg's Municipality;

- "efficient implementation" to support the information and data collection for users. (<http://www.heidelberg-bahnstadt.de>)

The research about the Hiukkavaara neighbourhood, in Oulu, points out some innovative aspects in order to compose the more recent interaction between smart management solution and local technological heritage issues [10].

As opposed to Heidelberg's Bahnstadt, which states the creation of a new cell, the planning of Hiukkavaara is a natural extension of the *Arctic Smart City* of Oulu.

The Smart Cleantech district of Hiukkavaara is a new development area where the urban smart system is the linking element. The planning process involves citizens and local communities, who take care to introduce and to respect the human sized technological solution. The project is a clear urban mixed settlement, where the residences and services can characterize and improve the landscape fruition and the cityscape use, in order to generate active strategies. The whole operation is integrated into a high innovation and knowledge of ICT and internet services, which are considered the main channels of this transformation realization.

Each aspect of this *medium sized* city is managed by the networked -digital and tangible- infrastructure in terms of: energy demand and supply; sustainable mobility; efficiency of activities.

Considered as a human oriented policy, the Hiukkavaara action is directed by the close collaboration of inhabitants, through the *Living Lab* platform, where are tested and mapped user's needs, in order to create usability studies in terms of products and urban knowhow [11].

4. The *nodes* of the smart network

The analysis allows highlighting some fix points which identify a common scheme of development of this type of urban strategy, based

only partially on the intervention and mostly on the quality of system management. Defining the smartness of the built environment means to identify a management strategy of interventions that chooses an innovative approach to the planning, programming and urban designing processes: the management of an intervention through technologies networking.

A smart system is a networked structure; the interventions include both the resources of the territory, so the environmental, the economic and the social resource, and the connective system based on the distribution of digital information technologies (ICT).

Therefore, the approach to integrated actions focuses primarily on research/creation of nodal centres to develop initiatives and to connect them through interactive, communicative and understandable axes.

For the application, the actions for the smartness of the urban built environment provide the functional integration of operations and the connection of processes, according to cause-effect relationships.

The transformation projects are organised processes - starting from the analysis of weaknesses and potentialities of the local resource - so it is possible to choose the appropriate technological solutions, in order to achieve the strategic objectives, and to control the results produced. In this way, virtual targets in the short, medium and long term are scanned.

Besides, the participation bottom-up becomes the key of the interventions, which are configured as strategies that involve the local community in the decision-making phases and private agencies (mostly specialized companies) in financing of appropriate technological solutions.

5. Conclusions

With these assumptions, it appears that, the smart approach, need a sustainable precondition to operate in effective and efficient way in a complex context as the European cities. For this reason, a smart development needs the implementation of the three dimension of

sustainability, as in the social and environmental dimension, as in the economic aspects.

The sustainability of the smart intervention guarantees the effectiveness and efficiency of the strategy, because of direct and indirect users awareness and participation during all phases of the transformation, and during the operating phase. Besides, the users' involvement interests the economic activities, both through new points on attraction and through the improvement of the existing ones.

The sustainable intervention is also efficient because it guarantees through the in-depth analysis of local needs, the main areas of applications of specific technologies, measuring the goals to get in shorter and more understandable actions.

The sustainability of this smart management is also based on the capability of results collection, in terms of numeric data and of knowledge diffusion, introducing the concept of smart network.

Smart City is a real template for transformation of urban management. However, it is not a solution in itself, instead is a system of integrated operations based on improvement and development of two open concepts: effectiveness and durability.

The project as a process is an effective system that involves the citizen/inhabitant, who is the direct user: he creates the demand (local requirements) and defines the supply satisfaction (quality of actions).

This site's analysis phase shows high levels in durability because of evaluation of smartness propensity, and so the plan of appropriate punctual technologies.

The user monitors the transformation, during the process, and afterwards the collected results identify the resources consumption in terms of produced effects.

As we can see recently in some Italian initiative as Smart City Med (by Forum PA), the whole smart operation advises a potential solution for the urban heritage redevelopment. Operating on the Mediterranean context is possible to point out some distinctive characters of smartness propensity.

The connection, the proximity and the complexity of South European settlements mix the networked smart structure to the *Genius Loci* appropriate technologies [12]. Therefore, we can imagine a

Smart Mediterranean city able to increase the awareness of inhabitants through communicative dynamics and feasibility of achieved results.

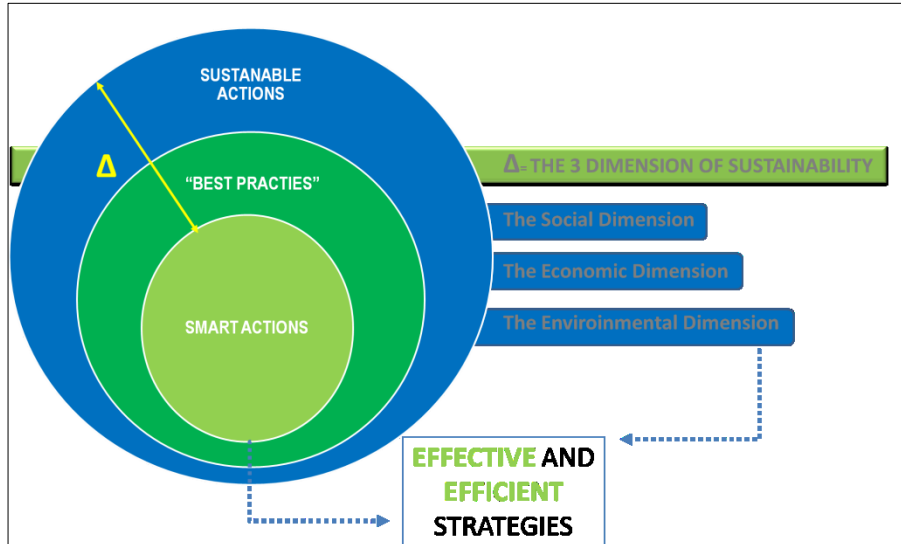


Fig.2 - The sustainability of smart neighbourhood

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Sustainable building site: indicators to manage the transformation

Antonella Violano¹

Abstract: Sustainability in the construction industry is not relevant just in the operational phase. The more efficient and high-performance the new generation buildings, the more important the implementation phase in order to the evaluation of Embodied Energy. The contribution highlights what are the significant indicators, in accordance with ISO 21929:2011, in order to assessing the environmental aspects of the construction phase, according to the LCA approach.

Keyword: Sustainable Building Site, Life Cycle Assessment, Environmental Indicators, Embodied Energy, Low Impact Development.

1. From Europe ... a schedule for sustainable actions

The construction sector is more and more oriented to the environmental control of its transformation processes. The new research frontiers are enhancing towards the consciousness that the initial choices and their realization mode play an important role to evaluate the environmental impacts of any transformation. Sustainability of the construction phase, therefore, becomes a real need perceived by various law tools of recent emanation and, above all, by announcements for Procurement.

This is leading to a progressive change in the practices of different subjects involved in the construction process, until a new

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need of “coding” the procedures arises in widely applicable law protocols.

The starting point is the analyses of the flows of resources, material and energy input and output by the design production process, meant as a product. The added value is given by the skill to manage these flows optimizing uses, reducing waste and controlling impacts with efficient mitigation measures.

The attempt of procedure transfer by Environmental Management System (EMS) concerned mainly the procedural and document aspects and those aspects relative to the methodological setting of the control system management of the impacts. Starting from the operation tools of an EMS itself, the goal consists in building a series of Operation Procedures (OP), which help monitoring the most meaningful impacts of each construction process.

Therefore, the construction firms can recognize the evident benefit coming from the application of codified procedures and the positive link between righteousness of the choices made in the construction phase and sustainability of the transformations carried out.

2. Sustainability in construction site

The modern strategy for environmental protection provides some voluntary instruments. Prevention has an important role, demand and encouraging voluntary behaviour and responsible for all (technical, economic and administrative) operators and citizens themselves. Currently, in Europe, the process of harmonization of national technical regulations, imposed by technological standards and valid for all member states, is very active. In particular, Technical Committee ISO/TC 59 “*Building in Construction*” has developed some interesting standards.

The ISO 21930:2007¹ gives the requirements for the Environmental Declarations (EPD) of III type of building products organized into category, by integrating ISO 14025 for the EPD of building products, without defining the requirements for the

development programs of the environmental statement. The EPD Type III for construction products, as described in the standard, are intended primarily for *business-to-business* communication, but their use in *business-to-consumer* communication under certain conditions cannot be excluded. The work environment is not included in ISO 21930:2007 because it is normally an object of national legislation.

The ISO 21931-1:2010² examines the significant aspects for the evaluation of environmental performance, not only of buildings but also of related construction works, built on adjacent lot. This standard applies to all stages of a construction project, from design phase to construction, operation, maintenance, refurbishment and deconstruction. It aims to bridge the gap between regional, national (i.e. Protocol ITACA) and international methods (i.e. BREEAM, LEED, HQE...) of assessment of the environmental buildings performances. The standard is strictly related with EN ISO 14020:2000 “Environmental labels and declarations” and UNI EN ISO 14040:2006 “Environmental management-Life Cycle Assessment-Principle and framework”.

The ISO 15392:2008³ defines the general principles for sustainability in the construction industry, but it does not define specific levels of performance (benchmarks), which can serve as evaluation criteria. It applies to the entire Life Cycle of the building and other works.

The ISO/TR 21932:2013⁴ corrects definitions and analyses effects of construction and use of a building or civil engineering works, according to the documents of ISO/TC 59/SC 17, Sustainability in buildings and civil engineering works.

The ISO 21929-1:2011⁵ defines a framework for the development of sustainability indicators for building construction, following principles of the ISO 15392:2008 and encouraging improvement in social (health and employment), economic (efficiency) and cultural (constructive traditions and local materials) aspects at regional levels. It provides guidelines for the identification and selection of appropriate indicators of sustainability for buildings.

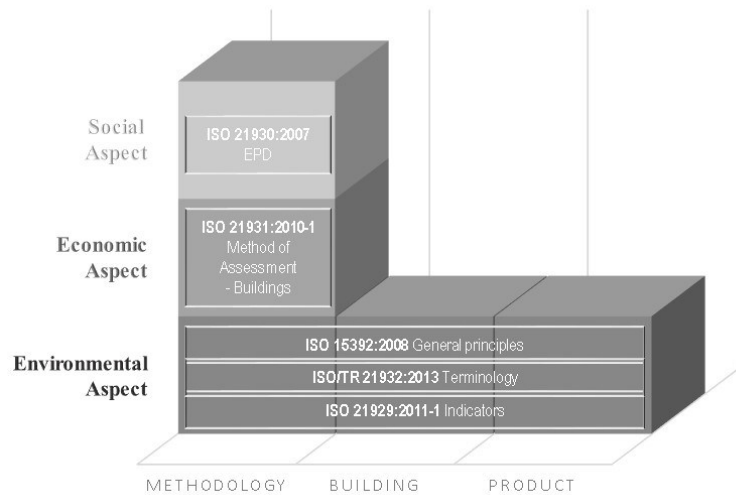


Fig. 1 –International Standard about indicators for buildings

These voluntary standards represent an important step towards reducing building's impacts during Life Cycle on the environment and achieving true sustainability in building construction. This goal is not still considered priority by the construction industry, which so far has turned its attention mainly to the design for sustainability and development of assessment methods and certification systems.

3. The ISO 21929-1:2011-1

The first part of ISO 21929-1:2011 highlights the difference between sustainability performance of a building and the contribution of the building to a sustainable development. Particularly, the former is closely linked with the intrinsic qualities emerging in the phases/stages of the Life Cycle; the latter is linked with the positive self-multiplicative effects that can be produced as a consequence of appropriate choices⁶. The ISO15392 presents six objectives such as “stimulation of innovation” for assessing the contribution of a building to sustainable development. The objective of the construction industry is to direct the Market towards performance such as “zero

kilometre”, “zero energy”⁷, “zero waste”. If it is true that planning and innovating mean "to know how to choose", the mechanisms of complex development of the planning ideas must know how to answer to a question that in the meantime is evolved / renewed towards higher and higher performing standards.

New models of production of the design lead to set the contributions newly and redefine the competences of the technological sector for innovation. However, there can be no technological innovation without any mental innovation: a renewed approach to the management of interdisciplinary design in all its phases with a range of conceptual lines on which methodology and operational routine can be based.

Designing and innovating are based on the concept of choice, as a complex mechanism of developing a design idea, which must give smarter answers to the question, in order to be innovative. In turn, the question must be able to appreciate, select and use the innovative solutions proposed.

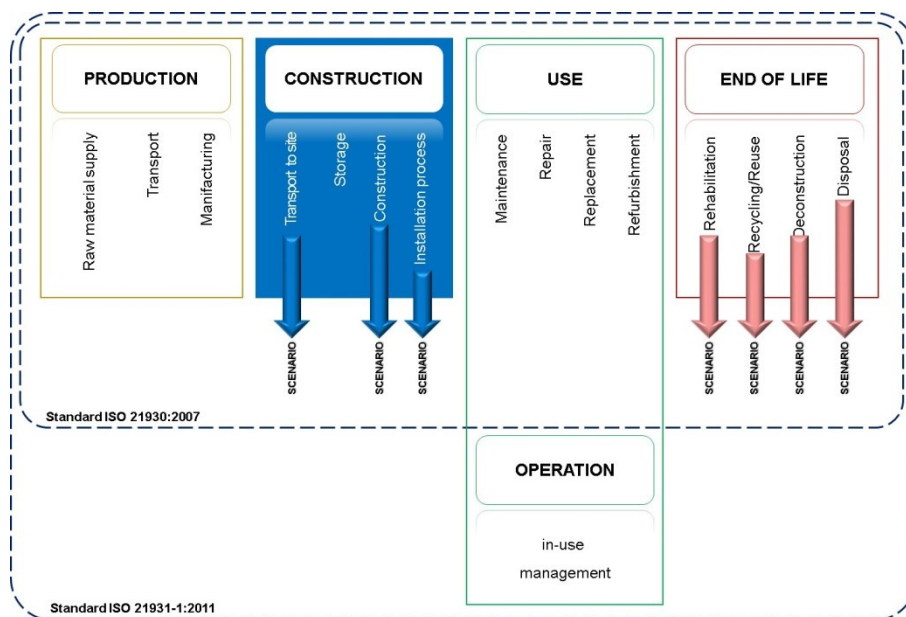


Fig. 2 –Life Cycle: product and process
(see par.5.7.2 of ISO 21931: 2010-1)

The construction sector, more and more environmentally friendly and consciousness of the importance to make sustainable choices, must lead towards an aware implementation of its choices, giving importance to the sustainable control and management of the construction phase.

4. The indicators

The indicator is an autonomous tool of evaluation able to represent even complex phenomena synthetically and monitor them in time. So, either physical, or chemical, or biological, or social or economical indicators shall be representative, sufficiently applicable to analogous cases, easily measurable and easy to be monitored, highly reliable from the operation point of view, that is with minimal systemic errors and an accessible analytic detection threshold with widespread methodologies. The feature of “representativeness” of an indicator implies that it must be:

- clearly correlated to the phenomenon meant to be observed/controlled/evaluated, with minimal statistical dispersion;
- hardly to be disguised by factors to the surrounding;
- sufficiently valid and applicable to many other analogous, but not identical situations;

The feature of “accessibility” involves an easy:

- measurability;
- accessible analytic detection with standardized techniques;
- sampling;
- possibly automatic monitoring.

Finally, an indicator will be considered as reliable and operating if it has minimal systemic errors and is easily and directly usable to quantify phenomena in terms of costs and benefits, not necessarily expressed on a monetary evaluation scale.

The indicator functions are quantification, simplification and communication. In decision-making, indicators are significant tools to manage the environment. The construction phase impacts and

accepting causes for negative impacts in order to reduce risks and pollution. It is also important that indicators can express the qualitative aspects linked with redistribution of impacts and intensity of the differences in time. Anyway, relativity and consequent different applicability of indicators lead not to fix a grid of indicators preliminary, that is valid for all circumstances, but to select case by case the most suitable system of indicators to represent the phenomenon.

La phase of choosing indicators is particularly delicate due to the great complexity and interdependence of the environmental impacts, socio-economical consequences of the choices with which the productivity of the construction must be measured. Each simplification or forcing in such a direction may produce nonsense results. That is why the rule does not include either a prescriptive taxonomy of the aims to be considered, or an indication of the indicators that shall be used to allow a measurement of the efficacy of the actions proposed.

We recommend to individualize and propose a system of environmental, economic and social indicators, expressing also the limits of validity with which they are applied.

On the base of the principles of good management of resources, transparency of the environmental action and efficiency in giving an easy and exhaustive access to the information to all the involved subjects, the evaluation of activities /actions /procedures, made on the base of the selected indicators, must be carried out considering the whole Life Cycle.

Indicators must consider and calculate (measurements methods) all Life-Cycle stages and when it is not possible/appropriate, the reasons shall be clearly explained.

The standard defines the main aspects (see 4.3.1 of ISO 21929:2011-1) that could have potential impacts on the areas of protection (i.e. “Use of no-renewable resources” could have primary (direct) impacts on natural resources and secondary (indirect) impacts on ecosystem and economic prosperity; or “aesthetic quality” could have primary (direct) impacts only on cultural heritage).

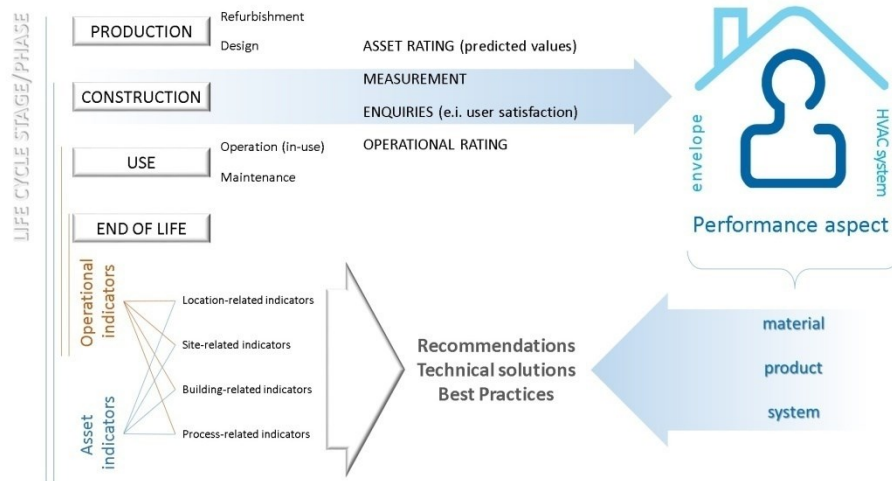


Fig. 3 –Life Cycle: conceptual map for a core set of indicators

Regarding the different aspects and the complete record of the Life Cycle, the indicators must include information also about process phase (i.e. construction), location site (i.e. urban area), degree of influence (direct or indirect), spatial and temporal system boundaries (i.e. regional, local; long-term, medium-term, short-term), complexity (i.e. if it is represented by one parameter or several parameters) and character of the assessment process (i.e. nominal, ordinal or cardinal scale). If an indicator is relevant to more than one area of protection, it is very important to avoid double-counting criteria and to develop it considering multi-effect character.

The standard recommend three levels of core indicators: location, site and building/process specific indicators (see 5.1 of ISO 21929:2011-1).

In particular, the site-related indicators are “Change of land use” and “Accessibility” assessed with help of criteria such as accessibility of the building site, and the location-related indicator is “Access to services” assessed with help of criteria such as public and personal mode of transportation, green and open areas and user-relevant basic services.

According to the “Accessibility of the building site” indicator (see 5.2.7.1 of ISO 21929:2011-1), the standard suggest to remove all

architectural barriers of the relevant parts of the site, considering design solution such as minimum inclines and adequate notations. When this is not possible, it suggests assessing different classes of accessibility.

However, the standard embodied the general principles (according to ISO 15392) such as “continual improvement”, “global thinking with local action” and “holistic approach”, with long-term consideration by the different users, which guarantee equity and transparency.

5. From research a proposal for classification of urban construction sites

The research's methodology⁷ borrows structural and managerial aspects of these tools voluntary management, aiming to the analysis mainly toward the control the environmental performance.

Into the paragraph 4.3.1 of ISO 21929:2011-1, there is a list of the core areas of protection (ecosystem, natural resources, health and well-being, social equity, cultural heritage, economic prosperity, economic capital), on which the indicators describe their potential impacts.

Therefore, consistent with the standard, the ecosystem in which the presence of an urban construction site produces significant effects, even if in varying degrees with reference to the context, is summarized into two types:

- a. Anthropoc System (user-relevant): workers (hard-hat and technicians of the construction site), residents in the surrounding areas, citizen working near the site and tourists
- b. Urban System, articulated in:
 - b.1 Mobility: pedestrian and vehicular mobility
 - b.2 Services
 - b.3 Location: change of the land use, green areas and open spaces.

The impacts, according to their degree of the influence, are classified into three categories:

A. Violano, *Sustainable building site: indicators to manage the transformation*

1. Circumscribed impacts: the effects of which are adjustable only at the scale of building;
2. Limited impact: the effects of which are adjustable at around environment (within a radius of 500 meters from the site) at the neighbourhood level;
3. Diffuse impacts: the effects of which are adjustable in a significant portion of the entire urban system.

		<i>Circumscribed Impacts</i>	<i>Limited Impacts</i>	<i>Diffuse Impacts</i>
<i>Anthropic system</i>	<i>Workers (hard-hat and technicians of the construction site)</i>			
	<i>Residents in the surrounding areas</i>			
	<i>Citizen working near the site</i>			
	<i>Tourists</i>			
<i>Urban system</i>	<i>Pedestrian mobility</i>			
	<i>Vehicular mobility</i>			
	<i>Access to basic services</i>			
	<i>Change of the land use</i>			
	<i>Green areas</i>			
	<i>Open spaces</i>			

The significance is established and a different mitigation measure is chosen, depending on the degree of influence.

The standard ISO 21931: 2010-1 (Note 2 of Paragraph 5.5: Statement of assumption of scenarios) also establishes that the assessment of the environmental performance generally requires knowledge of the following factors (and their scenarios):

- a. *Energy use*
- b. *Water consumption*
- c. *Design life and estimated service life of the building*
- d. *Products (types, quantities, supply chain and logistics, estimated service life)*
- e. *Construction process*
- f. *Servicing, maintenance, repair and refurbishment*
- g. *End of life (demolition, deconstruction, recovery, recycling and final disposal)*

- h. Occupant's behaviour in the operation stage*
- i. Building's location and its influence on user transportation*
- j. Building management operations that affect energy and/or water consumption, waste production, including commissioning of building systems*
- k. Available infrastructure*
- l. Land use related to the building site.*

This indicators should aid designers by identifying critical aspects related to the construction life-cycle phase, such as consumption of resources (water, energy, soil, ...), in order to recognize the technological solutions that can have positive effect on the selected indicators, comparing alternative designs and confirming pertinence of choices. Furthermore, the environmental consciousness management of the construction process contributes improving the environmental performance, especially if the assessment of this phase includes (see 5.6.4.of ISO 21931: 2010-1):

- a. waste production and disposal*
- b. reuse, recycling and recovery of the materials*
- c. pollution emissions*
- d. water use*
- e. wastewater treatment*
- f. repair conservation and replacement of products used*
- g. conservation and enhancement of the site environment*
- h. environmental emergency management.*

In fact, the contractors could monitor the construction site, minimizing the embodied energy, the environmental and social impacts and the economic costs of transformation.

The research team is testing this approach on a construction site of transport in urban areas, in particular the site of the Town Hall Square Subway Station of Naples.

This case study is particularly interesting with respect to the study of the energy and environmental impacts for several reasons. This is a site of considerable size and long-term durability. Therefore, it will be possible to investigate all or most of energy uses and socio-environmental aspects associated with a construction site and verify their environmental effects on the urban system. In addition, because

it is a construction site operating for many years, you can make a comparison between an ex-ante estimate of the consumption of all the functions / processes in the site related to energy consumption (Asset rating of Construction site phase) and the actual energy consumption, taken from meters and bills (Operational rating of Construction site phase).

Notes

¹ ISO 21930:2007 “Sustainability in building construction - Environmental declaration of building products”

² ISO 21931-1: 2010 “Sustainability in building construction – Frameworks for methods of assessment of the environmental performance of construction works. Part 1: Buildings”

³ ISO 15392:2008 “Sustainability in building construction - General principles”

⁴ ISO/TR 21932:2013 “Sustainability in buildings and civil engineering works - A review of terminology”

⁵ Sustainability in building construction - Sustainability indicators - Part 1: Framework for the development of indicators and a core set of indicators for buildings

⁶ “The contribution of a building to the sustainable development depends on the goods and services (products) used and the different activities and decisions that the various stakeholders use or undertake, during the Life Cycle of the building”, ref. paragraph 4.2.3 of ISO 21929:2011, 4.2.3

In truth, the new frontiers of energy efficiency in the construction industry point toward the “active and plus energy buildings”, which produce more energy than they consume. (ref. 2010/31/EU and 2012/27/EU Directives)

⁷This paper presents part of the results of the research work conducted by the author within the project PRIN "Landscape Protection between Preservation and Change. Economy and Beauty for a Sustainable Development", Scientific Coordinator: prof. arch. Carlo Truppi. The research does not take into account the impact of the design decisions but focuses its analysis on the "system construction site" (construction

phase) without assessing the environmental performance of the constructed building (Operational phase).

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