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URBAN DESIGN AND QUALITY OF LIFE. LESSONS TO BE LEARNT FROM MADRID´S PERIPHERY

SUSTAINABLE PLANNING AND URBAN DESIGN: BETWEEN THEORY AND PRACTICE

Academics and practitioners have elaborated a number of planning and urban design tools to understand the built environment and to provide guidance for physical-spatial interventions. Both tools are aimed to contribute to the improvement of the quality of urban space and the quality of life of those who use it.

After so many years of trying to get well designed and sustainable neighbourhoods, it is possible to assume that there exist tool kits ready to be applied to practice. However, the existence of wide avenues, large green spaces, collective housing to achieve compactness, and dynamic commercial areas, does not ensure by itself the creation of urban spaces which provide quality of life. Practice shows that, in fact, there is a wide gap between theory and practice.

Facing this situation, planners and urban designers face several questions when trying to realise their potential professional powers. Which urban design and planning criteria may lead to better urban places? What are the relations between physical form, functional structure and social aspiration to improve quality of life? Which spaces are contributing to urban quality: public, private or the links between them?

As professionals involved in physical-spatial interventions our responsibility is to provide spaces in which the right balance is achieved between architecture, urban design and planning to give the user of these spaces the best possible options to ensure their liveability. The aim of this paper is to explore the connections between urban design and quality of urban life by analysing the contents of the available tool kits and their application in two of the largest new developments built on Madrid´s periphery

during the first decade of this century: Vallecas and Sanchinarro neighbourhoods.

Both neighbourhoods were built during the period of expansion that characterised the Spanish economy from the 1990s which came to a sudden halt in 2008, when the housing bubble burst. During those years, the city of Madrid added a huge number of new homes, with abundant and well equipped spaces, meeting all the requirements of planning legislation, but it still has not managed to build neighbourhoods with quality of life. What lessons can be learnt from these large scale actions? The aim of this paper is to contrast the current theoretical framework against the existing quality of life in those urban developments to learn some lessons from reality.

Planners and Urban Designers Tool Kits

Planning and urban design tools constitute a vast resource and their suitability depends on each specific situation. Besides relating to human scale, the appropriateness of specific design tools is defined by a wide range of contextual aspects, such as the fine grain of the specific built environment and its relation to the wider context.

Planning criteria

Planning criteria have been evolving alongside organic changes in the built environment and in society. At present, planning principles for the transformation and adaptation of the urban fabric and the provision of a good quality, sustainable urban environment are comprising at least the following seven characteristics: compactness, high density, mixed development, sustainable transportation network, diverse housing supply and tenure, environmental conditions, and good urban design.

In more detail, neighbourhoods constitute the basic units of civic life and social integration; urban form requires compactness of built up areas; and open space networks are composed of natural and artificial elements to satisfy different uses at various scales. A viable urban fabric consists of high densities to attract the necessary urban amenities and economic activities; it resorts to regeneration and recovery of abandoned, underused or degraded urban areas, while protecting urban heritage. Urban activities are best accommodated in well-balanced mixed uses comprising residential, production and services. Optimum use of urban infrastructure is achieved by concentrating productive and service activities in centres and sub-centres located around transportation nodes.

Sustainable transportation networks are composed of different interactive modes, giving preference to public transport, cycling and walking and favouring alternatives to private individual means of transport. Housing constitutes the major part of urban environments and diverse, mixed housing types and tenure promote social integration. They are best combined at neighbourhood level with good access to a centre with mixed uses at high gross density, where priority is allocated to pedestrians. Favourable environmental conditions include energy efficiency in buildings, infrastructure and services, with emphasis on renewable energy, resource recycling and new green technologies.

The formal success of this type of urbanism rests on good quality urban design expected to foster a sense of belonging among residents of integrated and well-connected neighbourhoods.

Design criteria

Similarly to the current criteria of good planning lay out, urban design criteria encompass at least another seven characteristics: continuity and enclosure, ease of movement, quality

of the public realm, diversity, legibility and adaptability.

More specifically, character signifies places with their own identity. Landscapes inform such urban areas which preserve natural features and integrate existing buildings with valuable urban components. They include local forms, architectural style and construction details to reflect their specific urban fabric.

Continuity and enclosure mark a clear delimitation between public and private spaces. In design terms this amounts to buildings aligned onto the street. Such streets and their active facades define the urban environment, create activities, generate movement and facilitate social control. Set-back buildings create valuable urban spaces while changing continuity of use. Rear facades define inner courtyards, communal spaces and sense of security form relationships with other buildings and public spaces. Partitions and other design components facilitate change of levels and access to buildings; they also provide privacy and shield unsightly places such as parking areas and waste disposal.

Ease of movement ensures external connectivity, local accessibility and permeability. Design contributes to fluid movement by providing multi-modal spaces which are shared or segregated depending on local needs. Besides accommodating all modes of traffic, traffic calming does not only contribute to security but creates a better public realm.

Key to desirable neighbourhoods is the quality of the public realm which needs to be attractive, accessible and secure. Living ground floors with dynamic activities contribute to that, as does good visibility which provides natural surveillance and a sense of security.

Good urban design includes a favourable micro-climate adapted to local weather conditions, adequate street furniture, paving and greenery. Design can provide diversity, variety and choice. It should foster a mixture of compatible uses in buildings and open spaces, together with mixed forms and types of public and private buildings.

Legibility through detectable routes for residents and visitors enhances quality of urban life. It can be provided by elements of urban images - nodes, edges, landmarks, boundaries and barriers. Active uses of main routes and focal points represent the identity and vitality of a place.

Adaptability of buildings and spaces means that they are capable of conversion to other purposes. Adaptability of public spaces becomes apparent when they are hosting a diversity of uses, such as festivals, events or markets. Diverse uses of public spaces enrich urban quality, together with buildings of simple shapes, floor to ceiling heights and depths with adaptable ground floors.

Vocational professions like planning, urban design and architecture contain a considerable hands-on dimension. They are captured in assessment tools - indicators, rank orders, or similar metrics to assist designers in designing better quality places for better quality of life. Whether proscriptive, prescriptive or advisory, these tools form part of 'conventional wisdom' of planning, urban design and architecture.

Social use of urban realm

The social dimension is an important aspect of urban design. Human behaviour is situational; it is embedded in physical space. Decisions about the urban environment which are aimed to enhance the use of the city are affecting both groups and individuals and their quality of urban life.

Three types of activities occur in urban space: compulsory, optional and occasional. Together they constitute the basic demands of

the urban realm which has to provide accessibility and security to facilitate an easy use of the city. Urban routes form the basic condition of accessibility, together with interesting destinations. While many routes lead urban dwellers from origins to destinations, they may choose selected routes which offer them intermediate spaces for optional activities. Such route networks are part of a social system of movement.

Sustainable cities are those capable of fulfilling user needs. This includes urban spaces which offer comfort, appropriate physical and environmental conditions and active links to provide opportunities for social interaction. However, spaces for proximity do not necessarily bring about interaction. Elements of discovery, such as markets, exhibitions, spectacles and social events may break routines and liven up passive links. Adjacent to pedestrian flows they provide opportunities for relaxation and observation. They can become places to stay where explicit elements such as benches or chairs, or implicit spaces such as steps or low impediments are encouraging formal and informal interchanges.

Summing up, current urban design is deeply interested in fostering quality of life through sustainability, that is, taking into consideration not only physical aspects, but also economic, social and environmental ones. The key aspect for designers is the handling of a holistic vision of the built environment, understanding it as a coherent whole and not as a sum of parts.

FROM CRITERIA TO REALITY: SANCHINARRO AND VALLECAS NEIGHBOURHOODS

A brief view on the changing Madrilenian planning contexts or how these large neighbourhoods have come into existence

By exploring the short history of the contemporary Madrilenian planning by analysing the master plans drawn up for the city during the last 30 years, it is possible to visualise the interplay between the overall economic context, the dominant vision in planning, and the planning instruments produced to cope with those particular conjunctures.

Conversely to the rest of Europe, the effects of the 1973 oil crisis had a late impact in Spain, affecting its economy only at the end of the 1970´s. As regards planning, this period coincides with the approval of the first master plan for the city produced under the democratic period. The critical economic situation at that time led to the adoption of a shrinking vision in planning, according to which Madrid was facing a process of stagnation. Following the no growth principle, the focus of interest was placed on the need to complete the city edges and to attribute special care to the existing urban tissues, particularly its central area, characterised by a strong urban decay.

Soon after the launching of the 1985 master plan, the Spanish productive structure started to show the first signs of expected recovery, changing progressively the previous shrinking vision towards a new one, based on the expectation of an unprecedented dynamism that later put the country among the leading European economies.

This expectation gave place to a new vision in planning, based on an expansive image of the city open to profitable opportunities. The mandatory review of the 1985 master plan gave rise to a completely new planning instrument for the city. The principles of the Master Plan, approved in 1997 were quite the opposite of the previous ones. The need to offer enough land to capture investment implied a renewed interest in focussing the planning action on huge peripheral growth proposals. As a result, 18 new areas (PAU) for new activities were planned, two for economic industries and 16 for residential use.

1. The planned expansion of Madrid, 1997 master plan proposals.
Source: Area of Urbanism and Housing, Madrid Town Hall

At the beginning of the 1990s the building activities, transformed into the leading productive sector of the country, found the proper conditions for its expansion. Demanding the greatest possible flexibility of the existing urban regulations was favouring the beginning of an important process of planning deregulation. Accordingly, the master plan for Madrid adopted in 1997 followed the general tendency concentrating its attention on the urban expansion.

The PAUs (Programas de Actuación Urbanística - Urban Development Programmes), defined the urban model that characterises the current Madrilenian neighbourhoods: large developments located in the periphery, connected to the city centre and other urban areas by major transport routes, with internal communications systems based on large avenues and roundabouts. Except for two developments aimed for industries, the main use is residential, with little shopping and leisure activities concentrated in a few sub-centres.

PAUs	total dwellings	built dwellings
Valdecarros	48000	4566
Sanchinarro	14000	13742
El Cañaveral	14000	2669
Carabanchel	12700	12631
Valdebebas	12500	12500
Las Tablas	12272	11608
Montecarmelo	8547	7442
Butarque	1570	1211
Barajas	1500	1450
partial	**93.901**	**92.177**
Los Berrocales	22235	0
Castellana	17320	0
Los Ahijones	15400	0
Los Cerros	15000	0
Campamento	10700	0
Arroyo del Fresno	2754	0
partial	**83.409**	0
total dwellings	**177.310**	**52% built**

T1. State of the PAUs development at 31 October 2013.
Source: Area of Urbanism and Housing, Madrid Town Hall

The global economic recession initiated in 2007 pushed the Spanish economy to the worst possible scenario due to, among others, its strong dependency on real estate investments promoted by the previous economic model and favoured by planning practice. The burst of the real estate market bubble stopped the optimistic evolution of the building industry. The new reality wiped out the previous vision aimed to satisfy the speculative real estate market, and a period of abrupt stagnation took over the evolution of the PAUs. As a result, only 53% of the programmed housing was built, leaving the remaining percentage stagnant.

A closer look at Sanchinarro and Vallecas according to sustainability criteria

With 736 hectares and 387 hectares respectively, Vallecas and Sanchinarro were the largest planned neighbourhoods ever built in Madrid. Both were designed at the time when sustainable urbanism was a priority worldwide. For this reason, they offer the best scenario to test the relation between theory and practice regarding sustainability.

Confronting the urban conditions of these neighbourhoods with the above criteria has resulted in the following reflections.

Planning criteria

In terms of urban form, the existence of excessively large open spaces does not lead to the required urban compactness. The resulting low gross density - about 40 dwelling units/hectare - is not accompanied by an inner network of open spaces, except in Vallecas, where an existing stream of water has been the object of an ambitious environmentally sustainable special plan which the economic crises prevented from completion. In both cases, there are narrow green belts that operate as buffers

from the surrounding highways (Sanchinarro) or adjacent neighbourhoods (Vallecas). On the other hand, the predominance of residential activities to the detriment of other uses reduces the capacity of the neighbourhoods to act as the basic unit for civic life and social integration.

PAUs	Total Area *m2*	Residential *m2*	Industrial *m2*	Commerce *m2*	Facilites *m2*
Sanchinarro	3869274,57	643.719	58.152	153.196	3.014.208
%		17	2	4	78
Vallecas	7173051,77	1.026.652	62.724	275.676	5.808.000
%		14	1	4	81

T2. Land use distribution.
Source: Area of Urbanism and Housing, Madrid Town Hall

The problem derived from the lack of balance between residential, productive and service activities is made worse by the inexistence of mixed use centres and sub-centres. The scarce commercial activities are confined to a very few streets or some large commercial malls. In spite of the existence of underground and light train stations, these public transport connections were not seen as opportunities to gather around sub-centres to invigorate the urban fabric.

3. Active façades, Sanchinarro

In terms of transport, the dominant mode is the private car, although the area is fully connected by buses, underground and train services, at an adequate distance within the pedestrian catchment area. There are some bicycle lanes that run along some streets, but they do not constitute complete circuits for users. In any case, the streets dimensions result in an oversized road system.

Focusing on the diversity of housing supply, according to the regional planning legislation 50% of the stock produced must be social housing to facilitate social diversification. This is not the case of the building typology adopted, because both projects adopted collective housing in perimeter blocks as the dominant type.

3. Urban landcape. Vallecas.

4. Urban landscape. Sanchinarro

The inclusion of environmental innovations in the planning layout as well as in the building process was adopted only in one of the sectors of the Vallecas neighbourhood: the Eco Valle District, product of a tender for European Funds for sustainable projects in 2002. Through its Land and Housing Municipal Company, the Town Hall, promoted this special pilot project as an example to be followed by private enterprises. The same public company

launched several architectural competitions for the design of prototype buildings aimed at saving energy. In spite of those public efforts, the remaining 50% of the housing stock do not respond to these requirements, as they were built according to the traditional practice.

5. Sustainable social housing prototypes, Vallecas

6. Sustainable social housing prototypes, Vallecas

The use of the same building model in vast areas – blocks of similar height and layout of the plot – results in a landscape monotony, which are raising recurrent residents´ complaints. This fact is very important because it limits the capacity of both neighbourhoods to encourage and foster a sense of belonging among their inhabitants.

Design criteria

It is assumed that in terms of urban design a neighbourhood must have character, that is, it should constitute a place with its own identity, including physical elements as part of its layout. In both case studies, except for the presence of the already mentioned stream of water in Vallecas, there are no natural features and/or existing elements or buildings of interest to integrate in the project. Neither do these neighbourhoods include local forms; conversely, they are isolated from the surrounding urban fabrics. The lack of connection between the new urban developments is remarkable. In the case of Vallecas the new development opted for a neat separation with the old village nearby, using a ring of urban facilities for this purpose, while Sanchinarro is ring fenced by highways.

In terms of continuity and enclosure there is a clear delimitation between public and private spaces, because almost all buildings - except for a few detached units - are aligned to the street. Although this criterion defines a positive situation for urban design, the lack of active façades, i.e. including commercial and services activities located in ground floors, generates a lack of dynamism on the sidewalks and in other public spaces, except in the few and reduced areas of mix uses which are considered as neighbourhood centres. In addition, because the majority of the buildings are exclusively assigned to residential uses, the limited number of access points along the streets to these buildings generates almost secluded blocks. The reduced activities in the streets generate, in turn, a clear disadvantage regarding natural security and social control. Similarly, the use of fences to separate interior courtyards and communal spaces and the lack of setback buildings and rear facades, do not help in adding value to the public space, preventing direct interactions or any other kind of formal relationships with passers-by.

7. Public/private interface, Sanchinarro

8. Eco Boulevard, Vallecas

Looking at the quality of the public realm, there are very few urban public spaces assimilated to the plaza concept, in contrast with an impressive number of large parks with simple landscape. From the microclimate point of view, the designs do not follow bioclimatic principles in terms of building distribution to get the maximum benefits from the solar exposure, except for the Eco Vallecas project which adopted a special orientation to save energy, following the prerequisites of the European Funds. In the remaining urban fabric, the regular distribution of buildings of similar composition does not contribute to generate variety and choice. This is the result of the application of simple urban regulations favouring mass housing production, instead of taking care of the formal design aspects, including some recommendations about the quality of the urban realm.

Conversely, in terms of adaptability, the formal simplicity of buildings and public spaces could favour their conversion into other uses in the future, while in term of legibility, the resulting urban structures are easy to read for residents and visitors. The local administration had to break down the planning norms to reduce the monotony due to lack of diversity,and to build special social housing projects in both PAUs to act as urban landmarks. In this regard, the Eco Vallecas district has become a symbol of identity of the place.

9. Urban landmarks: Mirador Building, Sanchinarro

Both neighbourhoods are surrounded by highways, which limits ease of movement regarding the connectivity with the rest of the urban structure. The existence of linear parks on the edge of these neighbourhoods, designed to separate them from the noise and pollution of the surrounding roads it making connectivity even worse. Although green fringes have positive effects, they are nevertheless acting as barriers which limit the future continuity of the urban tissue. Conversely, the adopted grid layout favours a good inner accessibility and permeability with ample streets and sidewalks, although some of them may be excessive in size. The whole traffic system is regulated by traffic lights, without other alternative measures to calm local traffic.

Social use of urban realm

The use in reality of the ample avenues, the wide sidewalks, the inner plazas and the parks, shows that the lack of interesting destinations and intermediate spaces with optional activities limits the use of these public spaces. This circumstance is concomitant to the few possibilities the projects offer in terms of appropriate physical and environmental elements, opportunities for social interaction and discovery by breaking the daily routine with different kinds of events.

10. Meeting place at Vallecas

LESSONS TO BE LEARN FROM THE CASE STUDIES REGARDING URBAN DESIGN AND QUALITY OF LIFE

Several lessons can be drawn from these large urban projects which were conceived during a period of expansive economy in Spain. Some lessons are related to the way the local administration pushed up the growth of the capital city; some to the physical products which had resulted from this process, and others to important but not foreseen social outcomes.

Pros

The planning legislation launched in 2009 by the Autonomous Community of Madrid - the regional administrative level with competence in planning - adopted a radical stance when it established that 50% of the units built in any new housing development had to be social dwellings. This compulsory mandate suits the principle of social mix set up by the sustainable paradigm.

Another remarkable matter is the use of these new neighbourhoods – mainly Vallecas - as urban laboratories. They represented an opportunity for the local administration to prove to what extent the innovations applied in sustainable buildings could be transferred to the traditional practices of the real state industry. This proactive position was carried out by the Land and Housing Municipal Company, aimed at putting into practice sustainable buildings as examples for private investors to be followed. What these examples show as well is that when there is enough political will to push forward this kind of experiments, it is possible to make room for the proposals of specific public bodies. At the same time, it was proven that when it is necessary to boost the construction industry to increase local prosperity, it is possible to curb the administrative processes as a way of easing the implementation of such development proposals.

Cons

The analysis of the current situation in both PAUs demonstrated that from the physical point of view size really matters, because it is almost impossible to create properly designed urban sectors in such very large areas. The final image of these areas cannot be foreseen in detail due to the scales at which designers and planners have to work. What becomes clear as well is that over-dimensioning the grid and the low gross densities of these neighbourhoods do not fulfil the demands of the sustainable principle. Finally, the target to encourage private developers to take advantage of the examples of sustainable public buildings has failed in its purpose.

Concerning planning what is remarkable is the absence of design principles in the planning process, which subsequently required introducing special ordinances to avoid the resulting monotonous landscape.

Socially speaking what is significant is the absence of demographic variety. The financing conditions of obtaining mortgages for dwellings at that time led to a fragmentation between public and private real estate markets. This had led to a predominance of young couples in these neighbourhoods, which, in turn, had affected negatively the idea of getting a balanced population in terms of age.

Finally, it is worth mentioning the high dependence of the administrative structure on political decisions and their negative impact on urban innovations. The best example is the dismantlement of one of the most advanced technical public agencies in 2013. Due to the weakness of the municipal economy, the Land and Housing Municipal Company was dismantled, thus wiping out one of the most dynamic public actor, willing to put into practice new visions on sustainable urban design aimed at promoting quality of life in contemporary developments.

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