Creating Public Realm through Urban Renewal- Learning from the City of Arts and Sciences for the Indian Urban Scenario

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Abstract--- *In a rapidly developing nation like India, the prime aspect of growth is development of private projects to cater to the need for generating revenue. Land is developed for closed housing communities, industrial and IT parks and areas for the private sector. Even though, open spaces may be provided inside and along the developments, they are used by a restricted clientele, since the spaces are not open to all tiers of the society and for public use. As a result, even with the generation of enough open spaces, there is no realization of a public realm in most of the urban zones. Since there are several conflicting demands from different participatory bodies in a development project, the resolution of this conflict is not possible, but selection of the best solution is within the human abilities of the decision-making bodies. The City of Arts and Sciences in Valencia of Spain by architect Santiago Calatrava is a good example of providing urban space from an architectural project, with infrastructural planning and integration with the environment involving public participation and creating a successful public realm through celebrating modernity of structure-oriented bio mimicry architecture applied to the project area. The paper aims to study the effect of a government-initiated urban renewal project in the development of a degraded urban space and the urban design elements applied in the conceptual stage in order to realize an attractive public realm. The integrated approach towards the planning disciplines is encouraged in a plural society like India where all development aspects are fragmented, with a special emphasis on the creation of open spaces for public use for all tiers of the society.*

Keywords--- *Participation, Public Realm, Sustainable Development, Urban Design, Urban Renewal, Urban Space*

I. INTRODUCTION

THE process of land redevelopment for functional enhancement and economic revitalization of an urban area, leading to improved investment and creation of business opportunities along with environmental upgradation, is the essence of urban renewal. The scheme may include provision for better infrastructure, control over physical development, involvement of the community for the appropriateness of the project and socio-cultural and economic regeneration. Urban

renewal may involve the demolition of existing structures, relocation of businesses, relocation of people, and the use of *eminent domain* (purchase of property by government for public use) as a legal instrument to take private property for city-initiated development projects [1]. It generates an environment of greater public accessibility, livability, sustenance and satisfaction, hence fulfilling public realm.

The City of Arts and Sciences is taken up as a much debated development work in a degenerating economy of Valencia. The process of urban renewal from its initiation as a development project to the conceptual stages of design, resolution of conflicting demands and ultimately affecting the economy and well-being of a community is studied through the urban design perspective and guidelines provided for application in the urban context of a developing nation like India.

II. DESCRIPTION OF THE PROJECT

The City of Arts and Sciences (Ciudad de las Artes y de las Ciencias) was developed as an entertainment-based cultural and architectural complex in Valencia City in Spain. The project was taken up to mark the arrival of the 21st century and as per the media coverage "...it looks as though it might have been beamed down to earth from another planet" [2]. Formerly an unremarkable city outshone by many famous places of Spain, the integrative approach towards the landscape and architecture of the project has made Valencia a sought-after destination in Spain. Valencia has become a city of contrasts, a city where the visitor can find a combination of fascinating history and the most modern cultural movements. Its unstoppable urban growth is being complimented by an infrastructure that provides ideal locations for cultural and sporting events, trade fairs and business activities [3].

In the late '80s, the idea of building a scientific and cultural centre was adopted that would serve the entire community [4]. The need for a "place" was felt in the city of Valencia, where people could gather for leisure and entertainment, walk around and enjoy the environment, a place that could be established as the "centre" of the city. The idea was to provide knowledge and recreational facilities to the residents of Valencia, which would also cater as a tourist destination. A special task team travelled to different parts of the world to appraise similar projects and understand the major needs and demands of such a development. The team critically diagnosed the criteria for such development and the impact that would be caused. In 1989, the Spanish architect Santiago Calatrava was

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commissioned to take over the design and construction of the project [5].

2.1 Negotiating the Design Elements

The whole project was designed with the concept of a picturesque sunken park. A series of five buildings were planned to strengthen the axis and linearity of the site along with providing a sense of place, open and public spaces. With regard to the design philosophy and approach, architect Santiago Calatrava said, *“As the site is close to the sea, and Valencia is so dry, I decided to make water a major element for the whole site using it as a mirror for the architecture”*, [6].

Figure 1: Site Plan of the City of Arts and Sciences, with Two Connecting Bridges at Higher Level

The site is a linear stretch and five major spaces were incorporated into the project. These proposed spaces included Palau de les Arts Reina Sofía, L'umbracle, L'Hemisfèric, Museu de les Ciències Príncipe Felipe and L'Oceanogràfic. The Palau de les Arts represents the commitment to art of intangible forms, spreading the music, dance and theatre. Their suggestive reference was to the nautical activity, almost like a metaphor of a boat that had run aground on the ancient river bed of the Turia [7]. The building of 37000 square metres and having a height more than 70 metres, was designed with four spaces – the main hall (Aula Magistral), an amphitheatre, theatre and house. The structural component had cantilever slabs at different levels and these levels were joined by stairs and elevators offering panoramic views of the city. The different buildings were constructed and made accessible in stages throughout the development of the site. Designed almost entirely by Santiago Calatrava, L'Hemisfèric (Planetarium) was the first building that was opened to the public in April 1998. The Science Museum Principe Felipe opened in 2000, L'Umbracle in 2001 and the Palacio de las Artes, in 2002. L'Umbracle was designed as a promenade and car park and also functions as a greenhouse and contains all specimens of Spanish flora. This was designed as an elongated structure bounding one edge of the second part of the linear stretch. L'Hemisfèric was the most representative structure of the project, conceived as a giant eyeball floating in water. The space was designed to host technological and educational programmes in IMAX rooms through audiovisual demonstrations, including a planetarium.

The two principle buildings, the L'Hemisfèric and the Science Museum Principe Felipe, are organised around a raised promenade running from the base of the Palau de les Arts along the defining, longitudinal axis of the site, and offering views out towards the sea. Museu de les Ciències Príncipe Felipe has 40,000 square metres on three floors. The

concept was structurally perceived as the exoskeleton of a prehistoric animal or perhaps a huge whale. The aim was to create an interactive museum of science making it a special place for youth and children. Unlike any other conventional museum with signs of "prohibited touching", this one invites people to come and participate in learning about each of the displays. The central walkway, an integral part of the overall landscaping, served as an ordering element of the design. Gardens extended to either side as a reminder of the site's fluvial past, shallow reflecting pools embrace the planetarium, covering the roof of the library, cinemas, several auditoria and restaurants beneath [7]. L'Oceanogràfic with an area of 110,000 square metres was intended to be a sanctuary and environmental centre. It is the largest European oceanographic and the third globally. It contains 45,000 species of aquatic life from around the world. The elements and structures were devised by architect Felix Candela, renowned for his work on shell structures, the extravaganza and brilliant intricacies of which are reflected in the project.

III. URBAN DESIGN ASPECTS

The City of Arts and Sciences was an urban renewal project and set up in a degraded part of Valencia [8]. The site is set on an important historical part of the city and this led to the conclusion that the project should be a hub, not only scientific and cultural, but also on an urban scale that unites the new developments on one side of the basin to the existing developments on the other side. The project was established on a flat terrain on the final section of the old river Turia. The idea was to recover the old urban area between this river and the motorway Saler. This route was a very important one and the approach was to create a link between the city and the sea [9]. This project was to be the last installation followed by restoration of the beaches and creating green space with some towers.

The preservation of the original riverbed of Turia, running across the city centre, through a series of architectural and urban design projects along the entire stretch has been a part of the environmental planning of the city. The City of Arts and Sciences is one of the many institutions along the riverbed that protects and portrays the remnants of the river as one of its major design elements. Most of the dried riverbed is now a low level park that is used by pedestrians and cyclists to traverse the city to avoid the vehicular roads. The park, called the 'Garden of the Turia' (Jardí del Túria/Jardín del Turia) boasts of numerous ponds, paths, fountains, flowers, football pitches, cafés, artworks, climbing walls, an athletics track, a zen garden and more [10]. The extreme eastern end of the river Turia is marked by the City of Arts and Sciences.

Figure 2: The dried riverbed of Turia and alatrava's project, (Source: Google Earth)

3.1 Site Linearity used for Serial Vision

The linearity has been divided into several sections, each with a unique expression of architecture and conforming landscape, giving the participants the freedom to choose the destination of their choice, or simply to walk around leisurely through the premises, appreciating the inseparable combination of the buildings with the elements of landscape. Visible from a great distance while approaching the site, the Palau de les Arts Reina Sofia is situated at the first apex of the site. It acts as a landmark on the skyline and promises of many more breathtaking views to appear with progress through the site. This great example of serial vision used in modern day architecture and urban design exemplifies how a linear stretch of land can be used to surprise its visitors through pre-conceived views and vistas and through involvement of the users in the overall cultural landscape.

3.2 Provision of Different Urban Scales for Public Involvement

The contrast between the regular spatial composition and simple geometrical forms in the first part of the site is stark with respect to the irregular composition and forms of the latter part of the site. It clearly demarcates the differences in activities allocated to these areas and their respective urban scales. Whereas the area designed for formal activities, such as museums, theatres and galleries, is monumental in scale, the area designated as environmental centre and habitat are provided with a more humane scale, indicating the comfortable physical surrounding for nature's beings [11].

3.3 Axes, Views and Vistas

The project maintains a linear axis of water acting as the spine around which activities are dispersed on both sides. Described as a "city within a city", the project has various cultural and entertainment units in multi-level system, designed and operational on vast stretches of water and connected to each other by well-designed walkways, underpasses and connected visually through interesting axes, framed and open vistas, articulated forms and curved lines imparting rhythm and rhyme and surprise elements on skyline.

3.4 Creation of Important Urban Nodes

The project has successfully been transformed into an urban node, both physically and functionally. It provides two major connections between the two sides of the riverbed of Turia. The development acts as a landmark in the central part of the city, especially due to its architectural expression. This

urban node is functionally active at all times of the day due to its design as a peoples' place.

3.5 Generation of Pedestrian Promenade

Santiago Calatrava, who masterminded most of the complex, said, 'I am proud of the fact that people can walk through and around the main buildings without paying. It is a city to be discovered by promenading' [12]. More than 7 kilometers of the stretch through the project site is accessible by pedestrians without any need for payment, thus making it a large pedestrian mall. Such accessibility is a major factor in bringing in the local people daily for leisurely walks here at all times of the day, creating a sense of belonging to the site and encouraging community participation. Beyond this point, the entrance to the nature centre is levied as this generates the revenue for the maintenance of the Oceanarium, Marine Park and the bird sanctuaries. This is where there is a stark contrast between the pedestrianization of the two parts of the linear site. One has free accessibility to the site with restricted entries inside the functional spaces, while the other has restricted entry to the site and complete accessibility to all parts of the marine park, sanctuaries and ancillary facilities, reflecting the difference in design philosophies of the two parts of the urban design project.

3.6 Proper Accessibility and Vehicular Connectivity

Being established as a paradise for pedestrians, differences in levels separate the high speed vehicular movement from the people. At any point of time from any part of the site, people can reach the vehicular roads above the site and access public transport without difficulty. The promenade towards the west of the site leads to the entrances of the Alameda Metro Station (which was also designed by architect Calatrava) and the Alameda Bridge. The sweeping bridges for vehicles, connecting the two sides of the city separated by the project, are structurally conceived to provide visual pleasure for the people as well as climatic comfort to those walking below them. Such variations in level provide different vistas for the pedestrians above and below the bridges, as well as the moving vehicles. In such cases, even a passerby can successfully become part of the whole setting without having any intention to visit the site, with a partial physical connection and complete visual connection with the urban design.

Figure 3: Revitalization of Important Routes and Improved Connectivity (Source: Google Earth)

Figure 4: Separation of Vehicular and Pedestrian Movements

Figure 5: Design of a 'Millennium Project' in an Urban Scale - Museu De Les Ciências at Night

3.7 Celebration of 21st Century Architecture in an Urban Scale

The major hallmark of the architect has been the creation of spatial sculptures which cause amazement and surprise. Respecting the tradition of the Mediterranean Sea and light blue and white blend with the pseudo-futuristic architecture of the project was a main concept. The entry into the third millennium is represented by the access or gradual unfolding of the site from "the old tradition of the city leading to these monumental modern sculptures" [13].

3.8 Place for Repose

The activities incorporated in the project and its ancillary facilities have brought about a change in the social value of the area. The initial unutilized or socially degraded spaces have morphed into places of recreation, with tourism, educational as well as technological values. This has resulted in generation of revenue and creation of a 'place' for people.

3.9 Social and Environmental Impact

The design of this urban social hub has changed the economic position of the area in Valencia. The surrounding areas have developed rapidly into institutional and commercial zones that are equally benefitting from the activities generated from this project. It has succeeded in providing a safe, functional and pleasant social environment for the people. This project also demonstrates how the elements of ecology

and environment can be put forward and technology can be used to unite both architecture and landscape creating a unique modern urban cultural landscape. The use of water and greenery has been extensive and inclusive. And above all, with meeting the users' demands, the project can become a self-sustaining and revenue-generating system that not only benefits the local economy but satisfies the social calling for a peoples' place and pride of the city.

IV. LESSONS LEARNT FOR APPLICATION TO INDIAN URBAN SCENARIO

Urban renewal projects and their infrastructural aspects have been found to be great catalysts for development. The provision of infrastructure, according to researchers is "the best economic development strategy". When researched and prepared for implementation, it becomes a seed that will grow, through a focus on key catalytic market-driven projects. Experience shows that if public sector investment is made in a specific public area, then private sector investment will follow, creating a multiplier effect. A website supports the fact as stating, "Infrastructure investment and development are of key strategic importance and constitute the bedrock and catalyst for sustained economic growth and development. This is because infrastructure development creates the enabling environment to stimulate business and industrial activities, thereby enhancing productivity, reduced operational cost, job creation, income generation, wealth creation, poverty reduction, new ventures and business opportunities" [14].

The motto of America's smart growth programme, "*preserving natural habitat by creating better human habitat*" aptly sums up the solution to the urban problems regarding development. This kind of vision can be implied in various scales for urban development of India, starting from the micro scale of an architectural project to the macro scale of a city. Even with an unprecedented growth in urban and land development, there is scarcity of urban spaces that satisfy the criteria of a public realm. Although land use development measures ensure the provision of open and green spaces in an urban area, they are not developed in conjunction with proper urban amenities and as a 'place' for public activities. The parks and areas designated for public use are left unplanned and improperly designed, usually bound by high fences and located at some inaccessible corner of urban areas, thus considered repulsive by the urban populace, leading to a rise in anti-social activities in such areas. For all scales of developmental work, an urban design viewpoint has to be incorporated within the planning process. The holistic approach of designing public spaces integrated with institutional and recreational projects, along with provision of proper urban amenities can lead to the creation of a safe, attractive and functionally successful public realm. It can be applied to the fabric of an Indian cityscape that will require some of the measures listed as follows:

4.1 Physical Design Stages

- The provision of level variations separating vehicular and pedestrian movements and improving access to various urban facilities.
- Encouraging the use of pedestrian pathways by

providing better connections between places, visually and aesthetically accentuating the urban environment to make the travel comfortable.

- Use and creation of multi-level spaces, hence reducing the impact of built environment on nature.
- Integrating structure and landscape into the process of architectural design where architecture should be treated as an element of urban design, and a building or group of buildings as a part of the greater urban fabric accessible by people.
- Use of local industries, technology and materials for development.
- Quality of architectural expression should be competently envisioned as it has the ability to affect its urban setting.

4.2 Integrating Technology with Environmental Design

4.2.1 Changes at Administrative and Policy-Making Level

- The Perspective Plans involving the Visions of development should take a stand on sustainability.
- The Development Plans for five years should outline the projected growth factors of various urban development projects, varying from new development to renewal and regeneration.
- Importance of existing development should be identified and the new development should be planned at par with the existing one or to enhance that.
- Urban design guidelines should be prepared and it is implied that Urban Arts Commission should be set up for all major municipalities. This has been incorporated in Delhi and has met with success.
- “Place-making” is an important concept that can be achieved through various tools like zoning regulations and land-use control. Special areas should be identified, accentuated or created to create urban nodes of activity.

4.2.2 *Incorporating the Idea of ‘Building from Ground Zero’, or Territorialisation* – a concept that would require a major role of public participation in development projects and in the decision-making process, [15].

V. CONCLUSION

Every human being has the right to have a good-living in a sustainable environment. Majority of population in India are poor and a large section belongs to middle income group. Any city of India has diverse population with varying individual ability for earning and socio-cultural, religious and ethnic belonging to certain groups. However, public realm fulfilling the basic needs of all sections of population in a city is to be provided through urban development irrespective of individual preferences. Urbanism and development should not mean benefits of a privileged few at the cost of many others. Proper urban development has to be inclusive of and sustainable for all and can be achieved through provision of urban amenities integrated with the people, the urban space, ecology and environment in a sustainable manner. A successful public realm is one that supports life, provides recreation, visual

interest and safety to all sections of the society, while generating revenue to sustain such facilities and attract private sector investment around such public-owned projects, hence allowing participation of the people in every scale of development work.

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REFERENCES

- [1] Chigbu, Uchendu, "Village renewal as an instrument of rural development: evidence from Weyarn, Germany", Community Development, Volume 43 (2): 209-224, 2012.
- [2] <http://www.valenciaguide.org>, 2009
- [3] <http://www.rosvalencia.eu/index.php/venue/city-of-valencia>
- [4] <http://www.spanish-living.com>
- [5] <http://www.calatrava.com>
- [6] <http://www.arcspace.com/architects/calatrava>
- [7] M. Levin, "Santiago Calatrava Artworks: Laboratory of Ideas, Forms and Structures", published by Birkhauser Architecture, 1st Edition in 1998.
- [8] <http://whc.unesco.org/archive/websites/valencia>
- [9] J.M. Houston, "Urban Geography of Valencia, the Regional Development of a Huerta City", Transactions and Papers (Institute of British Geographers), published by Wiley-Blackwell, No.15 Pp. 19-35, (1949).
- [10] <http://en.wikipedia.org>
- [11] R. Mukherjee, "The Eye of Calatrava", Architecture – Time, Space & People, Magazine of the Council of Architecture, India, Vol. 12, No. 8, Pp 16-23, August 2012.
- [12] <http://www.buildipedia.com>, 2006
- [13] http://en.wikiarquitectura.com/index.php/City_of_Arts_and_Sciences
- [14] <http://www.businessdayonline.com>
- [15] R. Mukherjee, "Urbanism through Integrated Landscape and Architecture: Calatrava's Project for the City of Arts and Sciences in Valencia", International Conference on Advances in Architecture and Civil Engineering (AARCV 2012), Vol. 2, Pp. 654 – 659, 2012.

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