ARCHITECTURE PEDAGOGY FOR SUSTAINABLE AFFORDABLE HOUSING

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ABSTRACT

Architecture should invariably mirror the aspirations and achievements of a society; in the due process emphasising the balance of the needs of people and the planet. The relentlessly expanding human needs and urbanisation are definably posing serious concerns to such an extent that the overall balance of the human eco system is degenerating at an unacceptable pace. However we have often tried to overlook the fallouts in the name of growth and development. Critical understanding of habitable space and its impact on environment are central to evolving architecture pedagogy for sustainable affordable housing. These discourses should also give due importance to the people's quality of life and overall well beings of all sections of the community.

Keywords: whole life sustainability, urbanisation, design development, social progress.

1. SUSTAINABILITY

In a broad sense, we can express it as the capacity to endure. For humans it is the potential for long-term continuance of wellbeing, which in turn depends on the wellbeing of the natural world and the responsible use of natural resources. The Brundtland Report speaks of two concerns that should be acquiescent: development and environment; which can be further interpreted as needs versus resources. The report prepared by the United Nations World Commission on Environment and Development titled Our Common Future served as the blueprint for international action on environmental issues post 1987."...the "environment" is where we all live; and "development" is what we all do in attempting to improve our lot within that abode"(Brundtland, 1987).

However there is now abundant scientific evidence that humanity is living unsustainably. This decisively unconstructive phenomenon is also being observed in the way we built habitable environments all over the world for last couple of decades. Architecture definitely presents a unique challenge in the field of sustainable development.

Buildings have major environmental impacts during their life. Resource such as ground cover, forest, water, and energy are dwindling to give way to buildings. Resource – intensive materials provide structure to a building and landscaping adds beauty to it, in turn using up water and pesticides to maintain it. Energy consuming systems for lighting, air conditioning, and water heating provide comfort to its occupants....buildings are thus one of the

major pollutants that effect urban air quality and contribute to climate change (Institute, 2010).

A revival of the world order to perceive and reorient their approach towards sustaining life in the planet earth will require a major collective effort. The cognition process can be reduced to two primary bipolar dimensions (i.e. dimensions with two poles or extremes), incorporating the four relevant domains. One of these dimensions has atmosphere at one pole and built environment at the other, and the other dimension consists of bio diversity at one pole and natural phenomenon at the other. The peripheral envelope is emphasized by a secondary layer of factors that maintains balance like; structures and institutions, technology, society and culture. The learner must make the link between these domains and understand the whole mutually interlinked concept of human eco system. There is a collaborative engagement between these domains and the confluence is an intellectual process capable of resolving spatial issues related to habitat design requirements in a sustainable manner. Further this could help to relate to the paradigm shift that is required in understanding the concept of sustainable development and implementation of the same with paramount urgency.
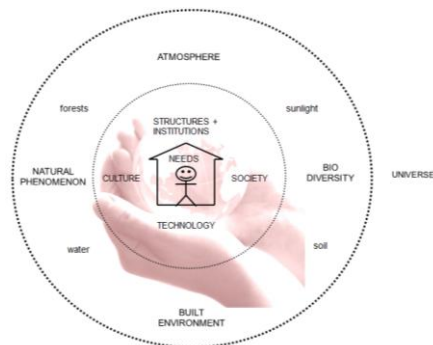

Fig: 1 Human Eco System (Source: Author)

2. QUALITY OF HUMAN LIFE

Has drastically progressed with time, world leaders comment that millions of people around the world are living together, healthier, freer, safer and more prosperous lives than before in human history. "Never in history have the living conditions and prospects of so many people changed so dramatically and so fast" (Malik, 2013). These statements indicate that the quality of human life has drastically progressed over time; these aspects can be properly appraised by reviewing the Human Development Index and Social Progress Index. In present scenario it becomes imperative to develop a correlation between living standards and sustainable development in the world so as to measure the sustainability factor.

One example is the Human Development Index (HDI), a composite indicator that has been used to rank countries into four tiers of human development. Originally created in 1990 by Pakistani economist Mahbub ul Haq and the Indian Nobel laureate Amartya Sen, HDI aims to "shift the focus of development economics from national income to people-centred policies" and has been adopted as the key indicator of development by the United Nations Development Programme. It combines a range of socio-economic variables representing three dimensions of human development: (a) population health (measured by life expectancy); (b) education (by the adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio); and (c) living standards (by GDP per captia in relation to purchasing power parity) (Nguyen, 2017).

We come across an unpleasant reality when we analyse the position of India in the ranking; 135th position. This further leads to the review of position of India in the Social Progress Index; measures the extent to which countries provide for the social and environmental needs of their citizens.

The Social Progress Index (SPI) measures the well-being of a society by observing social and environmental outcomes directly rather than the economic factors. The social and environmental factors include personal safety, ecosystem sustainability, health and wellness, shelter, sanitation, equity and inclusion and personal freedom and choice (Nagabushan, 2014).

The SPI is also not encouraging standing at 101th position indicates that excessive work has to be done to elevate the living condition of people. The main cause for such degradation in standards of living for normal citizens could be due to ineffective government policies, acute shortage of housing, employment opportunities and so on. These factors forces people to migrate from rural areas to urban areas in search of better livelihood and prosperity. These migration leads to creation of squatter settlements as there is no effective social housing projects in place in practicality; various projects have been envisioned by the government however effective implementation as per schedule is the problem. The need of the time is sustainable, inclusive, safe and resilient housing projects which are formed out of collaborative approaches with sustainable development in mind.

3. AFFORDABLE HOUSING

Is housing deemed affordable to those with a low household income. The iconic character of any developing country is the rapidly progressing urbanisation and lack of affordable housing. The result is growth and spread of squatter settlements; dilapidation of standards of human habitation. In other words the social progress index and quality of life is directly related to access to resilient housing and worthy living conditions. List of factors that directly influence successful implementation of low cost housing is illustrated for consideration.
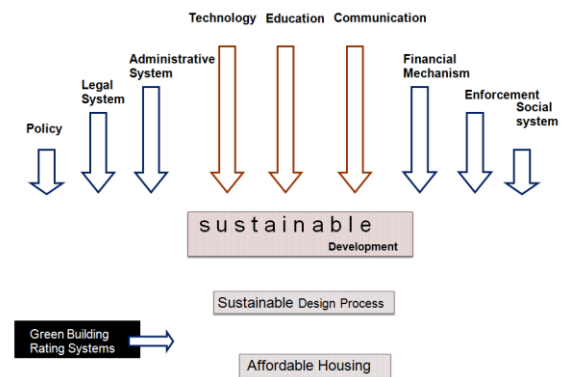

Fig: 2 Affordable Housing Facilitators (Source: Author)

The central government under the directives of honourable Prime Minister of India Shri. Narendra Damodardas Modi has come up with Pradhan Mantri Awas Yojana for the benefit of the nation. The mission is being implemented during 2015 – 2022; the total housing shortage envisaged to be addressed through the new mission is 20 million homes. The Ministry of Housing and Urban Poverty Alleviation is responsible for successful implementation of the mission.

A technology sub-mission under the mission would be set up to facilitate adoption of modern, innovative and green technologies and building materials for faster and quality construction of houses. The technology sub –mission will also facilitate preparation and

adoption of layout designs and building plans suitable for various geo-climatic zones. It will also assist States/Cities in deploying disaster resistant and environment friendly technologies (Wing, 2016)

A sustainable building or green building is an outcome of a design philosophy which focuses on increasing the efficiency of resource use; while reducing building impacts on human health and the environment during the building's lifecycle, through better siting, design, construction, operation, maintenance, and deletion. It is true that it costs a little more to design and construct a green building. However, it is also a proven fact that it costs less to operate a green building that has tremendous environmental benefits and provides a better place for the occupants to live and work in. Thus, the challenge of a green building is to achieve all its benefits at an affordable cost. A green building depletes as little of the natural resources during its construction and operation.

From the perspective of an academician the need of the hour is to develop effective pedagogical approaches so that positive transmission in studio discourses is made possible. This will pave way for effective learning simulation in architecture schools and built critical perspective in young minds regarding affordable housing.

4. PEDAGOGICAL APPROACH

Interpretative researches into the realm of architecture design decision models is dealt in detail by Professor Ashraf M. Salama in his book New Trends in Architecture Education: Designing the Design Studio. Where he tries to explore and appraise certain established revolutionary teaching strategies

and models. The models are described based on a common format with respect to its structure namely:

- The conception of architectural design.
- The design process.
- The teaching style. (Salama, 1995, p. 75)

This design teaching models were derived based on rational basis and highly structured content. Each of these approaches definitely could form the basis of a separate study itself. Hence even brief descriptions of each model are beyond the scope of this paper. However the format of categorisation of the basic structure of these models has influenced this work to develop a structure: a framework of continuity made up of the following stages for development and advocacy of a model. This could be categorised as follows:

- The Inherent ideation.
- The Process.
- The Preaching style.

4.1. The Inherent Ideation

In a given context when an individual comprehends a spatial issue and resolves to tackle it there commences an activity, which is often followed in succession by related acts which help achieve a tangible solution. However it is often observed that the activity as well as the resultant solution is often grounded on a strong, realistic and rational ideation. The ideation becomes the basis for advances, development and realisation.

4.2. The Process

The realisation and execution of the ideation requires the individual to engage in an activity. The

nature of progression is based on the manner of proper understanding of the issues, needs and its logical interpretation. This would help induce a rational and feasible response; action. This may be in the form of a series of actions that pave way for resolution of a spatial issue. The basis of all these activities would be however grounded on rational and ethical research practices; knowledge base of a particular discipline. The competency levels of the individual and his precedents also would influence the activity.

4.3. The Preaching Style

It is always necessary to externalise the inherent ideation as well as the process so that the whole development is explicitly clear and communicable. Such an approach would help correspond and illustrate in a structured manner the intrinsic activities involved. This would also form the basis for pedagogical activities when it comes to transmission of learning. In simple words to properly define succession of events leading to resolution of a spatial issue so that others can make use of the approach in a typical manner for resolving new issues related to spatial realm in a similar manner.

5. DESIGN DEVELOPMENT

For an individual to produce meaningful architecture it is essential that the person has a good awareness of evolutionary progression of a region and mature understanding of the habitat realm, which is not limited to superficial level. This has to be based on in depth awareness of various activities happening within a society and proper cognition of diverse origins of various communities that make up the social fabric. Along with proper application of latest technological and material know how aiming at

creating rational, sustainable and contextual architecture with regional traits.

Considering this notion of approach, the characteristics factors which influence and catalyse the overall activity could be classified as intrinsic and extrinsic factors. Intrinsic factors are personified by an individual's deep rooted regionalist linkages superficial as well as internalised, anchoring various sociological as well as contextual attributes. Meanwhile extrinsic factors might be related to quest for innovation, globalisation and progress that exist in an individual pursuit for achieving unique and iconic results in pursuit of habitat design. The resultant notion of spatial disposition is reinforced by aspects of time and place which provides the divergence in general imagery of a design development.

The intrinsic and extrinsic factors pave way for the need of a refined process. This would help evolve better cognition about the overall act of responsiveness involved during initiation of conceptual development. The perception index is built upon the premises that multiplicity forms the basis of our national fabric. Basic solution to a given design issue could be based on collective requirements of the users exemplified by existing habitat realm. This would contribute towards meeting the utilitarian needs of the people and for evolution of a sense of identity with respect to conceptual ideations and its tangible realisation.

Tangible realisation as part of cognition is constituted by the following acts; perception, convergence and recognition based on information received from intrinsic as well as extrinsic domains of knowledge base and its interpretation. This phenomenon over a time results in convergence or

towards formation of a seasoned approach; symbolic in distinctiveness marked by regional traits leading to formation of recognisable architectural built realms.
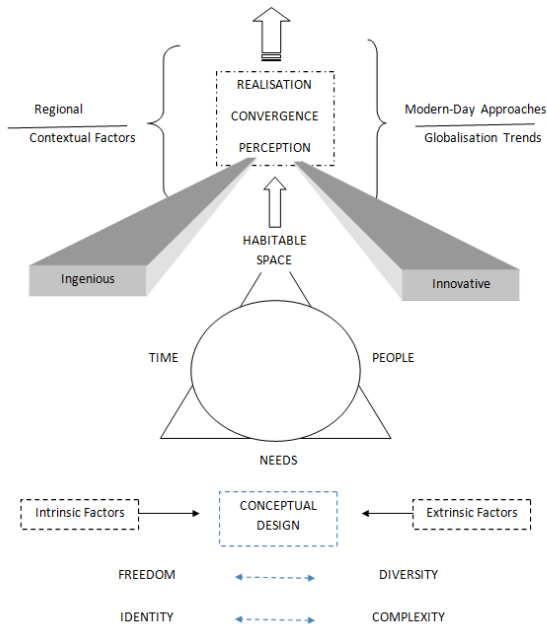

Fig: 3 Approach: Tangible Realisation (Source: Author)

This design development model could be successfully adopted to develop affordable housing project proposals defining designs, financial instruments, management structure and the institutional set-up.   With emphasis on role of affordable housing to elevate the quality of life, whom to deliver for and where, finance, cooperation with public, private and household sector, and technical -management aspects.

6. CONCLUSION

Critical understanding of the importance of knowledge and its integration in design development, leading to a comprehensive whole is a significant aspect to be properly evolved and nourished. It can be argued that knowledge is not a substitute for architectural imagination but inadequate knowledge would handicap the general level of design.

Being satisfied to manipulate formal configurations does not provide insights into the human experience. If the different types of knowledge which architecture requires are ignored, the profession will lose its credibility in the eyes of society. With body of knowledge expanding diversely with the escalating wants of the user and to further sustain the built environment with further progression it's quite certain to have an innovative design process which has a feel of antecedents yet nourished by rationalism.

The preliminary research clearly depicts that an architectural design development framework which aids in realisation of performative dimensions of space is achieved rationally by following a process. This would aid in resolving issues and arriving at solutions while addressing spatial concerns in habitat design in micro as well as macro settings. The process oriented research also defines the character of architecture being envisioned.

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