Go Local

Siddharth Menon makes a case for using local materials, labour and knowledge to create affordable housing

In poor countries of the 'developing' world, the issue of affordable housing has been a bone of contention between the different stakeholders involved. Resources are scarce, economic and social conditions dire and populations burgeoning. All these forces create a potent mix, which acts as a catalyst for mass distress migration of people from the countryside to the city in search of better employment opportunities, education and health care. The advent of free market capitalism and neo-liberal economic policies as a part of the globalisation bandwagon has only further intensified this process, creating a situation where our living environments both rural and urban have become almost uninhabitable. Examples of this can be seen all across the third world landscapes from Latin America to Africa and South-East Asia.

Most often, efforts made by state authorities and agencies to tackle the problem of affordable housing have been to follow models and methods propagated by their former European colonisers. Terms like 'mass production', 'pre-fabrication', 'mechanisation of the construction process' work well in the developed world where population densities are low, per capita income and education levels high and the economic and political conditions are not in a constant state of flux. But the blind application of these principles in these primarily agrarian rural countries seeks to impose a standardised, one-size-fits-all ideology without understanding the context.

In these areas, there exists an indigenous knowledge based on empirical and time-tested principles of building that has existed for centuries. This knowledge seeks to use hand based skills of local people to build spaces and shelters with locally available materials and technology. Moreover, this knowledge is people-centric i.e. it is a community based local effort that is labour intensive. This ensures that valuable capital invested in a building project goes directly to the people who actually need it: those in the local community, thereby helping to strengthen and stabilise the local economy. As farm lands disappear and agrarian lifestyles change, our rural areas harbour a huge population of skilled and unskilled labour that is in dire need of work. And here lies the opportunity to tap into our indigenous building knowledge to facilitate these people into the building process so as to produce appropriate and affordable housing.

In the South Indian state of Telangana, there has existed a tradition of building with a mud building technique called 'cob': balls of wet, stiff mud that are slapped onto each other, course after course to form a load bearing wall. This technique is local, simple and effective and has been refined over a period of time. Mud used for building is excavated from the load-bearing foundation trench or an adjoining fresh water tank. It is then mixed on site with sand, rice, straw, an agricultural byproduct, slaked lime slurry and water with the help of water buffaloes. This is then laid to rest for a day to allow for the activation of clay particles in the soil. The next day, local community women start making mud balls from this mix of a size not more than 6-9 inches in diameter. These become the basic building blocks for the built space and are thrown by hand from one person to another to the hands of the skilled craftsmen, who have honed this technique over many generations. These craftsmen then skillfully slap the mud balls onto one another and slowly massage them into a single homogeneous unit with their hands. Care is taken that the balls are not too wet or else they will splatter; they can't be too dry either or they will not adhere to one another to form the load-bearing wall. Walls are generally one and a half feet thick to take the load of the floor above. This thickness also aids in the insulation of the space.

Since all material for this building comes from the immediate locality, the cost of transportation of material is drastically reduced. Mud is excavated from the site or an adjoining

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Left: **Local craftsmen testing mud from site**
Middle: **Water buffaloes mixing mud**
Right: **Community women making cob balls**

It ensures that the local community is directly invested in the process of building and is a source of employment generation

Top: **Skilled craftsmen building cob wall**
Bottom: **Neem wood roof truss for roof**

Top: **Final built space**

Local techniques require the use of intensive labour whose cost sometimes supersedes that of the material

farm, stone for foundation and plinth from a nearby stone quarry, neem wood for the pitched roof is grown locally in people's homes and courtyards. Moreover, since most of these materials are natural, their manufacturing or production cost is also very low. As mentioned, these local techniques require the use of intensive labour whose cost sometimes supersedes that of the material. But since they are from the local community and labour costs are low, the overall building cost is kept under check.

The daily wage of local skilled masons and carpenters in this region is around $7-8 and that of unskilled labour is around $3-4. In this way, by using local materials, techniques and craftsmen in a local community-based building effort, one can ensure that the final cost of the contemporary built house is not more than $12-18 per square foot. This is considerably less than that of reinforced cement concrete (RCC) houses in this region, which have a built up cost of $23-38 per square foot. Every saving made here is extremely valuable. Moreover, this building process is not only economically but also socially more affordable. It ensures that the local community is directly invested in the process of building and is a source of employment generation in a region where it is absolutely needed. The home owners have a direct stake in the building of their own homes.

In conclusion, this local building knowledge has evolved over a period of time and it is imperative it continues to do so to be relevant in today's contemporary world. It does have certain limitations and drawbacks but it is imperative that we use modern technology and knowhow to overcome these particular problems and not replace the entire building system. We need to delve deeper and look inward at what we have and how to better it rather than waiting for foreign ideas to be dropped into a context they are not suited for. Then and only then can we harbour the dream of housing the millions of homeless in our poor countries by creating a housing system that is truly affordable both economically and socially.