
URBAN HOUSING IN THE THIRD WORLD: THE ROLE OF THE ARCHITECT

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The architect practicing in the Third World faces the unique and formidable challenge of using his skills and resources to alleviate the dehumanising conditions of the urban poor around him. Obviously, the area to which he most often directs his efforts is that of housing. Right away, the architect must confront two mind-boggling facts about the problem. The first is the scale of the demand; the second is the totally inadequate income of the urban poor.

In several Third World cities (Dacca, Ibadan, Karachi, and Bombay, for example), pavement dwellers might constitute anywhere from twenty-five to fifty percent of the population, and their numbers are increasing at a faster rate than in the rest of the city. In contrast, income per household is abysmally low. In Bombay, one third of the households earn less than Rs. 250, or thirty dollars (U.S.) per month; another third earn less than sixty dollars each month. If fifteen percent of this income is applied toward housing rental, a high figure for this income level, we will find a capital budget per housing unit of \$450 and \$900, respectively. In Bombay today, the sale price of new buildings ranges from \$300 to \$600 per square metre. Just calculate how much space each family can afford through the market process! Even if we totally ignore the cost of land and other components and count only the construction costs, a simple four-storey walk-up tenement of brick bearing walls and reinforced concrete slabs will cost about seventy dollars per square metre. This price does not leave the poor much better off.

The architect finds that, despite his most persistent efforts, he cannot bring the cost of housing anywhere near the level of what the urban poor can actually afford. What this group *can* afford are the simple single-storey structures that they so skillfully and beautifully build for themselves. They use local materials like mud and bamboo, recycled tin cans and palm leaves, and succeed in harnessing their own resourcefulness and experience.

But if this housing solution exists, why do so many people continue to live on the pavements of our cities? There are two crucial reasons. First, the scale of the demand dictates that most prime urban land has already been preempted for other uses, a circumstance forcing the vast majority of these self-help housing efforts onto unwanted land at the city's edge. Situated far from the major transport arteries and other urban infrastructure, and without access to public transport, the poor have no mobility, no job choice, and often no job at all.

This is why, in a great many cities, the squatters resist any well-intentioned attempts to transfer them to sites and services schemes far away from the city's main infrastructure. Too often these areas become mere ghettos of cheap labour, at the mercy of local entrepreneurs (can this perhaps explain their increasing popularity with the financial establishment?). Naturally, the poor—at least the smart ones—move back to the pavements at the centre of town. Housing is a relatively low priority on their survival list, after such items as food, clothing, and health care. More important than adequate shelter is direct access to the nerve centres of the city.

This brings us to the second reason that a seeming housing panacea is not implemented. Although many planners and decision makers in Third World cities will readily acknowledge the advantages of self-help housing, they feel that when you add the cost of using prime urban land at such relatively low densities, the economic savings vanish. This negative view is compounded, as in the case of Singapore or Hong Kong, by the notion that there is an upper limit to the total city area available and that it should not be squandered on single-storey housing.

This is a widely held opinion and one that merits serious consideration. Urban housing is not a discrete problem; its total cost to society is much greater than the construction cost of the unit itself. It is the product of a series of other locational decisions involving job distribution, desire lines, transport arteries, and so forth. What we are looking for, in effect, is the optimal trade-off between construction cost (which varies with density) and the opportunity cost of urban land.

To discover the optimal balance in this trade-off, we will need to define housing precisely and determine how it actually functions. Housing involves much more than just houses. The room, the cellular unit, is but one element in the whole system of spaces that people need in order to live. In an Indian urban setting, there appear to be four such necessary spatial elements. In hierarchical ranking, these are the space needed by the family exclusively for private use (cooking, sleeping, storage, and so forth); the areas that foster intimate contact (e.g., the front doorstep, where the children play or one chats with his neighbour); the neighbourhood meeting places (e.g., the city watertap or the village well), where one becomes part of his community; and finally, the principal urban area, perhaps the *madina*, used by the entire city. In other societies the number of elements and their interrelationships may vary, but

it is clear that human settlements everywhere—from small towns to sprawling metropolises—have some analogous system. This analogue will vary according to the climate, income levels, and cultural patterns of each society.

We may discern two important facts about these systems. The first is that some of the elements consist of covered spaces and/or open-air spaces. This is of fundamental significance to developing countries, since almost all of them are located in tropical climates where a number of essential activities take place outdoors. For example, cooking, sleeping, entertaining, or children's play need not transpire indoors; these activities can occur just as effectively in an open courtyard. Suppose that, in the context of a particular culture, we estimate that perhaps seventy-five percent of the essential functions of private urban living can occur in an open-air space. After accounting for climate constraints (monsoons and the like), we find this capacity still viable for at least seventy percent of the year. This then gives the courtyard a usability coefficient slightly greater than half that of an enclosed room. All vernacular housing, from the casbah in Algiers to the paper house of Tokyo, is the result of an adroit trade-off between the production cost of building and the cost of land for open-air spaces. Each society, and each household within it, finds its own balance.

The second important fact about this hierarchy of living spaces is that the elements are interdependent; insufficient space in one area can be offset by providing more in another. For example, the compensation for small dwelling units may be larger neighbourhood community spaces, or vice versa. Sometimes glaring imbalances do exist: in Delhi, for instance, there are about seventy-five square metres of public open space per family. Would the distribution of public and private space work better if, as in Isfahan or Benares, a fraction of this public space were traded for a small courtyard (of perhaps ten square metres) for each house?

To identify the hierarchy and to understand the nature of these trade-offs is the first step in the provision of housing. Without such an evaluation, one is in grave danger of formulating the wrong questions. This is why so many low-cost housing solutions deal with the problem as a simple one of trying to pile up as many dwelling units (cells) as possible on a given site, without any concern for the other spatial requirements of life. The environments that result are quite unusable: as the surrounding buildings get taller, the open-air spaces get more and more restricted in function. A courtyard flanked by single-storey buildings is for sleeping; with two-story surrounding buildings you can still cook in the courtyard; when five stories surround a courtyard, it is suitable only as a children's play area; a ten-story surrounding structure relegates it to the role of a parking lot. The old indicator of so much open space per 1,000 persons is too crude; the space must vary, both qualitatively and quantitatively, according to the nature of the building in relation to where it stands.

If a functional balance is maintained among all elements in the spatial hierarchy, how do densities relate to costs? In India, with a built-up area of twenty-five square metres per housing unit and a community area of about thirty square metres per family, ground floor housing accommodates about 125 households per hectare. Five-storey walk-ups double this fig-

ure to about 250 households; twenty-storey buildings will double it again, to about 500 households. As the building heights increase twentyfold, gross neighbourhood density increases about fourfold.

If we view the larger context, what impact does variation in density have on the overall city? Contrary to popular belief, only about a third of a city is devoted to housing. Actual housing sites usually account for less than twenty percent of usable land, a surprisingly low figure when compared to transport (twenty-five percent) or industry (fifteen percent), for example. Therefore, doubling the densities in the residential areas does not halve the overall size of the city; indeed, it would make only a marginal difference. (This fact was amply demonstrated two decades ago in planning concepts developed for Hook New Town.) What needs to be emphasised here is that any variation in residential density makes a crucial difference to the life style of the inhabitants. This is particularly true in the warm climates that prevail in most of the Third World. In exchange for only a marginal decrease in overall city size, increased density drastically reduces the amount of open-air space and hence the usability of the housing. Furthermore, it sharply escalates the construction costs of the individual units much more than would be the case in the developed Western countries.

In the Third World countries, the specifications for one-, five-, and twenty-storey buildings vary dramatically. A multi-storeyed building (whether of five or of twenty floors) must be built of brick and reinforced concrete, not because the weather demands it (as is the case in Europe), but for structural strength. In contrast, low-rise structures can be made of a wide variety of local materials—from tiles and earthen brick to mud and bamboo—at a mere fraction of the cost. "Low-rise" may be defined not only as self-help housing, but as traditional vernacular architecture in general—that wonderfully rich idiom created by people all over the world without the benefit of professional architects. Not only is the traditional vernacular solution apt to be more successful in economic, aesthetic, and human terms than the professionally designed and constructed architecture, as any reasonably honest architect will admit, but also far more appropriate socioeconomic processes are involved in its production. Sprawling, multistoreyed housing projects can be produced only by a limited number of builders and developers who can handle the technology and finances involved. In contrast, money invested in vernacular housing is pumped into the economy at the bazaar level, just where it generates the greatest amount of tertiary employment.

One can list other significant advantages of low-rise housing in the Third World. First, the houses can grow, a possibility that is becoming imperative in developing countries where current goals yield other priorities. Second, low-rise edifices as opposed to high rises are far more sensitive to the social, cultural, and religious determinants of our environment. Such a building pattern makes it relatively easy for people to adjust their spaces to their own preferred life styles. To cite an example from the world of Islam, one has only to contrast the courtyard housing in Isfahan with the inflexible high-rise development around the Tehran airport.

If we look at the major concerns of humanists and envi-

ronmentalists today—balanced ecosystems, recycling of waste products, people participation, appropriate life styles, indigenous technology—we find that the people of the Third World have already formulated responses to these concerns. From the Polynesian islands to the Mediterranean villages to the jungles of Bangladesh, marvelous shelter has been built for thousands of years. In fact, the wonderful thing about the Third World is that there is no shortage of building materials and construction skills. What is in short supply, of course, is the urban context in which these worthy solutions are viable. The real task and responsibility of the Third World architect is to help generate this new urban fabric.

The creation of an adequate urban context requires an increase in the supply of desirable urban land on a scale commensurate with the dimensions of the demand. This newly created context would accommodate the housing backlog in addition to the growth that lies ahead. It will probably involve the redistribution of jobs of greater or lesser desirability and hence the redistribution of the pressure points of the city. A total restructuring of our cities is likely to result. This is the strategy behind New Bombay, the growth centre for two million people currently being developed across the harbour from the old Indian city. In the existing metropolis the densities are extraordinarily high, reaching over 3,000 persons per hectare in many areas. These densities are not a product of building heights, but result primarily from high occupancy per unit (ten to fifteen persons) and an almost criminal paucity of schools, hospitals, and other social infrastructure. As compared to the fifteen square metres of open area per person in Delhi, on Bombay Island the figure is about one square metre, and this includes the green of the traffic islands. Even roads constitute only eight percent of total land usage, a fact that may explain why they always look so crowded.

Such unimpressive statistics are found in a hundred other cities throughout the Third World. In this context, the improvement of housing conditions is first and foremost a matter of readjusting the land-use allocations. Can this really be done within an existing city structure without modifying the pattern of job and desire-fulfillment lines?

In studies undertaken during the planning work for New Bombay, we tried to determine, in the context of the city's income profile and resources, what optimal residential densities would be. We found that for most land values the trade-off with construction costs suggested that the ideal densities involved low-rise living patterns from 250 to 1,000 persons per hectare. Exceeding residential densities of 1,000 persons per hectare puts the Third World city into serious trouble. An analogy with body temperature is very tempting: we are ill when our temperature exceeds 98.6° F.; might there be a similar indicator for cities? One suspects that this is true for developed countries as well. For instance, the difference in overall population density between London and Paris is small, but overall density makes a great difference in the kind of accommodation available to the average resident in each city.

Other areas of participation for the Third World architect

concerned with housing range from large-scale site planning to the grouping of a particular cluster. The key word in that sentence is "participation." In the past, the prototypical architect in these societies was not the beaux-arts prima donna, but the site *mistri*, an experienced mason/carpenter who helped with the design and construction of the house. The practice continues even today in the small towns and villages of India: owner and *mistri* go together to the site, and with a stick scratch into the earth the outline of the proposed building. There is usually some argument about the relative advantages of various window positions, stairways, and so on, but the important thing is that the two share the same aesthetic; they are on the same side of the table. This fact has been behind all the great architecture of the past, from the Alhambra to Fatehpur Sikri.

Would modern architects be willing to participate in building in this manner? Probably not, since all our training encourages us to con the client into building *his* house *our* way. Alternatively, we go to the other extreme: we move among the poor as if in a terrible disaster area, fancying ourselves Florence Nightingales among the wounded. What the architect must bring to bear on the situation is neither the prima donna performance nor the Red Cross bit; he must bring what the site *mistri* has always brought, which is compatibility, experience, and a high visual sense.

In order to improve our environment in the Third World, we must have a strong visual sensibility. The poor have always understood this. With one stroke of a pink brush a Mexican potter can transform his product. It costs him almost nothing, but it changes the quality of the purchaser's life. It is not a coincidence that the best handicrafts and the finest visual sense come from the world's poorest countries. What is so beautiful about the Arab house, as Hassan Fathy has often pointed out, is that the builders have had only the simplest materials at their disposal: sand, earth, and sky. These builders have had to be inventive. Fathy's own work is staggeringly beautiful; he does not patronise the poor by forgetting about aesthetics. On the contrary, he participates with all his passion, intelligence, and visual sensibility so that everyone comes out a winner.

To summarise the role of the architect in the Third World, we acknowledge that the poor are not coming to the cities for houses; they are coming for work. Thus to ask *how* to build is also to ask *where* to build. Sites and services schemes are part of the answer, but they are not in themselves a panacea. To be viable, they will have to plug into key points in the city infrastructure. Because of the scale of the demand, this effort is going to require a major restructuring of our cities. It is the primary responsibility of the Third World architect to conceptualise and help catalyse such a restructuring. On a small scale, the architect should participate, as did the old *mistri*, in such matters as site layout; he should always remember that he and the people are on the same side of the table. If he has performed these two tasks effectively, all the architect really has to do when it comes to the houses is get out of the way.