

a PARTICIPATORY APPROACH TO HOUSING DESIGN

The Indian Experience

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India, as a country that encompasses a vast geographical region of varying climatic types, is home to many ethnic communities, of distinct and diverse cultures. Most of these ethnic groups could boast of a rich heritage of deep-rooted building traditions, which evolved over centuries of responding to the peculiarities of their climatic types, locally available materials, life styles, rituals etc. Traditions – that assume sentimental, nostalgic and cultural meaning, beyond the mere provision of ‘houses’ and help create ‘places’ where these communities can belong, grow and nurture their individualities and aspirations. Yet these people are being denied the opportunity to build for themselves, and compelled to join long queues for housing being allotted by the government. The shortfall in housing however, continues to grow and the living environment for the poor and the shelterless, especially in urban areas, continues to deteriorate.

At the time of independence, the newly formed Indian government took upon itself the responsibility of being the sole provider of the housing stock. It set up ambitious targets and focused on providing the maximum number of houses to resettle displaced families. In this, it followed planning norms inherited from colonial powers, which were proportionately scaled down to suit the impoverished budgets of a

newly liberated nation. By the early seventies, between one third to a half of the urban population in India was living in grossly substandard accommodation, most of which, by virtue of the informality of its generation, was termed illegal. The failure of the government was evident on all fronts – in matters of policy planning, building design and technology.

At the policy level – the government promoted itself as the sole provider of housing, while it had neither the means nor the ability to generate sufficient resources to fulfil that role. Land, a key resource in housing, was freely traded in the meantime, so that it subsequently became difficult to acquire in reasonable locations. Government housing schemes were usually located at the peripheries of cities. An unsuitable location for most of the targeted populace – close proximity to its livelihood being the highest priority of the underprivileged urban poor. Further, indigenous building materials and natural resources were diverted for subsidized use by industries in such quantities as to make these inaccessible to the common man. The public works departments and housing boards specialized in the use of high energy intensive, locally

unavailable and expensive cement and steel, for building, thereby replacing all other forms of building materials and technologies within the formal or legal sector. The use of locally available materials and alternative technologies was further discouraged by framing laws which denied them recognition and financial support in the form of loans, subsidies etc. People were now forced to bury their traditional building skills and rely on ‘agents’ to provide them with homes. Further, faced with the inadequacies of formally supplied and unaffordable housing, they were forced to find their own alternatives through informal channels – pavement dwelling, entering squatter settlements or unauthorized colonies – generated by illegal land subdivision and sold by self-appointed and ‘quasi-legal developers’ enjoying the unofficial patronage of politicians and bureaucrats.



Traditional urban settlement – Jaisalmer.



*Housing Board flats
in Bombay a few
years after
construction*

In design and planning terms, the government saw housing provision merely as a numerical provision of 'dwelling units' within cost and land constraints dictated by predetermined 'national' standards with no regard to climate, culture, needs, location, affordability and even specific site conditions. Design was reduced to a mere exercise in housing economies. The resultant barrack like assemblage of rooms, piled one on top of the other to create multi-storeyed buildings arranged in rows, usually located far away from the business districts and employment generating areas were built in identical fashion on all sites, regardless of their location (in the hills, the deserts, the plains and even the coastal areas) or the profile of people to be housed within. The latter were reduced to a nameless, faceless mass of numbers divided under four rigid categories – the high income group (HIG), middle income group (MIG), low income group (LIG) and economically weak section (EWS) and their needs identified in an hierarchical allocation of room numbers. Public housing came to be associated with uncomfortable and ill-conceived use of built and open spaces, costly or inadequate infrastructure and lack of community, recreational and commercial support. There was rarely any provision for flexibility and elasticity of spaces, particularly in EWS pockets, where densities tend to be high. The inevitable additions over a period of time, merely created cramped slums of the future and within ten years of construction the structures

actions. Multilateral lending agencies, such as the World Bank aggressively began to encourage policy changes in this direction and advocated the adoption of 'universal solutions' through two types of housing programmes – sites and services projects and slum upgradation programmes.

The Indian government gradually adopted these self-help strategies owing to their economic expediency and its own failure to provide adequate housing. Many sites and services projects were implemented for the EWS and LIG, while the more affluent sections of society were encouraged to set up co-operative housing societies. The latter were aided in their endeavours by making favourable loan facilities and land at subsidized cost, available to them. These co-operatives have met with reasonable success by organizing the demand and combining the economic means of small groups in



*Improved street
and water pipes in
Baljeet Nagar: An
unauthorized
colony.*

required extensive and unaffordably expensive repairs.

The housing experience in India, as in other third world countries, seemed to suggest that governments fall short of expectations when they try to 'provide' housing, the notable exceptions being Singapore Housing Authority and the Million House Programme launched in Sri Lanka – the former at the cost of extreme repression of people's aspirations and desires, and the latter requiring large infusions of external funds. The other exceptions being wealthy nations (Saudi Arabia and other gulf states), which can devote large funds for housing schemes. This scenario gave rise to the view that people are better able to take care of their housing needs than the government, and that the latter should confine its role in housing to 'supporting' people's own initiatives through regulatory measures and direct

order to increase their negotiating power with government agencies, lending institutions etc., and reduce the final cost by providing for many.

The sites and services projects for the LIG and EWS were, however, implemented in the same bureaucratic fashion as the earlier public works department projects. The government was guided more by its own affordability than that of the people. These projects were located on cheap sites far from city centers, yet executed on a turnkey basis – encouraging a more active role for the profit-motivated private sector, which often compromised standards to reduce cost. The determining factors in design were the contracting procedures and previously determined high energy intensive construction technologies. Economies were achieved through prescribed lengths of roads, sewerage and water supply pipes alone.

At about the same time a new generation of voluntary organizations and concerned professionals and activists began to look at traditional and organically evolved Indian habitat to develop an understanding of the physical fabric that truly represents the social, cultural and climatic circumstances of these thriving settlements. The invisible orders within, the naturally evolved balances between open and built spaces, between community and personal needs, the regional and community expressions that personalize sites to 'places', the inevitable transformations of houses with the changing circumstances and demographics of its occupants – were studied for their impact on built form, to derive design and planning norms for actual implementation. All popular forms of settlements had one thing in common – a high degree of dweller participation in formation, extension, maintenance and upkeep of the settlement, and above all, a great sense of familiarity of the dwellers with the place.

Traditional, low energy intensive building materials and technologies were studied. An attempt was made to adapt them to modern needs and revive them by setting up research and training centers for these. Many of these centers experimented with locally available materials and skills in their regions to develop low-cost technologies, with which to build culturally sensitive architecture.

It became clear that satisfactory housing was not a simplistic delivery of the deficit number of houses, or even sites. It evolved from a continuous process of consolidation and personalization of built and open, and – personal and community spaces. That the generation of acceptable and adequate housing, especially for the EWS (Economically Weak Sector), encompassed income generating and community building activities. That communities had to be made effective participants in decisions concerning their own housing future. Some experts even argued that 'agencies' should not undertake the building of houses, yet there were people who still needed affordable built housing.

By the eighties private sector had more or less taken over the provision of housing for HIG (High Income Group) and to an extent the MIG (Middle Income Group) – through 'developer' built and marketed options, in rapidly urbanizing centers where land for housing was growing more and more scarce. A more popular alternative to this more expensive option, was co-operative or government built self-financed housing. Of all these, co-

operatives proved to be the most popular, for they allowed at least a nominal degree of participation through the representatives of the residents in the whole decision making process.

In the case of less privileged, voluntary agencies shifted their focus from designing and building of houses to empowering communities to undertake their own housing actions – whether it involved fighting against eviction, campaigning for their housing rights or planning for their own dwellings and settlements. Their relative success in this endeavor can be attributed to facilitating effective participation at all levels, through direct interaction and communication with dwellers – even after occupation – till the community is completely resettled. The government too is beginning to see these organizations as agencies, which could implement their programmes more

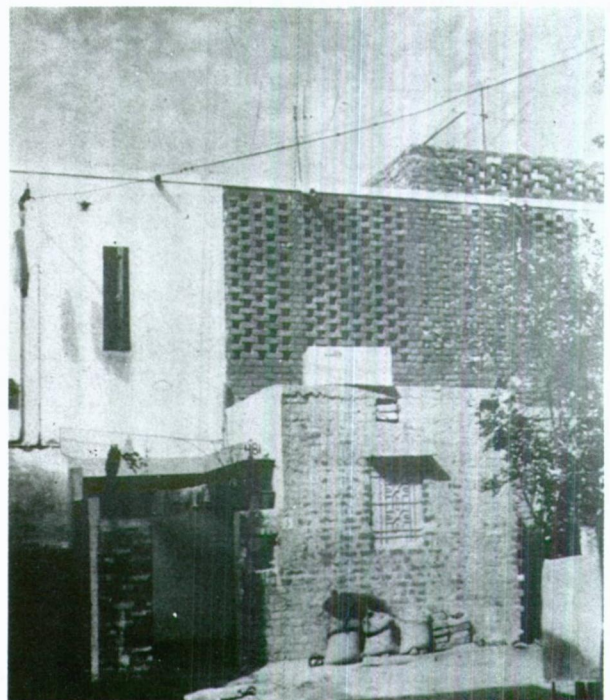
effectively. Many voluntary organizations are, however, unwilling to play such a role as they have recognized the faults in centralized decision making and formal patterns of development in government projects.

Planners, architects and designers are beginning to recognize the conceptual and institutional adjustments required in conventional design practice to effect this approach to housing, for many freshly graduating architects – it, in fact, often presents a dilemma. Professionals involved in housing are beginning to interact with communities they are designing for, to identify their actual needs. The trade-offs between built and open spaces, provisions for income generation and absorbing varying courses of action in the growth of a settlement, pluralism, possible involvement of the beneficiaries in construction, personalization of community spaces and most of all

Sites and services project.



Transformations in a government developed sites and services project.





Belapur – A courtyard.

Based on the 'opportunity cost' of land, the planning brief specified a density of 100 households per hectare, comprising a range of income groups from the lowest to middle income families. Although the range of income groups is large (ratio of 1:5) the plot sizes vary from 45 sqm. to 75 sqm. The original design had all plots of 50 sqm., but to suit the rules of the lending agencies a variation had to be created.

Each housing unit is built on an individual plot and the main walls supporting the roof are not shared. This arrangement gives householders privacy and independence in incrementality according to their need and financial capability. Further the individually identifiable form of each unit allows for and encourages self-expression.

The spatial ordering of structures in this low-rise, hi-density scheme creates a clearly ordered hierarchy of open

participation in decision making – have all been recognized as very important aspects of the agenda to be addressed in the design and implementation of sustainable housing. Public and semi-public organizations have implemented some low-cost housing projects with the help of independent experts and designers with greater success – where land and material supplies were well regulated by the government, and these along with people's skills, initiatives and organization reduced dependence on large sums of capital finance, of which there will always be a shortage. Two such projects are presented below.

Belapur

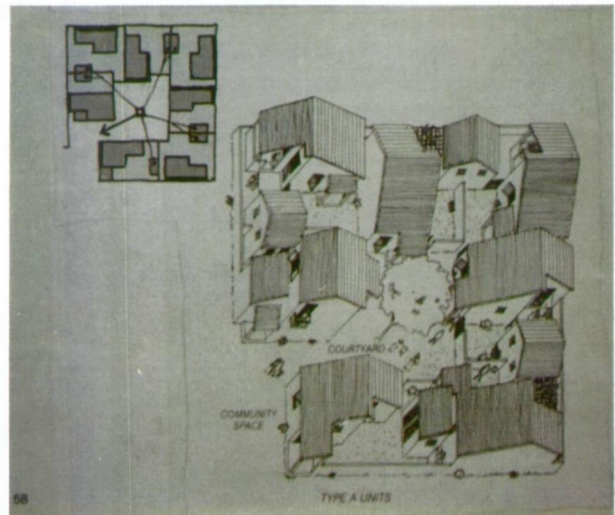
Architect: Charles Correa

In the early eighties period, when most professionals were seeking to coherently define housing issues, Charles Correa identified the following as cardinal principles for housing design and development:

- Incrementality
- Plurality
- Participation
- Income generation
- Equity
- Open to sky space
- Disaggregation

In his book titled "The New Landscape" he proposed the concept of "Equity" plots as a pattern of development for third world cities, where the amount of urban space one controls is based on human rather than economic terms. He argued that families of poor people are as large if not larger than those of rich people,

Belapur – A Cluster.



and the former can make use of a little extra open space to compensate for their inability to pay for adequate built space. Plot sizes ranging from 50 sqm. to 100 sqm. he felt would be viable for both the poorest and the affluent, and would ensure a more egalitarian society where neighbourhoods would be allowed to develop without predetermined social and economic mixes, much like the old organically developed urban centers in most Indian cities where the communities still have stronger ties between the richer and poorer neighbours.

This housing scheme in Belapur, commissioned by the government (by City and Industrial Corporation of Bombay), lies two kilometres from the center of New Bombay. It gave Correa a chance to apply the propounded principles in actual design terms. The site covers an area of 5.5 hectares.

spaces. Firstly, within each plot, the family has open space to augment the built-up area. Seven such units are clustered around an intimate courtyard of 8 m. x 8 m. Three such clusters combine to form a bigger module around a 12 m x 12 m yard, and three such nodules interlock around a 20 m x 20 m community space. This spatial hierarchy continues till neighbourhood spaces, to accommodate school and other public facilities, are formed. All neighbourhood spaces provide a panoramic view of the hills behind and open onto a stream that runs down the center of the site and drains surface water during the monsoons. A bazaar was proposed along a diagonal running through the site.

The typology of houses forms two sets. Within each set the house can grow incrementally to the next stage of development, as family income

increases. The house sites are arranged with the toilets located in pairs, so as to save on plumbing and sanitation costs. For each site, the main structure of the house can abut the boundary on two clearly specified edges. Windows are not allowed in these walls, for privacy of both units. However, the plans and drawings were merely indicative and construction of units kept simple enough to be undertaken by local masons and contractors, with the active participation of the people themselves, in the belief that 'in time the occupants would add their own overlays of colour and symbols, colonizing it with their own life styles'.

Aranya

Architects: *Vastu-Shilpa Foundation*

The Vastu-Shilpa Foundation, directed by architect B. V. Doshi, has been conducting studies with a view to understanding the traditional Indian habitat and evolving planning and design norms in the context of prevailing social, economic and technological conditions, thereby deriving lessons for actual implementation.

Through these studies, they concluded that the mere provision of a well-designed and well-built habitat does not necessarily generate a stable and active community with the means to grow. Beyond the provision of the habitat, governmental and private agencies must contribute to provide an environment of financial security which motivates the project population to take root. Therefore, a full spectrum of spaces have to be provided to accommodate income generating activities.

'Aranya', a low-cost housing project near the city of Indore, gave the Foundation an opportunity to bring together lessons learnt from several research programmes and implement the findings in a 'live' project. The project, to house an initial population of 40,000, ranging from High Income Groups (H.I.G.) to the Economically Weaker Sections (E.W.S.), virtually amounted to setting up a township.

The site spans 220 acres and lies along the Bombay-Agra highway, 6 km north of Indore city. Around 6,500 plots are provided, ranging in size from 35 sqm. for EWS to 475 sqm. for HIG, as well as some larger plots for multi-storeyed flats, to accommodate 7,000 dwelling units. Sixty-five percent of plots were allocated to the EWS. The upper income plots were integrated into the scheme to be sold at a higher profit, to subsidize the EWS plots and services. The close proximity of location of the

two categories would facilitate a support framework, for the income generating activities of the EWS.

Vehicular and pedestrian routes converge into the town center through their independent networks. These tentacles bind together the separate sectors to the center. The central facilities such as the cinema hall, community hall, restaurants etc. are surrounded on three sides by the EWS housing and are directly connected to the higher income groups with the spine road. Thus a balance is struck

without costly alterations. Space exists for a staircase in the front porch or the rear courtyard for access to the roof slab and serve any further extensions on upper floors (the quality of standard baked bricks allows for three to four storeyed construction on load bearing walls in India). With variations in the *ottas*, entrances, staircases, verandahs and balconies within the same layout, each house gains a unique character. There are further variations in the streetscape due to variations in plot sizes along cul-de-sacs and protruding stairwells along service slots.



Aranya - The Layout.

between reaching all the low-income communities (within five minutes walking distance for families without transportation means) and securing the patronage of the high income families, who will provide the essential financial backbone for the survival of the city center.

The 'sites and services' approach was adopted in the design of houses for the EWS category. A fully serviced plot is allocated to each EWS household, together with the basic building core of w.c., wash and one room. This can then be extended by the occupants at their own pace with their own resources.

The houses are designed with the traditional *otta* (a multi-purpose platform) as a transitional space between the dwelling and the street, followed by a verandah or the public face of the house which can be used for a small home industry, while the secluded courtyard at the rear extends the private space of the house. Between these two, a living area followed by a kitchen and a toilet core are sandwiched, so that the house becomes progressively private. The basic core can very simply be absorbed into future ground floor extensions

Simple on-site precasting techniques were proposed to encourage 'self-help' and set up in-house workshops to create employment within the EWS sections. Precast sections were used for the service cores, which were located in clusters of twos and fours at the rear of the back-to-back plots. Nine to ten plots were clustered around a service court, so that the toilets of all these plots could empty into one manhole with short service lines. The overall cost savings, despite the added cost of land for these service courts was substantial. These courts also double up for any income generating activities or community gatherings or play spaces for children.

To encourage households to merge into interactive groups and thereby allow the uprooted families to re-establish social groups in their new habitats, the dwellings are arranged around short streets, courtyards and cul-de-sacs to form clusters of manageable sizes. To further impart a unique sense of identity to each cluster and its occupants, in sympathy with the cultural traditions of the region, a considered use has been made of public squares, landmarks, twists and staggers in the street patterns, widening



and narrowing of the streets, variations in house elevations etc.

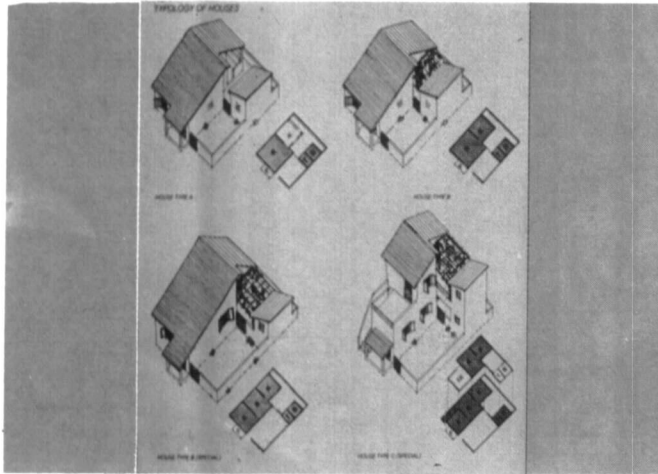
In the planning of a large township, work commences at the master plan level and proceeds down to individual dwellings. The clusters and the dwellings are thus irrevocably locked into the format as residues. To avoid this, detailed dwelling plans and elevations were prepared alongside the master plan to be fused into the whole, so that comfortable homes could 'grow' in harmony with the surroundings.

Aranya – Transformations in a government developed sites and services project.



The gross housing area of about 100 hectares, inclusive of open spaces and peripheral roads is designed for an initial population of 40,000 people, which is anticipated to rise to 65,000 eventually. The gross densities, therefore, work out to 400 to 650 persons per hectare, which, studies have shown to be densities at which housing and infrastructure costs optimize. The overall marketable area at 68%, exceeds normal standards and was achieved by optimizing road networks and encouraging multiple uses of open spaces. A surplus capital (approximately 20%) was generated against the initial investment by judicious location of upper income plots and commercial facilities in areas which would fetch maximum sale prices. The profits from these sales helped subsidize the EWS plots by 35%. As infrastructure constitutes a major component of the total cost, the methods developed for streamlining services in this scheme effected substantial cost savings. The stress laid on flexibility and elasticity at all levels of planning, ensured that the proposals put forward responded dynamically to any feedback received during final detailing, construction and occupation stages, thereby attempting to achieve the social, physical and aesthetic goals (as laid within the framework of severe financial constraints of low-cost housing) identified by the Vastu-Shilpa Foundation.

Belapur – Houses can grow incrementally to the next stage.



Belapur – A Cluster.

