VERNACULAR HOUSING, PAST AND PRESENT

Moderator: Howard Davis, University of Oregon

A Crisis of Modernity: Vulnerability, Earthquakes and Self-Help Housing, from Marathwada (1993) to Gujarat (2001)

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The horrific, dramatic collapse of the World Trade Center has forever changed the landscape of great American cities. While this terrorist act seems a far cry from natural disasters in developing countries, American designers have asked themselves, in essence, the same two questions Indian designers asked after the Marathwada (1993) and Gujarat (2001) earthquakes. Should we carry on in as normal a way as possible and rebuild in-situ, demonstrating our perseverance and resolve? Or, has death and destruction been so great, so damaging to our psyche, should we preserve the site in memorial to loved-ones lost? There is, of course, no one right answer to these questions. Only patient understanding and careful public processes will help the public and designers understand what should be done.

In housing disasters, unfortunately, what often does get done is created out of heated political passions, designers' egos, and the financial needs of developers and banking institutions—with only lip service being given to peoples' participation. Too often this has led to the mass relocation of communities. Over the last 30 years tens of thousands of villages and towns have been relocated for development work (dams, aqueducts, frontier development, post-disaster rehabilitation, etc.), with many of these projects becoming well known failures: abandoned or never occupied as people return to, and rebuild at, their old settlement sites.

Nine years after the Marathwada earthquake projects have followed much the same pattern—despite the effort to involve local communities through "self-help housing" methods. Although most villagers have resolved to stay on at relocated sites, nearly half the housing units lie abandoned or only used as storage spaces. Given that these projects represent the first large scale, rural, "participatory" post-disaster housing effort in the world—and its policies are considered a "watershed" event in the disaster management field—one has to as: what went wrong? And, how did this failure influence housing efforts in Gujarat State, location of an even more devastating earthquake in 2001, and home to some of India's worst communal riots in 50 years?

This paper examines the social, spatial and technological impact of post-disaster housing projects on rural communities in Marathwada, India. Based on field research in 1994 and 2001, as well as academic work, this case study sheds light on an area of design that is poorly understood by architecture and planning professionals. Section I provides background information and briefly examines how post-colonial land reforms and market competition marginalized artisan castes and vernacular building technologies. Section II contrasts this "vulnerability" perspective with the formal relocation program, which restructured space and social life around urban environments in a failed attempt to mitigate future disasters. And section III links the work in Marathwada to the on-going participatory housing work in Gujarat state, in order to understand the evolution of post-disaster housing policies over the last decade. This paper, in short, is a critique of post-disaster housing projects in India, as well as a call on professionals to rethink their housing practices in developing countries.

I. Vulnerability and Housing

Established disciplines and dominant institutions of government have chosen to treat [disasters] not as crisis of modernity or the predicaments modernity creates on the ground. [Rather,] these hazards are placed, intellectually, socially and geographically, at the frontiers, as part of the unfinished business of modernization. (Hewitt, 1995)

On the early morning of September 30, 1993, an earthquake of 6.3 on the Richter scale devastated Latur and Osmanabad, two of the poorest agricultural districts of Maharashtra State. The epicenter, near Killari Village, is part of a newly reactivated fault line in the Marathwada region. With over 8,000 people dead, 16,000 injured and well over 250,000 homes seriously damaged, this earthquake is one of the largest natural disasters in India's history since independence from British colonial rule in 1947. After the earthquake the Government of Maharashtra and World Bank initiated the Maharashtra Emergency Earthquake Rehabilitation Project (MEERP)—a 276 million dollar aid program that used self-help housing methods

to relocate 74 villages near the epicenter, and reconstruct homes at another 2,400 villages in the periphery (Nikolic-Brzev et. al. 1999).

Many villagers killed or hurt by the earthquake were from the Maratha community—a land owning majority that had increasingly become involved in cash crop production since the mid 1980s. The remaining, approximately 50 percent of the population, were marginal or landless farmers and services castes, consisting of settled tribes, Dalits, and other commonly disenfranchised groups (TARU, 1993). Within this group one finds building artisans—the Suthar who are carpenters, the Gawandi who are masons, and the Wadar who are stone cutters. Employed through both cash and barter relationships, these artisans were highly skilled at producing *wada* style courtyard homes, which accounted for approximately 80% of the rural housing stock in Latur and Osmanabad districts. Concrete construction, by comparison, accounted for only 2%. Vernacular homes consisted of three basic spaces: at the center or front of the lot were courtyards for keeping cattle, bathing, cooking, and storing farm equipment; open to this space were verandahs used for all kinds of living and working activities; and at the very back of the lot were store rooms used for the long term storage of grains, and daily used items such as food and utensils (Desai, 1996).

Despite the traditional appearance of this housing style, land and housing relationships had changed over the years. During colonial times artisans exchanged their services for rights to farm small plots of land or receive portions of crops as payment. But with Nationalist land reforms in the 1950s—which turned tenant farmers into land owners—artisans lost these customary rights and their work shifted mostly to a cash basis (Dadekar, 1986, p. 127). With the higher income potential in cities like Mumbai, the limited benefit of «green revolution» agricultural practices, and the growing disillusionment of villagers with local materials—this shift in land holding policies took its toll on vernacular building trades.

Among other things, Wadar community households, who were especially enterprising, had increasingly worked as sub-contractors in the formal building industry—not only as stone cutters, but also as stone masons. "Their control over stone cutting activity" gave them "comparative advantage versus the Gawandi" to obtain contract arrangements (TARU 1993, p. III: 13) in the construction of government buildings and house additions. The occupational pattern of the Gawandi also shifted in recent years: they became involved in agricultural production, and younger masons were less willing to take up the vernacular trade as a profession. This led some Gawandi to blame the low-quality masonry walls (which had round, improperly

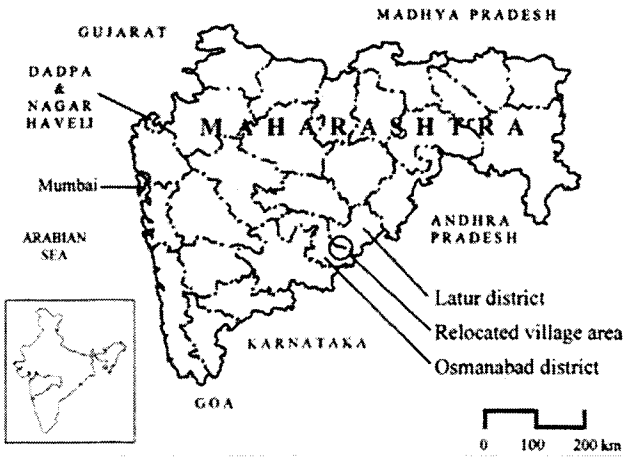

Fig. 1. Earthquake location map.

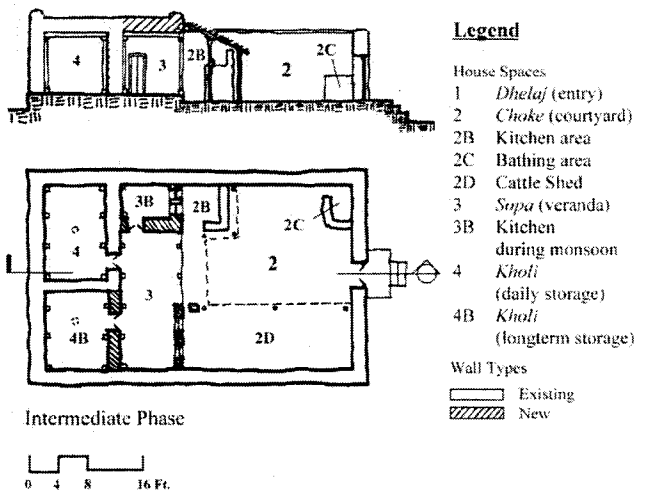

Fig. 2. Section and plan of a typical wada style house.

bonded stones) not just on households who could not afford high-end work, but on the Wadar community who had encroached upon their traditional domain and did not have good skills (p. III:12). Although no in-depth study of the local building industry has been done, there was field evidence that these social and economic changes contributed to a deterioration of building skills. Among other things: (a) in many villages older buildings survived the earthquake (including temples and homes of stone masons) while newer buildings collapsed; and (b) structural engineers working on relocation projects found that older artisans understood proper stone masonry techniques while younger artisans were less knowledgeable and harder to retrain.

Thus, one can point to a wide range of issues that prepared the ground for the disaster that followed: post-colonial land reforms, green revolution technologies, the migration of artisans to urban centers, the integration of some communities into the formal building industry, and so on. All of these factors contributed to detrimental changes in vernacular building practices—a conclusion that is consistent with vulnerability studies that demonstrate how natural disasters are linked to development processes (Hewitt 1997; Blaikie et. al. 1994). To borrow Hewitt's phrase, the Maharashtra earthquake was, indeed, a «crisis of modernity.»

II. 8 Years of Housing Lessons

Even though this «vulnerability» perspective was obvious to some Non-Government Organizations (NGOs), it ran counter to the conventional wisdom of hazard and housing experts. Rather than see the earthquake as a crisis of modernity, most policy makers viewed the collapse of traditional buildings as the result of the «backwardness» and «poverty» of rural life. As such, the lack of modernity became the culprit and disaster mitigation efforts became focused on a series of high tech solutions, namely: the rapid provision of temporary shelter, and the mass production of housing using industrialized building materials (Salazar 1999).

In terms of villagers' long term safety, this approach was no small policy mistake, as it was extremely expensive and difficult for contractors to mass-produce homes in rural Marathwada. The scarcity of water, extremely hot temperatures and lack of high quality sands made it impossible to insure good quality construction. At Killari village, for example, distrust of concrete block construction ran so deep that it contributed to the abandonment of entire neighborhoods. As explained by Professor Gowande, the most well known civil engineer working in the region:

When the Collector was visiting [a villager] took one piece of block *and he just strike it on his head* and he showed it is broken. [He exclaimed,] '*Such weak* and *such faulty* concrete blocks are used in my house, *how should I go into that house*?' [...] When news came into the paper, photographs were taken, *nothing* happened, same

Fig. 3. Abandoned row of housing, new Killari, 2001.

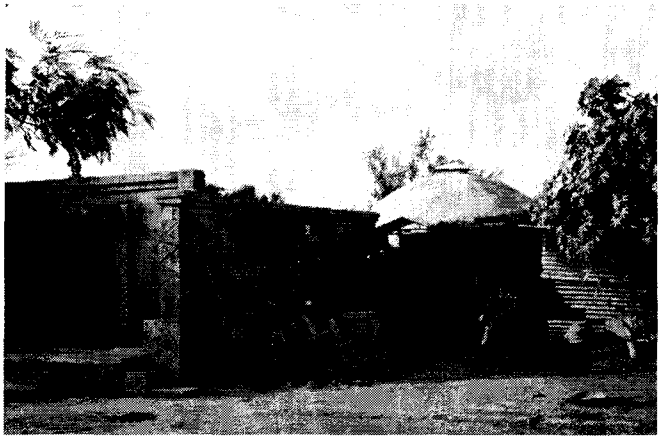

Fig. 4. Sugreev's home, new Gubal, 2001.

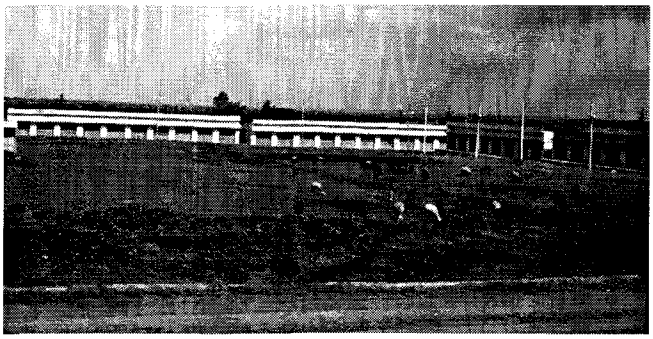

Fig. 5. Abandoned shopping center, new Killari, 2001.

method was continued to complete the houses.

Even projects by some NGOs have become notorious examples of inappropriate housing, marginalizing villagers along caste and class lines. Take, for instance, the story of Sugreev—a Muslim resident of new Gubal village where about 225 families were relocated into geodesic domes. Unlike upper-income Hindu families who were able to demand rectangular homes from the government, her family had no choice but to accept the donor organization's social experiment of geodesic living. While lightweight, seismically sound and reminiscent of Muslim forms, the dome has proven to be completely inadequate for anything other than storage, and even for this it seems awkward to her.

Nonetheless, like other marginal farmers (who own, perhaps, a few acres of land and a cow) Sugreev's family accepted the dome and has coped with this purely technical solution to earthquake hazards by spending tens of thousands of additional rupees (not counting their labor) to build two additional rectangular rooms: one for sleeping and another for cooking. This has helped create a more traditional, rectangular, *wada* style courtyard house form so typical to this region. To pay back the construction loan, both her son and husband are now indentured to a local landlord for 2 to 4 years at one half their normal income.

While this may seem extreme, it is not an uncommon tale. Indeed, in the wake of the Marathwada earthquake, Sugreev's story typifies just one of many problems villagers face 9 years after the disaster. Other major problems include:

- Excessive scale. New villages are 5 to 10 times as large in area as old villages. In some places, where villagers have remained in communal groups (but are now located far from each other) caste related problems have become exacerbated. In other places, where the mixing of community and income groups occurred, there is improved social relations but many complain they have little time to socialize.
- Increased transportation costs. Complicating the problem of scale is the wide spread problem of living too far from one's farmland. This has translated into less free time and an increase in household transportation costs, mostly through motorcycle and jeep fares.
- Excessive amounts of infrastructure. Water drainage systems are in complete disrepair, silted up and un-maintained. Road networks are greatly underutilized.
- Abandoned shopping centers. Shop owners have preferred to build shops along the road in front of their new homes, as they did at old villages.
- Lack of compound walls and courtyards. Compound walls, for most families, are still unaffordable and only partially complete. This has left residents with no privacy, and exposed them to theft and the harsh local climate. This has a similar negative impact on public open spaces and streets.
- Use of homes as storage space. The socially inappropriate layout of new homes, which often have leaky roofs and excessive light and air infiltration through large windows, has forced many families to only use them for storage purposes.

III. From Marathwada to Gujarat

Despite these obvious problems, the MEERP continues to be remembered as a success by researchers living outside of India (e.g. Nikolic-Brzev, 1999). Within India, however, the relocation, reconstruction and retrofitting work is a well known for its faults. Indeed, rather than being a straightforward idea, the World Bank's ethic of participation was a contentious topic, debated not only in policy circles, but in the popular press and between design

professionals (e.g. Moore, 1993; Sharma, 1993; Unhale, 1993). Out of these debates, two methods of participation stand out as central, conflicting tendencies: (a) *participatory rural appraisal* (PRA) methods of disaster mitigation supported by the central government and (b) *enablement housing policies* institutionalized as the official response by the GoM and World Bank. Understanding the differences between these mechanisms is essential if one is to understand the work currently happening in Gujarat.

Participatory Housing Policies

With its focus on "participation" and «poverty» in the 1980s and 1990s, World Bank policies shifted toward the use of Participatory Rural Appraisal (PRA) methods, where project beneficiaries are consulted with during policy formation (Mosely, et al., 1995). In Marathwada, PRA methods were done through the Ministry of Urban Development who commissioned The Action Research Unit to carry out what is still the only comprehensive report about housing conditions after the earthquake. In their report and participatory housing work at Holi village, TARU advocated two basic strategies: (a) hire local masons, stone cutters and carpenters in the production of modified, earthquake-safe vernacular homes built mostly with local materials; and (b) base the spatial planning of new villages, and the design of houses, on vernacular forms (TARU, 1993; ASAG et al., 1994).

This disaster mitigation approach, of course, was not what the World Bank and GoM had in mind when they pushed for people's participation. Instead, they moved forward with enablement housing policies. Enablement, in a broad sense, refers to poverty alleviation efforts in the urban sector—where the provision and maintenance of slum improvement projects is carried out by NGOs, CBOs and private companies, and linked to larger macro-economic policies through the relaxation of government controls on housing markets. In Mumbai, the Maharashtra Housing and Area Development Authority (MHADA) was charged with implemented these strategies (Pugh, 1995). After the earthquake, MHADA expanded its efforts to include the disaster affected region by designing prototype concrete homes that could be built by private contractors and financed through the GoM with World Bank loans. The basic approach was to build «core houses»—where a small concrete room was mass produced and the spatial design allowed for various pre-planned areas of house expansion that emulated vernacular architecture.

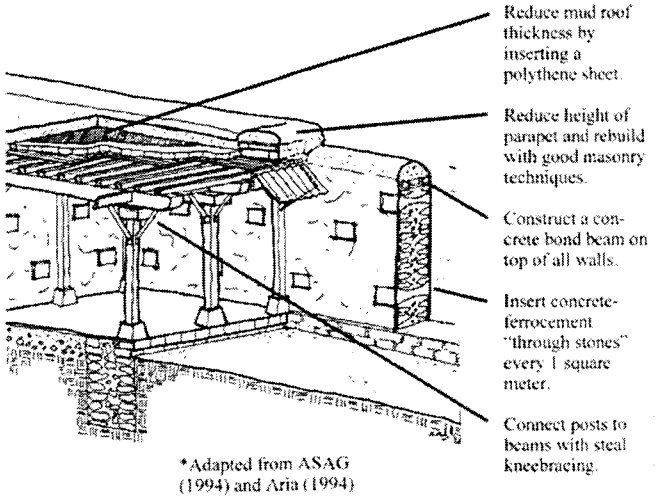

Fig. 6. Retrofitting modifications to vernacular wada style housing, developed by Dr. Aria (1994) and Rajendra Desai, formerly of ASAG (1994).

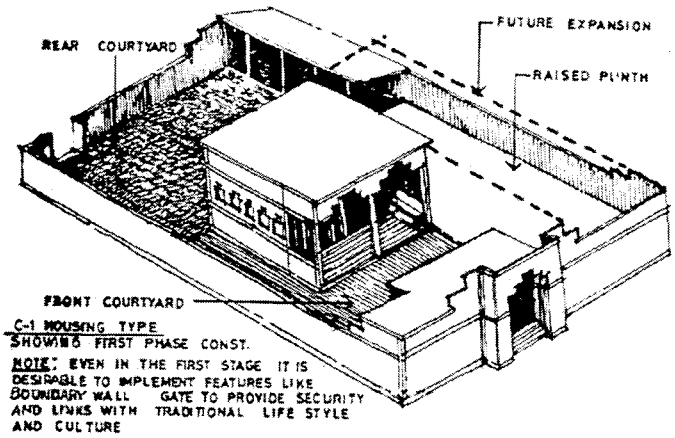

Fig. 7. HUDCO's «core-house.» HUDCO (1994)

Fig. 8. Newly built wall that collapsed after only 2 monsoon seasons, new Sirsal, 1996. Photo courtesy of Rajendra Desai.

The GoM and most donor agencies, such as HUDCO, adopted this standard squatter housing approach for use at relocated villages. While in the periphery zones—where villages were repaired and retrofitted in-situ—a similar program ended up promoting the construction of new room additions using brick masonry (ASAG 1998; Jigyasu 2002; Salazar 2002). Thus, rather than retrain artisans in earthquake-safe stone masonry techniques on real construction projects, as advocated by PRA research, only a few token seminars were done to educate artisans and local builders about building in earthquake zones with local materials. As a result, only a few years after the quake, while many villagers and artisans returned to building stone walls, they have repeated the same, basic masonry mistakes as they did in the past.

Retrofitting: a pressing need in Gujarat

This policy history, and the failure of disaster mitigation efforts described above, are important to keep in mind because they have influenced post-disaster housing work Gujarat state. While some relocation work in Gujarat is going on in the same old wrong-headed way, the failures in Marathwada have created a lot of momentum to rebuild and retrofit settlements in-situ rather than relocate. This general shift in policy and practice is the outcome of several factors.

First, the social and physical geography of Gujarat is extremely diverse and difficult for organizations to handle with any one general approach. The size of Kutch alone, the main district affected by the quake, is around 4 times as large as Latur and Osmanabad districts. The settlements are much farther apart, making transportation costs, staffing, and material production much more costly. And the diversity of populations affected—which ranges from desert goat herding families in small hamlets of 3 or 4 homes, to shop keepers in large urban settlements—has necessitated a decentralized approach.

Second, unlike Marathwada residents the people in Kutch are familiar with disasters, especially repetitive cyclones. With the lack of visibly of government aid in the past, people became accustomed to rebuilding on their own. Thus, after the quake the initial Government call for relocation did not go over well, people did not trust that aid would ever come through, and most did not see the need to relocate. Thus, within the first year after the quake, government policy makers had recognized these complexities, as well the problems with relocation work in Marathwada. Subsequently they crafted polices to encourage reconstruction and retrofitting in-situ rather than relocation. While this approach is an improvement over work done in Marathwada, it is not without problems. There are now a variety of in-situ projects created with little regulation and control on building standards. Much of what people have built with government funds repeats many of the same basic masonry problems as in the past. To correct this, the Gujarat State Disaster Management Authority (GSDMA) has launched an effort to train government engineers in earthquake safe building and retrofitting methods, and they are allowing a second installment of financial aid to be used by homeowners to retrofit work already completed. This shift in policy is largely the outcome of work by Dr. Aria (Roorkie University, UP) and Rajendra Desai (CEDAP, Ahmedabad), who developed and refined retrofitting methods while working on vernacular stone masonry buildings in Marathwada.

IV. Conclusions

Thus, one can conclude that despite the rhetoric of participation, the GoM's and World Bank's housing policies became the vehicle for post-disaster norms: the marginalization of local artisans and building

material markets through the inappropriate use of housing technologies. Their use of vernacular space via «core house» design methods, in short, became symbolic of a standard, thinly disguised urbanization scheme. Legitimating this focus of development was the well meaning work of structural engineers, architects, building and planning officials, World Bank consultants, some NGOs and others who were necessary actors in re-creating this crisis and modernity.

Additionally, one can conclude that, despite the failures in Marathwada, there is a growing consensus between Government agencies and the NGO community about the importance of using participatory housing processes after disasters. This consensus has grown out of a learning process and the fact that many of the same organizations and individuals who worked in Marathwada are now working in Gujarat. Besides Rajendra and Rupal Desai of NCPDP (Ahmedabad), there is Praveen Pardeshi of UNDP (Bhuj), Kirtee Shah of ASAG (Ahmedabad), Bhanubhai Mistery of UNANTTI (Bachau) and Jhanvi Andharia of ANANDI (Bhavnagar) and others, all of whom are playing an important roll in redefining the field of post-disaster housing in India. At the root of their learning experience is the recognition that participatory housing is not about building a product—but about empowering vulnerable communities through the housing process. As summed up by Bhanubhai Mistery:

Only being able to read a map will build confidence. I walk faster than you, but if I don't know how to read a map, I might go two kilometers, pass someone and ask, «*Is this the way* to Nurva?» And he'll say, «No.» And I have to come back. But you might say, «*Show* me the way to Nurva on the map, and I'll hire a taxi.» Since you will not get taxi till evening, you start walking anyway, and still reach faster than I. This is empowerment: the ability to read a map is the empowering process.

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