

# Normal Life after Disasters?

Eight years of housing lessons, from Marathwada to Gujarat

Alex Salazar

**T**he 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 the recent earthquake disasters in Marathwada and Gujarat, American designers are, in essence, asking themselves the same two questions that Indian designers have asked. 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 and resolve what should be done.

In housing disasters, unfortunately, what often gets done is an outcome 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, unfortunately, this has led to the mass relocation of communities. Over the last 30 years probably 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.

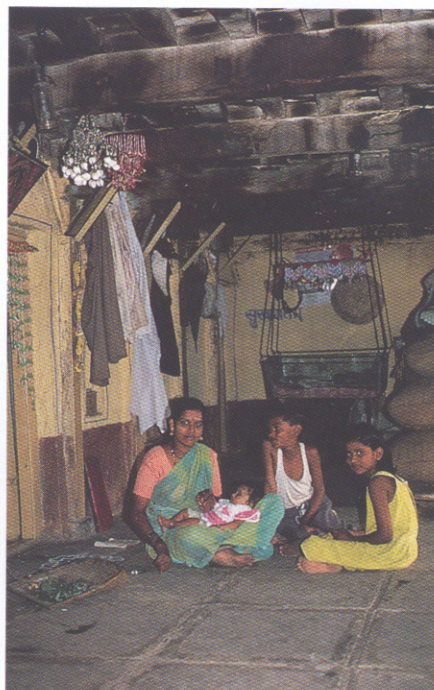
After the 1993 earthquake, in the

**Right** Completely built upper-income courtyard house. Observe the government built construction at front; owner built house extension at back. New Utka, Marathwada  
**Below** Abandoned shopping centre. New Killari, Marathwada

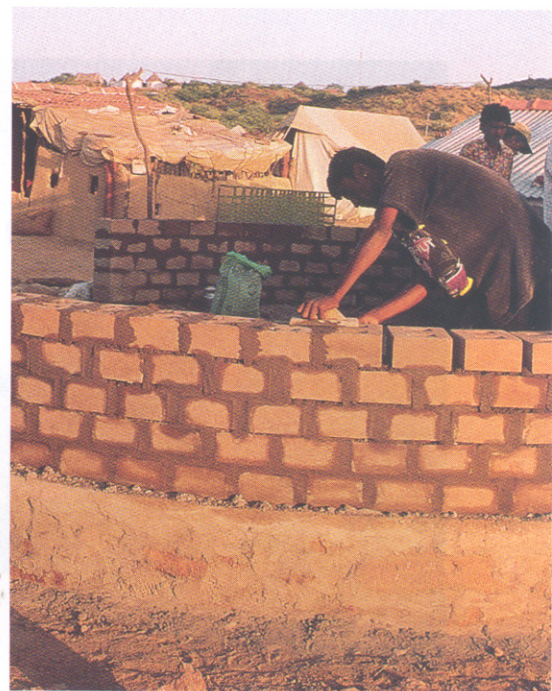


core disaster affected area of Marathwada, projects followed much the same pattern—although most villagers have resolved to stay on at relocated sites despite all odds. Take, for instance, the story of Sugreev, a resident of new Gubal village where about 225 families were relocated into geodesic domes. Unlike upper-income 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 light weight and seismically sound, the dome form 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 in the village (who own, perhaps, a few acres of land and a cow) Sugreev's family has accepted the dome and coped with this purely technical solution to earthquake hazards by spending tens of thousands of additional rupees (not counting their labour) to build two additional rectangular rooms: one for sleeping and another for cooking. These are much more to her liking and have helped create a more



**Above** Residents at Almala village living in their home that was retrofitted by the Ahmedabad Study Action Group. The steel knee bracing was added to the wood posts. Almala, Marathwada  
**Right** Stabilized compressed mud block construction in lieu of normal mud block/wattle and daub/clay lump construction at a traditional bhunga house in new Darshan handicraft village, by Abhiyan, Darshan, Kutch



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 two to four years at one half their normal income.

While this example 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, as well as the overwhelming will of residents to make do with what they have, to live life in as normal a way as possible. Given the recent Gujarat earthquake disaster, it seems important to review some of the lessons learned over the last eight years in Marathwada; and, by comparison, to assess current housing issues faced by government and non-government organizations in Gujarat. With this in mind, let us first turn to examine housing conditions in Marathwada...both facts and anecdotes from a recent field visit to several dozen villages.

#### Home Sweet Homelessness

While Gubal's domes may be at one

extreme of inappropriate house design, the rectangular bungalows created by government and non-government donors in Marathwada are only marginally better. In fact, in the fifty two core disaster affected villages it appears, eight years after the quake, that only about half the relocated families are sleeping indoors! One major reason for this is that residents still distrust the quality of construction and are scared of repeat disasters. This is a legitimate concern according to the local engineers who observed minimal curing of concrete at many construction sites owing to drought, and the lack of oversight and enforcement of building codes. At one village it was widely reported that a villager demonstrated how shoddy the construction was by breaking a concrete block over his head!

On the other hand, some projects are supposedly fine in terms of technical construction. Yet, villagers have still found enclosed, interior rooms to be uncomfortable. Like residents at Gubal, most use enclosed spaces only for storage and *puja*, while preferring to build their own temporary *kutchra* and permanent *pucca*





**Left** The main market street in central Bhuj, still functioning despite a dramatic drop in business  
**Right** Abandoned row of housing, blocks. New Killari, Marathwada



extensions for day to day living. For the few middle and upper income families who received the government of Maharashtra supplied housing, this incremental, self-help process was thankfully allowed for. Thus, at places like Utka village, one can find new houses in various stages of expansion, some with house plots already completely built-out, closely following the traditional *wada* style courtyard house form.

Yet, even at government designed villages, many problems remain: No effective earthquake education/construction training has occurred in the core, relocated villages. While house extensions are being built, there is little connection between old and new walls, and new masonry work repeats many of the same basic masonry mistakes as in the past. Villagers, in short, continue to live in extremely dangerous housing conditions despite all the time and capital spent to relocate them.

Bathrooms, which have been provided with each housing unit, are not used. Villagers have preferred to relieve themselves in the fields, in the streets or in the corner of their compound, as they normally did in the past. Thus, nearly all bathrooms are only used for storage purposes.

Showers, which were also provided at each housing unit, are being used. However, nearly all families have

redesigned them in the traditional *vattal* style, with built-in water storage and heating (by burning scrape wood or cow dung). This indicates that villagers would have built their own shower facilities had it been left to a self-help construction process.

Roof leaks, and excessive light and air infiltration through large windows, are occasional complaints by villagers who find their new homes uncomfortable. Generally, however, they have simply learned to cope with these conditions—any shelter being better than none. At some places where leaky roofs have been a major problem, donors or the government have returned to do patch up work. 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, which are common complaints. The lack of compound walls has had a similar negative impact on public open spaces and streets.

#### **Planning for Relocation and Abandonment**

At a village planning level, relocated families are also living under unnecessarily difficult housing conditions. While trees are just beginning to take root and provide shade to the sprawling streetscapes,

the reorganization of village life into industrial townships, rigidity of planning methods, immense scale of new villages, and lack of sustained maintenance of public infrastructure and buildings, have undermined the quality of the built environment.

Some obvious problems are: Local village councils (*panchayats*) have not had the financial and/or technical capacity to maintain excessively sprawling public infrastructure; practically all storm water drainage systems are in complete disrepair, silted up and unmaintained, one-half to two-thirds of road widths are not used. They were designed excessively wide; new centralized shopping complexes that open onto common public spaces are mostly deserted. Shop owners have preferred, understandably, to build shops along the road in front of their new homes, just as many did at old villages.

Perhaps most problematic for villagers has been the uneven, often random reorganization of social relations owing to hasty planning decisions. In some places, where villagers have remained in their communal groups (but are now located far from each other due to the immense scale of the new village), caste related problems have reportedly become exacerbated. In other places, where the mixing of community and income



groups occurred, there are reportedly improved social relations, but some complain that they now live far from friends and relatives.

Complicating this is the widespread problem of living too far from one's farmland. The scale of new villages (up to five to ten times as large in area as old villages) has translated into less free-time and an increase in household transportation costs, mostly through motorcycle and jeep fares, which are particularly taxing on the poor.

This has led a number of families to shift into self-built homes on their farmlands. Not surprisingly, some wealthy families (who own but do not farm the land) have even shifted into second homes in small towns, preferring to rent out or abandon their relocated homes all together. Not even the new Killari village, where extensive institutional and professional design work was done, has this problem been resolved: entire rows of houses can be found vacant eight years after the quake!

### **From Marathwada to Gujarat: Reconstruction in-situ and Retrofitting**

Thus, in general, one can say that relocation projects in Marathwada, both in terms of house design and settlement planning, were very poorly done, with few exceptions. Nonetheless, many of the same agencies and

individuals involved in Marathwada are also involved in Gujarat, and their experience is invaluable. While some relocation work is going on, in the same old, wrong-headed way, there also is a lot of momentum to repair and rebuild settlements in-situ. 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 four times as large as Latur and Osmanabad districts, the core area affected in the 1993 Marathwada quake. The settlements in Kutch are also generally much farther apart, making transportation costs, staffing, and material production much more costly. And the number and diversity of populations affected...which ranges from desert goat herding families in small hamlets of three or four homes, to shop keepers in large urban settlements...has necessitated a decentralized approach.

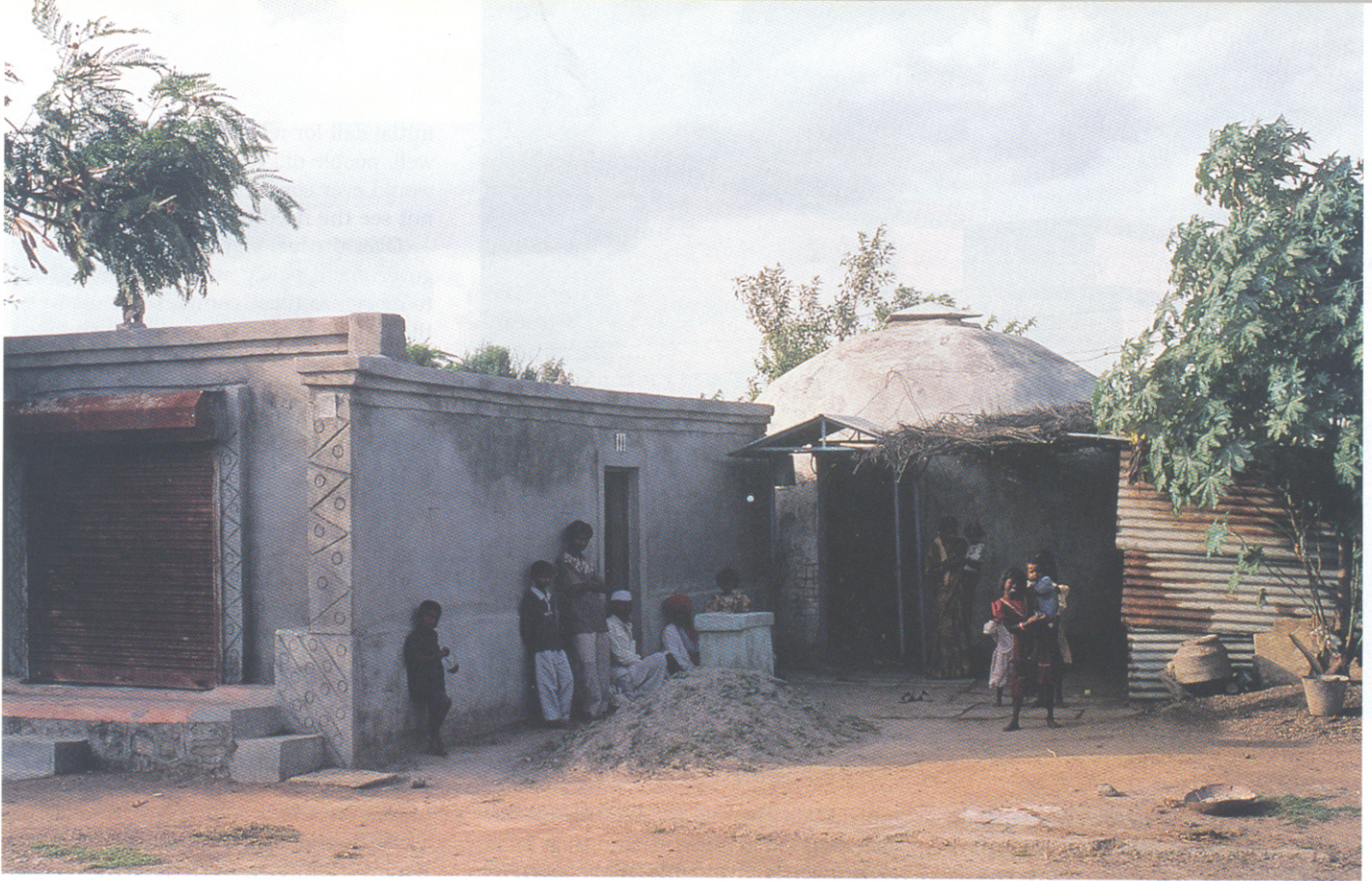
Second, it has been widely reported that people in Kutch are familiar with disasters, especially repetitive cyclones. With the lack of visibility of government aid in the past, people have become accustomed to rebuilding in-situ on their own. Thus, after the quake, the

initial 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.

Over the last eight months, government policy makers have begun to recognize these complexities, as well the problems with relocation work in Marathwada, and have subsequently crafted policies that leaves the decision to relocate on local residents. Government has also taken the position that it will generally only supply funding for individual homeowners, and it will avoid being in the business of building new homes and settlements. This has allowed new house construction in the region to be done in a more decentralized manner, with most households rebuilding homes in ways they are accustomed to, using skilled and unskilled labour hired independently or secured through NGO/donor involvement. The majority of this work is in-situ reconstruction.

While this approach is an improvement over work done in Marathwada, it is not without problems. There are now a variety of housing solutions being created with little regulation and control on building standards. Much of what people have built with the first of two government aid installments repeats many of the same basic masonry problems as in the past. Moreover, the relatively few relocation projects being done are of varying degrees of quality.

These problems overlap with what are now critical issues: technology transfer and retrofitting. In Marathwada two basic efforts were used after the 1993 quake. The main programme was spearheaded by the government of Maharashtra and a non-government organization, Swayam Shikshan Prayog, who originally planned to propagate repair and retrofitting methods through the creation of women's groups in thousands of villages. While the creation of women's groups may have been beneficial in terms of equity issues, the programme ended up promoting the construction of new room additions using brick masonry. Thus, while each family may indeed have one new earthquake safe room, villagers throughout the periphery are still living in damaged stone masonry



Sugreev's home: Permanent construction on the left built as a small shop and for sleeping; temporary construction on the right for the kitchen. New Gubal, Marathwada

buildings, and have little understanding of proper stone masonry construction. Another effort was spearheaded by the Ahmedabad Study Action Group, which worked directly with artisans and homeowners to retrofit houses in a handful of villages. While successful at an individual level, with homeowners and artisans learning improved building methods on-site on real projects, the methods have not transferred to the public at large.

Thus, as any casual visit to Marathwada will reveal, villagers and artisans continue to build in both brick and stone and they are repeating, eight years after the quake, the same basic masonry mistakes as in the past. And so we arrive at a major dilemma for the rebuilding effort in Gujarat: how to learn from the technology transfer and retrofitting experiments in Marathwada while insuring that homeowners and artisans actually end up using these techniques in the future?

Fortunately, there is an ongoing project through the Gujarat State Disaster Management Authority (GSDMA) to train government engineers

in earthquake safe building and retrofitting methods. The government is also moving toward allowing the second installment of financial aid to be used by homeowners to retrofit work completed with first installment funds. Only time will tell if this new effort will work in the field, and if disaster safe building techniques are absorbed into the local building culture.

#### **Housing Experiments: Some Final Thoughts**

Perhaps the most encouraging news from Gujarat is the innovative, collaborative effort between NGOs, the United Nations Development Programme (UNDP) and the government of Gujarat. Under the Kutch Navnirman Abhiyan NGO umbrella, a group of about fourteen NGOs are receiving technical guidance in building technologies, planning and house designs for their work at a grassroots level. While the UNDP is serving as an intermediate link between NGOs and the government...for both issuing policy as well as integrating feedback from the grassroots into policy decisions. At a

local level, the results seem very promising, with in-situ and relocation work being done in low-cost technologies, mostly local materials, and an eye toward vernacular planning and house design patterns. While there are bound to be difficulties with this effort, this is a new, innovative, experiment in social-political organization after disasters, and it is a major step forward out of the political morass and NGO infighting that characterized the work in Marathwada. This shift in policy and practice speaks volumes about the will of various organizations to embrace a self-help ethic, one that respects the need of disaster affected communities to return to living as normal a life as possible. ☛

*The author is an apprenticed architect specialized in low-cost housing in Oakland, California, USA, and who recently visited Marathwada and Gujarat from August to September, 2001. He previously lived in Marathwada in 1994 while doing research for non-government organizations. (e-mail: alexsalazar1138@hotmail.com)*