SLUM REHABILITATION IN
SAMBHAJINAGAR, SANGLI, INDIA:
A SIXTY-FAMILY DWELLING

By

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Date
ARTIST STATEMENT

Interior and furniture design bring art directly into people's lives in ways that are immediate and relevant. I strive to find ways to make this affordable and accessible, so that anyone can have contact with thoughtful and surprising design. I hope to create work that can be applied to environments where resources are limited and inexpensive furnishings are appreciated. An economy of materials doesn't necessarily mean the sacrifice of form, and I continue to pursue this concept.

I spent half of 2007 living in Pune, India, and working for Shelter Associates, a Non-Governmental Organization (NGO) created and run by Indians and consisting of architects, designers, and engineers. Shelter works to empower slum residents by designing affordable housing to replace inadequate shelter. I worked on design projects for Shelter in cooperation with slum residents, including my own project, designing furniture and housing for a 60-family slum in Sangli, India.

India's economy has benefited from unprecedented economic growth in the last ten years, but this new wealth is unevenly distributed among the population, with 350 to 400 million Indians still living below the poverty line. Although 75 percent of those below the poverty line live in rural areas, according to the 2001 Indian census, 40 million people live in Indian slums out of a population of over 1 billion.

Illustrating the divide between rich and poor, in Maharashtra, where Pune and the state capital Mumbai are located, 32 percent of the people live in slums—10 percent more than the national average—despite living in the richest state in India.¹

I hope my work illustrates the vibrancy of the slum residents and the
commonalities between their lives and those of people everywhere, reflecting shared
common experiences and universal aspirations. There are many misconceptions in
the West about what life in a slum is like and who slum residents are, and I'd like to
help bring accurate information to my audience. I plan to continue my work with
Shelter and with the people of Sangli and attempt to implement some of my designs.
RESEARCH

My research identifies the unique characteristics of typical slum dwellings in Pune, India. My design will propose a modest, affordable living module to serve the basic needs of typical slum residents. Learning about the ways in which they meet their basic needs, prepare meals, and care for their families is a chance for me to put aside the Western standards I've learned and attempt to create a new model based on my research and the Indian federal guidelines for slum rehabilitation.

I made a research trip to Pune, India, in November of 2006 to begin work on my thesis and interviewed ten families in the Gultekdi slum during my one-week stay (III. 1). While in Pune, I also visited the offices of Shelter Associates (http://www.shelter-associates.org/), an NGO (Non-Governmental Organization) of architects, designers, and engineers working to empower slum residents and design affordable housing to replace inadequate shelter. Their website details some of the fantastic success they've had in the recent past. The architect who founded and runs the NGO is a woman named Pratima Joshi, a 2006 Ashoka Fellow, who completed her post-graduate work in Building Designs for Developing Countries from Bartlett University in the UK. She is a brilliant public speaker, architect, and advocate for the poor.
I was accepted for a six-month (unpaid) internship from the end of May through the end of November 2007 with Shelter Associates and worked on my thesis there while also donating my time to this worthy organization (Ill. 2). What I found is that India is an economy in transition transforming itself at a tremendous rate. In urban centers like Pune, white-collar jobs are being created in technology, and the service sector is keeping pace with luxury housing, shopping malls, and megaplex movie houses with businesses like McDonald’s, Baskin-Robbins, and Starbucks-inspired coffee shops. This economic growth has not yet reached the poorest sections of India’s socioeconomic classes.
Shelter Associates, August 4, 2007 (Wayne Jones, 2007)

In Pune, which is roughly the size of Atlanta, 40 percent of the population lives in slums. Problems are even worse in Bombay/Mumbai, where this transition is magnified and the real estate market is compared to Tokyo and Hong Kong. Even working professionals have difficulty finding affordable housing, and most people live in multi-generational households for this reason. I discovered that there is a great deal of prejudice in India against slum-dwellers, and some see them as migrants who don’t belong in the city. Most slum-dwellers in urban Maharashtra came in the late 60’s and early 70’s from rural areas of the state during a period of drought, seeking food when agriculture could not sustain them. Therefore, some of these families have been in the cities for generations, and don’t see themselves as “outsiders” any longer. Without them, the economy would collapse. They wash the clothes, clean the houses, build shopping malls, repair automobiles, maintain roads, care for children, and do everything else middle-class professionals don’t have time to do for themselves.
Most of the middle-class has never entered a slum or a house within a slum, even though some of those closest to them (cooks, maids, drivers, etc.) live there. Misconceptions abound about life in the slums, and visiting people in their homes reveals that these are the working poor who support the rest of the city—not criminals or other negative stereotypes the middle class preserve about who lives there and why.

I began my work with Shelter by studying the local slum rehabilitation guidelines and building regulations and developed a decent grasp of how the existing rehab system works financially and politically. I memorized local building guidelines such as the minimum setback of new construction from main roads, or maximum width of corridors in new buildings (1.3 to 1.5m is preferred...beyond 1.8m, the cost skyrocket). I also studied reports detailing my organization's reaction to the existing regulations for commercial redevelopment of slums and how they could be modified to benefit all parties involved: landowners, developers, taxpayers, and most importantly, the families who live there. My first assignment was to create a new site plan for a Pune slum I visited (Lok Seva) that would allow all 364 families to remain on the site (Ill. 3). It was based on the existing federal rehabilitation guidelines and would maintain amenities already on the site (a school, Buddhist shrine, gym, community center, and seven shops). It is a requirement that all existing amenities must be left in place or replaced with equal space in the rehabilitated site. I was working with about four building plans that have been used before, and I had the freedom to modify them while staying within regulations. Our objective was to avoid building above four stories, or G+3, as they say. (Like Europe, the first floor is
"ground floor" and the 2nd floor is the "first floor.") Many of the slum rehabilitations done in Pune and Bombay/Mumbai are G+11! They just create "vertical slums" that are worse in some cases than the old ones.
336 HOUSES (342) W/7 SHOPS
(G+4=8, G+5=4)
TOTAL AVAIL. AREA: 7655.18 SQ.M.
BLDG SITES: 2048.91 SQ.M. (26.8%)
OPEN SPACE: 1498.34 SQ.M. (19.5%)
ROADS: 1048.56 SQ.M.

SITE PLAN

Lok Seva Site Plan (Wayne Jones, 2007)
Shelter Associates' mission is to encourage local government and developers to adapt the existing rules for commercial redevelopment/rehabilitation of slums to avoid construction of hellish "vertical slums" while still respecting the rights of developers and landowners to be compensated for their land and investment. It's a system still in its infancy, but it holds the promise of creating a spectrum of housing that accommodates all socio-economic levels with affordable housing without burdening the struggling taxpayer. It's a complicated scheme (and one vulnerable to fraud at the hands of greedy developers and landowners), but Shelter is working with the local government to try to close the loopholes that allow developers to make ridiculous amounts of profit on these schemes while building unlivable communities.

I succeeded in creating a site plan for Lok Seva that accommodated the needs of the community, keeping all 364 families on site, while still meeting existing rehabilitation requirements. This wasn't easy, as this is a "pocket slum" that snakes along a patch of land shaped somewhat like a seahorse. With all of the setbacks and new roads and amenities, it was difficult to fit it all on site without going beyond G+3, but I did it, after many attempts. The removal of one floor makes a huge difference in the lives of the families that occupy the homes, and having visited successful rehabilitated slums that Shelter has helped create, I understood that better than before. I completed the calculations for the site illustrating that it met guidelines for open space, built-up area, FSI (floor space index), etc., and produced color PDF plans with the information. I followed the model for output Shelter had used before, so it looked just like their other presentations, but I took it a step further and built the
site in 3-D, and created an animated flythrough of the post-rehabilitation scheme. It's a stylized and brightly colored landscape--like a plastic model--but I chose this instead of a photo-realistic world, due to time constraints and also since this would more closely match the 2-D plans they typically present (Ill. 4-11). My next goal was to learn some basic video-editing so that I could manipulate the animation after it was rendered.

4. 

Still from Lok Seva video flythrough (Wayne Jones, 2007)

5. 

Still from Lok Seva video flythrough (Wayne Jones, 2007)
6. Still from Lok Seva video flythrough (Wayne Jones, 2007)

7. Still from Lok Seva video flythrough (Wayne Jones, 2007)

8. Still from Lok Seva video flythrough (Wayne Jones, 2007)
Still from Lok Seva video flythrough (Wayne Jones, 2007)

Still from Lok Seva video flythrough (Wayne Jones, 2007)

Still from Lok Seva video flythrough (Wayne Jones, 2007)
My next task was to help create visuals for a major presentation that happened on July 4, 2007. I made digital 3-D models of existing site plans that showed the existing rehabilitation rules for three actual slum sites (most G+8), and alternate Shelter-approved plans that are G+3. The contrasting perspectives showed how different the resulting communities would look (Ill. 12-17). These images went into Mrs. Joshi's presentation to a panel of local builders and politicians criticizing a slum rehab scheme called SRA (Slum Rehabilitation Authority) that allows commercial developers to rebuild slums in exchange for development “credits” called TDR given by the city. The new Commissioner for Pune (arguably, the most powerful official in the city) was the central figure—along with the former mayor, the city engineer, developers, activists, representatives of other NGOs and the government officials responsible for the current guidelines (Ill. 18). The Commissioner was very receptive to what Pratima had to show him—analysis that he was surprised to hear, in some cases. It resulted in an opportunity to consult with him on some proposed rehabilitations that were about to get underway.

During the next two months, my colleagues and I worked on a project to relocate 10,000 families from slums in danger zones (hillsides, flood plains, etc.) We spent our time modifying Shelter’s existing building plans to try to reduce cost and show site plans that proved our more livable, low-rise buildings could house the same number of families on the same sites the local government had chosen for high-rise buildings for the poor. We argued in many meetings against the kind of development that was proposed and urged the government to reconsider (Ill. 19-21). We found the new Commissioner to be a rational and thoughtful person who sincerely wanted to
create a housing project that functioned well, not just a token gesture (Ill. 22). Unfortunately, after many weeks of work and numerous meetings consulting with local officials, the government (in spite of the Commissioner’s preference for Shelter’s recommendations) eventually decided to return to the original G+11 plans for the new slum buildings.

Dandekar Pul, Site Plan Comparison Model, G+8 (Wayne Jones, 2007)

Dandekar Pul, Site Plan Comparison Model, G+3 (Wayne Jones, 2007)
14. Kasturba, Site Plan Comparison Model, G+8 (Wayne Jones, 2007)

15. Kasturba, Site Plan Comparison Model, G+3 (Wayne Jones, 2007)
Lohia Nagar, Site Plan Comparison Model, G+8 (Wayne Jones, 2007)

Lohia Nagar, Site Plan Comparison Model, G+3 (Wayne Jones, 2007)
Shelter Presentation with Yashada July 4, 2007 (photo: Wayne Jones, 2007)
Consultation with Commissioner Pardeshi, August 4, 2007 (photo: Wayne Jones, 2007)
Consultation with Commissioner Pardeshi and architects, August 4, 2007 (photo: Wayne Jones, 2007)

22.

Public Discussion moderated by Commissioner Pardeshi, August 18, 2007 (photo: Wayne Jones, 2007)
PROJECT

For the site of my own project, I chose a slum in Sangli which is a small town 5 1/2 hours by auto from Pune. It’s an agricultural community surrounded by lush green rice paddies, palm groves and roads completely shaded by huge trees (Ill. 23). The settlement is called Sambhajinagar Slum and is home to nearly sixty families (Ill. 24). The slum is one that Shelter Associates has worked in before, and Shelter is currently trying to get federal funding to rebuild the housing on the site. All the houses there are of kutcha construction, which means impermanent materials, not pucca—concrete and brick construction—which is found in many slums of Pune. The Sambhajinagar houses are mostly made of bamboo and mud, with some corrugated steel panels on nicer homes (Ill. 25). There are domestic livestock kept in the slums—something you don’t see in the slums of Pune. Many families use packed dung for flooring, which is not uncommon in Indian kutcha construction. It takes on the feel and appearance of adobe after it is cleaned and applied. It is not as uncomfortable to walk on as one might think—and it is definitely sustainable.
Outskirts of Sangli, Maharashtra (Wayne Jones, 2007)
After a couple of introductory visits to Sangli, accompanying Pratima Joshi to meetings with local politicians about rehabilitation of Sambhajinagar slum and a meeting with the original owner of the land on which it sits, I began my project by visiting with each family in Sambhajinagar. Pradeep, a social worker from Shelter’s office, went with me to translate. I took notes about their furnishings and belongings, asked the residents a series of basic questions, and tried to get an idea of what they already own, what they might need in terms of interior furnishings, and what they consider most important in the new housing proposal. They were warm and friendly and many offered us tea or food and were happy to sit and talk with us for a short while (Ili. 26).
Most of the houses are 10’ by 14’, and sometimes as many as six or eight people live in this space (Ill. 28-30). Some of the rare larger homes (10’ by 20’ or larger) have twelve people living in them. They all take their water from a central tap and more than half have legal electrical connections (Ill. 27).

There are both Muslim and Hindu families here who all get along well. These are hard-working people, most of whom are working away from home all day (Ill 31-33). When asked about what they would want to have in a new housing project most adults say, “kitchens with standing-height counters...our own toilet...gas for cooking,” but one of the children said, “a big tree out front where we can play... right in front of my door!”
27.

Water tap, Sambhajinagar Slum, Sangli (Wayne Jones, 2007)

28.

Sambhajinagar Slum, Sangli (Wayne Jones, 2007)
Sambhajinagar Slum, Sangli (Wayne Jones, 2007)

Sambhajinagar Slum, Sangli (Wayne Jones, 2007)
House 27 Sonabai Yengar family, Sambhajinagar Slum, Sangli (Wayne Jones, 2007)

House 22 Bhagubai Dobale family, Sambhajinagar Slum, Sangli (Wayne Jones, 2007)
House 16, Changuna Karpe family, Sambhajinagar Slum, Sangli (Wayne Jones, 2007)
I worked with Pratima Joshi and my colleague at Shelter, Veena Chandran, on a modified version of an older building design for Sambhajinagar Slum. This proposal included an animated flythrough which I created to show local politicians and the residents what future housing might look like (Ill. 34-36). It was very well-received, and the residents offered us suggestions on what they would change and how certain aspects of the design would impact their lives (Ill. 37).

34.

Still from my flythrough video for Shelter’s design for Sambhajinagar Slum, (Wayne Jones, 2007)

35.

Still from my flythrough video for Shelter’s design for Sambhajinagar Slum, (Wayne Jones, 2007)
36.

Still from my flythrough video for Shelter's design for Sambhajinagar Slum, (Wayne Jones, 2007)

37.

Public meeting with residents of Sambhajinagar Slum, October 25, 2007, (Pratima Joshi, 2007)
After working on this I began work on my own original design for a sixty-family replacement building. Like other proposals for the site, mine follows JNNURM (Jawaharlal Nehru National Urban Renewal Mission) guidelines, including some that had not officially been included in the federal guidelines yet, but we were apprised of some coming changes that would take effect in 2008. It also uses the conventions of contemporary Indian architecture in choice of materials, wall thickness, style of windows, etc. My design allows for maximum ventilation within a tight budget and also keeps the building at G+3 on what is a very constricting site without much depth between the main road and adjoining middle-class homes (Ill. 38).

My design also eliminates the need for a long, double-loaded corridor by adding more staircases and creating, in effect, five semi-connected buildings that each house twelve families in three floors. Double-loaded corridors reduce security in a building of this size, and safety and a sense of community are the primary issues here. Twelve families can share a single staircase and still have an awareness of who their neighbors are and who belongs in the building (Ill. 39). The more families that share a building and its corridors, the less security they have, as it becomes too difficult to maintain a sense of community within a large structure.²

Courtyards are also provided, giving a safe place for children to play and for bicycles and scooters to be parked. As is the case in many buildings in Maharashtra, I have provided a rooftop terrace for clothes drying in the sun and wind (Ill. 40). Some choices, such as separate toilet and shower, each with a ventilation window, are dictated by the JNNURM guidelines, as is the requirement that bedroom, kitchen, and

living area be divided with walls. These guidelines also increased the square footage of individual apartments from the previous standard of 225 sq. ft. to 275 sq. ft.

38.

Floorplan of proposed sixty-family dwelling, (Wayne Jones, 2007)

39.

Floorplan of proposed building unit with four families on each floor, (Wayne Jones, 2007)
Elevation of proposed building showing array of staircases, (Wayne Jones, 2007)
EXHIBIT

For my work in the 2008 MFA (Master of Fine Art) exit show at the Georgia Museum of Art (GMOA) I was allowed to use the museum’s audio-visual theater for an installation about Sambhajinagar Slum, my research into slums in general, and the work I had done on my original building design. I decided to limit the use of building plans and technical data in favor of the visual aid of an animated flythrough similar to the ones I had created for Shelter before (Ill. 41-47). The look of the film (textures, colors, decorative details) is similar to the Shelter flythrough to allow it to be used by them later, if they choose to consider it as another option for the site and want to make comparisons between different plans. Also, simplified palette of colors and textures I had used previously in the films seemed appropriate to the subject matter. A glossier video with too many refined elements would have contrasted too sharply with information in the installation about life in the slum.

I planned to show four digital projections of the same film to allow viewers to see much more of the six-minute film than patience would normally allow. The projectors were housed in wooden cases, painted a dark gray and scaled to fit neatly on the benches that are a permanent part of the theater. The films were on a constant rotation when the exhibit was open, and none of them would be synchronized with another, allowing the viewer to see four different points in the film at any given time (Ill. 48). This part of the exhibit represented the design work I had done in creating an original building that fits the Indian federal guidelines for slum rehabilitation.
Still from my flythrough video for my original design for Sambhajinagar Slum, (Wayne Jones, 2007)
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Still from my flythrough video for my original design for Sambhajinagar Slum, (Wayne Jones, 2007)
47.

Four digital projectors showing my video flythroughs simultaneously, (photo by: Walker Montgomery, 2008)

48.

“Family Wall” of my installation, (photo by: Walker Montgomery, 2008)
On the opposite wall, the entire surface was covered with digital prints of all the families of Sambhajinagar Slum, using photos I had taken on visits to the community (Ill. 49-52). Photos of the families standing within their homes and selected images of their interior spaces were arranged in rows with alternating bands of black or white below each family to indicate which family was which in the sequence. A “crawl” of information similar to the text on the bottom of contemporary television news was used to include information about the families. Their house number, family name, number of people, valuable possessions, and occupations were listed for each family. The choice of information was very deliberate and intended to draw attention to the fact that these are working poor, and not people involved in criminal activity or reliance on the government for support, as is sometimes the public perception.

The 10’ x 32’ wall was covered from floor to ceiling with these images, and the viewer was forced to walk along it and confront them face-to-face. It was not possible to enter the space without intimate contact with these images. Beside the wall was a map showing all houses (with numbers) in the slum that corresponded to the numbers next to each family’s image. This wall of the installation represented the research I had begun in Indian slums and the specific human conditions experienced by the residents of Sambhajinagar Slum. The images selected showed a range of human emotion and expression, most importantly—pride, happiness, determination, and hope—qualities the people of the community possess in large amount.
“Family Wall” of my installation, (photo by: Walker Montgomery, 2008)

“Family Wall” of my installation, (Wayne Jones, 2008)
“Family Wall” of my installation, Detail, (photo by: Walker Montgomery, 2008)
The third wall of the installation was covered with a digital print on vinyl substrate that filled the surface of the 10’ x 14’ wall (Ill. 53-54). It presented a digital black and white rendering I created showing a plan view in perspective of a typical house in the slum. The choice of grayscale for the print was meant to balance the powerful and vibrant color found in the images on other walls. Shadows and light in the rendering gave the illusion that the lights in the installation were illuminating the slum house in a subtle trompe l’oeil effect. A small information panel was attached that highlighted different areas of the house and explained their usage (Ill. 55). This wall of the installation represented the existing living conditions in the slum that new construction is meant to improve. Viewers are shown that even within such confined spaces, interior space is delineated and divided by use into different zones such as “wet area” or “worship space.”

Additionally, a 2’ x 3’ poster explained in text and images what Shelter Associates organization does in Maharashtra for the working poor of its slums and free brochures were available for viewers to take with them (Ill. 56).
“House Wall” of my installation, 10’ x 14’, (photo by: Walker Montgomery, 2008)
"House Wall" of my installation, 10' x 14', Detail, (photo by: Walker Montgomery, 2008)
FUTURE WORK

I plan to pursue other possible outlets to exhibit and/or publish my research later this year. Additionally, I will be going back to India to work for roughly four months at Shelter Associates as they continue to pursue funding for the Sangli project. I also plan to produce a piece of furniture I’ve designed for the residents of Sambhajanagar Slum. It’s a versatile piece made up of four identical parts that can be used separately or together. Individually, each piece can be a bench, or laid flat on the ground, it can be used as a child’s writing desk or work surface. When pushed together, four of them form a larger table for dining while sitting on the floor. The pieces include a component that allows them to stack and hold their position sturdily as a shelving unit for storage or hang on the wall out of the way or as a single shelf.

The pieces will be made completely out of bamboo, and the sustainability of the product is significant. I have a colleague in Pune who uses his workshop to develop sustainable building products from bamboo, which is very strong and can be grown quickly. He’s had success using bamboo as a replacement for steel rebar in limited applications, and other products include polyurethane-reinforced bamboo trusses, grids, and woven bamboo ply (which can be used to replace plywood). These materials show promise for use in compact emergency housing after disasters, for instance. My colleague plans to produce a prototype of my design for testing this summer, and if it is successful, we’ll produce one unit for each of Sambhajanagar’s nearly sixty families.
I hope to continue my work with Shelter Associates even after I return to the United States, and this project will be part of ongoing research into ways to bring good design and sustainable practice to communities in need, both here and abroad. I hope to enter academia at a later point in my career, after more years of experience working in the field and improving my skills. The research that I have begun will be a part of my future, in both the commercial field and in academia, and I look forward to finding new ways to incorporate it into my life and work.


