



# 314 Houses in Bhuj

CASE STUDIES OF COLLECTIVE HOUSING IN ASIAN CITIES SERIES • JUNE 2021

**India has some really big slum redevelopment programs, but most of them are designed to be planned and built by contractors and allotted to families individually, with zero or little participation in anything. This pioneering project in the small city of Bhuj has shown how government subsidies can be used in a very different way. In these three projects, the new housing was planned and built by community members themselves, with some sensitive design support, and it enhanced existing social structures and made use of the people's wisdom about how to live together socially and sustainably in a hot place.**

- Project 314 Houses in Bhuj
- Location Bhuj, Kutch, Gujarat State, India
- Size 314 households (in 3 communities)
- Finished 2021
- Type On-site reconstruction of three long established slum communities, using subsidies from a central and state government program and long-term user rights to the public land they occupy.

## CONTEXT, PROCESS AND PARTNERS

### The city:

The city of Bhuj is a historic town in Gujarat, India's westernmost state. For many centuries, Bhuj was the courtly seat of the princely state of Kutch, and since 1947 has been the administrative center of Kutch District - an extremely hot, dry and drought-prone area, which also has earthquakes and cyclones. The city was almost totally leveled by an earthquake in January 2001, in which 7,000 people died and thousands were left homeless. Since the earthquake, the city has been almost completely rebuilt, according to a brand new development plan, and expanded from a dense, ancient, walled city into a sprawling "modern" city, which now has a population of about 220,000 people.

There are 76 slum settlements in Bhuj, and about 33% of the city's residents live in them - all without secure tenure. Slums in Bhuj are organized around religious and caste groups, with each caste having its own slums. Many are on land which used to be outside the walled city and was allocated to various lower-caste communities, in return for services they provided the city. After India won its independence in 1947, these settlements were not officially recognized, but the communities continued to live there, and over time, the settlements expanded. Even though their great, great grandfathers got their land rights from the king, most of these slum dwellers are still considered squatters on public land. Other slums were settled later, on public land, by poor rural migrants looking for work, by people displaced by road-building projects, or people migrating from crowded old inner-city areas to peripheral settlements with more space.

There is a federation of women's self-help savings groups in Bhuj called *Sakhi Sangini* that is active in most of the city's slums. In 2010, with the support of their partner NGO Kutch Mahila Vikas Sangathan (KMVS), the federation carried out the first citywide survey of slums in Bhuj, and set up committees in many settlement clusters to discuss their problems and review the survey data. Initially, the women identified drinking water supply and housing as the two most serious problems they faced. With the support of modest donor funding, they undertook projects to improve drinking water supply systems and clean up ponds which several communities used for their non-drinking water needs. All these projects were implemented in close collaboration with the municipal government and with technical support from NGOs like Hunnarshala.

These initiatives were gradually expanded into a more comprehensive, collaborative program of citywide and people-driven slum upgrading they called *Homes in the City*, which encompassed housing, sanitation, water supply, solid waste management and livelihood improvement. The women's federation formed a housing committee and worked with architects at Hunnarshala to develop inexpensive earthquake-resistant house designs people could build themselves. They used the project funds from ACHR's ACCA program as seed capital to set up a revolving loan fund for housing. Eventually, 120 vulnerable families living in different slum communities were able to upgrade or rebuild their houses, through their savings groups, with low-interest loans from the fund and technical assistance from Hunnarshala. The Homes in the City program was a big step forward and showed everyone that the slum communities and their supporters were capable and ready to scale up their community-driven solution to slums. But the funds from overseas donors and local savings were too small to address the real scale of housing needs in Bhuj. And the program wasn't able to touch the crucial issue of insecure land tenure. It was very clear that a larger government intervention was needed.

That's where the Rajiv Awas Yojana (RAY) Program came in. RAY was a central government slum redevelopment program that was launched in 2009 to provide housing, basic services and secure tenure to slum dwellers in India's major cities. Initially, RAY was open only to large cities, but after constant advocacy with the local government, local politicians, state and central government agencies and officials, RAY was extended to include Bhuj in 2012. Once Bhuj got the green light, the municipality invited Hunnarshala and its partner organizations to develop a pilot proposal under the RAY program.

### Demonstrating an alternative, people-driven model for RAY:

Most government slum redevelopment schemes, including RAY, are built by contractors and developers, who take the subsidies, construct multi-storey apartment buildings on the same land or on the outskirts of the city, and then allot the units to slum dwellers individually, on a lottery. Poor communities are just passive recipients of housing they have no part in designing and often can't afford. There's no ownership or involvement of the people at all.

Everyone agreed that Bhuj was different than other cities and should be understood in greater depth before coming up with a slum redevelopment model that is appropriate for the city. Hunnarshala invited students from the Center for Environmental Planning and Technology (CEPT), in Ahmedabad, to study the slums of Bhuj. The students found that most families living in Bhuj's slums occupied 60-80 square meters of land,

and their courtyards and outdoor spaces were essential for cooking, washing, socializing, sleeping and all sorts of household functions - sometimes even raising cattle. Any redevelopment model offering less land than that, or forcing people into high-rise flats, would not be accepted. A hypothetical planning modeling done as part of the study showed that if all the slums were regularized by giving each family a 65 square meter plot (based on the team's study of minimum reasonable living requirements in Bhuj), all 14,000 of the city's urban poor households could be decently and securely housed, only 20% of those households would have to be relocated, and 60 - 80 hectares of public land would be freed up in the city. That land could be used for future additions to the city's housing stock and for other urban future infrastructure projects.

Based on the findings of that study, the team worked together to prepare a comprehensive plan to implement a participatory, community-driven housing reconstruction pilot involving 314 households, on 65-square meter plots, with full infrastructure and permanent land tenure, in three slum areas:

- **Bhimrao Nagar (42 houses)** is crowded settlement of 42 families from the Marwada community who were given the land by the king of Bhuj. 37 of those families would rebuild their housing on the same site. Five of the 42 houses in Bhimrao Nagar were built of permanent materials and were in good condition, so it was agreed that they would not be rebuilt, but would be included in the project and get the same tenure rights and infrastructure subsidies as the others.
- **Ramdev Nagar (116 houses)** is a very old settlement of poor families who had stayed on this land for thirty or forty years - some for six or seven generations. The scattered houses were made of tarpaulins, plastic sheets, mud and cement blocks. The women run several small savings groups (of 20 members each), as part of Sakhi Sangini federation. Despite staying here so long, the people are considered to be squatters on government land. All 116 houses would be rebuilt. There were also five permanent houses in good condition in Ramdev Nagar, and it was agreed that they would not be rebuilt, but would be included in the project and get the same tenure rights and infrastructure subsidies as the others.
- **GIDC Resettlement site (156 houses)** was a temporary resettlement colony that came up after the devastating earthquake of 2001. The 300 government-built shelters were first allotted to earthquake survivors. When those first families moved away after rebuilding their houses elsewhere, the shelters were occupied by poor families from a variety of backgrounds. Of the total 300 shelters in GIDC, 156 would be rebuilt in the first phase of RAY.

The project proposal was submitted to the local government, and in February 2014, it was approved by the central government. Bhuj became one of the very few municipalities in India to implement the RAY program through a community-driven model, where the 314 slum families in the pilot project would receive the project subsidies directly from the local government and build their houses themselves - collectively.

#### **The whole community and whole city:**

The project partners and the municipal government in Bhuj were all in agreement on following a *whole city and whole slum* approach, to ensure that all the slums in Bhuj would be redeveloped eventually, regardless of size or land ownership, and that every single household in a settlement should be included, so nobody is left behind. This first pilot project was a test of that strategy. It was not easy, though, because long-term inequities within the slums meant that there were haves and have-nots, families with big very plots and families with very small plots. Convincing everyone to agree to move to a standard plot of 65 square meters and to return the rest of the land to the government took a lot of work and a lot of contentious community meetings.

Members of the *Sakhi Sangini* women's savings federation and their support NGO *Kutch Mahila Vikas Sangatan* organized dozens of meetings, in the three implementing communities and in other communities where redevelopment projects would happen in the next phases, to discuss the terms of the RAY project and make sure everyone knew what the program offered, how much the housing and infrastructure subsidies were and how the program worked. Eventually, all the families in the three pilot communities agreed to join the scheme. Families in other slum areas would be eager to join the next phase of the scheme, everyone hoped, once they saw the results in these first three pilot slums. It was important that trust (*vishwas*) in the government housing scheme be built. Social organizations played a big role in building that trust, so the project could be successfully implemented.

In all three settlements, slum committees were formed at the start of the project. In India, residential housing societies - even those with individual tenure like the RAY project communities - are required to set up these slum committees, to collectively manage and maintain the common spaces and amenities in the housing society and to make collective decisions about matters which affect the common welfare of all the residents. For all three of the communities, forming these committees was an important step in their move from informality into being part of the formal, legal system. Community members who became office-bearers in these committees were regularly trained and sensitized by the women's savings federation and KMVS on

different social, physical and financial aspects of collectively managing the housing project and the completed housing.

## SUPPORT GROUPS AND PARTNERS IN THE PROJECT

*A lot of partners in this project. One of the interesting aspects of the work in Bhuj is how many organizations work together in close partnership, with each one contributing to a different aspect of the work with poor communities. The harmonious collaboration between NGOs, technical organizations, community-based organizations and local government agencies is rare in India, and it can be traced back to the 2001 earthquake, when the key organizations understood that only by collaboration and bringing all skills together could the enormous scale of needs after the calamity be addressed quickly and effectively.*

- **Bhuj Municipal Corporation** is the local government in Bhuj, and is the official implementing body for the RAY housing program, so all project funds go through the municipality. The municipality also supported the project with land, permissions and infrastructure.
- **Hunnarshala Foundation** is a Bhuj-based NGO that has worked since the earthquake in 2001 to facilitate the production of decent housing and basic services for the urban poor through community-driven and owner-driven models. Hunnarshala also promotes the use of traditional building knowledge and local artisanship in both earthquake rebuilding and ordinary housing construction. Hunnarshala was the key coordinating agency and technical partner in the 314 houses project. Hunnarshala worked with the three communities to develop housing and layout designs and cost estimates, prepared the formal project proposal and helped manage the construction.
- **Kutch Mahila Vikas Sangathan (KMVS)** is a Bhuj-based NGO that organizes rural and urban poor women by helping them to set up self-help savings groups and link together into federations, to increase women's leadership. KMVS and Abhiyan worked on the social mobilization and documented the whole process. They also conducted household surveys and helped verify the project beneficiaries.
- **Sakhi Sangini ("Female friends together")** is the citywide network of urban poor women in Bhuj who manage their own self-help savings and credit groups, which are active now in all 76 slums in Bhuj.
- **K-Link Foundation** is a branch of Abhiyan that works on information technology. K-Link verified, analyzed and uploaded the data gathered by KMVS and Abhiyan during the project.
- **Arid Communities and Technologies (ACT)** is a professional organization that works in partnership with Hunnarshala on urban watershed management and helps develop decentralized drinking water sources and water filtration systems in urban poor areas of Bhuj. ACT provided technical support to the project and designed the water resources in the three communities.
- **Sahjeevan** also works in partnership with Hunnarshala and helps develop environmentally appropriate and community-managed systems for meeting basic needs like drinking water, solid waste management and waste water treatment. Sahjeevan provided technical support and designed the waste management systems in the three communities in the project.
- **The District Collector** encouraged the project and facilitated coordination between different departments, the Bhuj Area Development Authority (BHADA) verified compliance with the prepared plans and the District Inspector of Land Records (DILR) surveyed the slum areas in the project.
- **A joint city-level steering committee** was set up to oversee the project, with representatives from civil society groups and city officials, which took all the policy decisions for the RAY program in Bhuj. The committee was chaired by the Collector and overseen by the member representing Bhuj in the Gujarat State Legislative Assembly.
- **Rajiv Awas Yojana (RAY)** was a government program that provided subsidies (from central, state and local governments) to improve the housing, living conditions, infrastructure and tenure security of urban slum dwellers. After the housing project in Bhuj, the RAY program was replaced by the Pradhan Mantri Awas Yojana (PMAY) scheme, which works a little differently, but will be used to support the next phases of the citywide housing redevelopment process in Bhuj.

## LEGAL FRAMEWORK OF THE PROJECT

### Land tenure:

Before the project, the residents in all three of the communities in the projects had no legal tenure status and were considered to be squatters on public land. The land they had occupied - some for many generations - was technically under the control of the Central Government's Revenue Department. After the RAY project was approved, the land was formally transferred to the Bhuj municipal government, on a 99-year lease. The 314 families in the project will be given individual allotment certificates to their 65 square meter land plots



once the project is completed. They will be owners of their dwellings also. Under the terms of the RAY program, the families are not allowed to sell or transfer their land or houses for 15 years, after moving in.

### Government support:

The 314 Houses project in Bhuj received good support from the central, state and municipal government, under the RAY scheme, in the form of secure land, housing and infrastructure subsidies, official permissions and support at various stages of the process.

## PROJECT FINANCING

### Project costs and who paid for what?

The redevelopment of the three settlements was financed by the government's RAY slum housing program, which provided a per-family subsidy of up to a maximum Rs. 400,000 (US\$ 5,479) per family. That subsidy included Rs. 300,000 (US\$ 4,109) for house construction and Rs. 100,000 (US\$ 1,370) for infrastructure. The subsidy was shared by the central, state and local government, with the bulk coming from the central government. Each family was expected to contribute 10 - 12% of the housing cost also.

### Land:

The 65-square meter land plots in the three redeveloped communities were allotted to the families, individually, by the municipal government, at no cost to the people.

### Infrastructure:

The total cost of building the common infrastructure facilities in all three of the communities (which was built by the municipal government, through their normal tendering and contracting process) came to Rs. 23.886 million (US\$ 327,205), which worked out to Rs. 76,070 (US\$ 1,042) per family. This sum was entirely funded by the RAY housing program, with this breakdown of subsidies:

- Rs. 17.914 million (US\$ 245,397) subsidy from the central government (75%)
- Rs. 3.583 million (US\$ 49,082) subsidy from the state government (15%)
- Rs. 2.389 million (US\$ 32,726) subsidy from the local government (10%)

### Houses:

The cost of building each new house came to Rs. 373,000 (US\$ 5,110). Under the terms of the RAY housing program, this amount was financed by:

- Rs. 241,000 (US\$ 3,300) subsidy from the central government (65%)
- Rs. 50,000 (US\$ 685) subsidy from the state government (13%)
- Rs. 82,000 (US\$ 1,123) contribution from family (22%)

**Bridge financing:** The housing subsidies from the RAY Program were deposited directly in the bank accounts of individual families, in stages, after they had submitted reports on the progress of the construction of their new houses to the municipality, which was in charge of the disbursements. It could take weeks, though, for the local government to process the reports and release the next installment. That caused the construction process to stall. This is a big problem in all government housing programs in India, where delays and bureaucracy add substantial costs to projects. The *Sakhi Sangini* women's federation worked out a system to address this problem by providing short-term bridge loans to members of their savings groups (and their relatives also) to buy materials, pay workers and keep the construction going. When the RAY subsidies came, the bridge loans were paid back in full.

## DESIGN AND CONSTRUCTION

### Community layout design:

All three communities were completely rebuilt, with a new layout, new houses and new infrastructure. The design of the redeveloped settlements emerged from a series of participatory design workshops, in which the architects worked with the community members - especially the women - to help them understand the pros and cons of their old settlements and to plan their new ones. The layout designs kept being adjusted and improved, and by common agreement, the designs were finalized only when all the families in the three settlements were happy with them.

The final layout plans that were developed in all three communities follow closely the settlement patterns that are typical in both rural and urban settlements in Bhuj, in which friends and members of extended

families live together in sociable clusters of houses grouped around common open spaces. This cluster pattern was retained in the new layouts, where each house is a part of a cluster of 10 - 15 houses sharing a common open space, where children can play under the watchful eyes of their parents or where smaller social gatherings can happen. Besides providing housing and basic services, the redevelopment plans were designed to improve the overall quality of life and create vital neighborhoods. The plans of all three settlements include social and community facilities like community centers, shops, day-care centers, pre-schools, livelihood centers, temples and health clinics. In a city as hot as Bhuj, everyone agreed to retain as many of the existing trees on the site as possible, in the layout planning, and to plant many more trees, to increase the shady coverage. Natural slopes in the sites were all maintained also.

### House design:

The community people worked with the architects to design a set of five house models, which could be built throughout the three settlements, with minor adjustments, to accommodate different family needs and differently-shaped plots. All five of the house models were designed to be "expandable" core houses, which residents can later add to, as their family needs and finances allow. Like the layout plans, the design of the houses went through many changes, until the models were acceptable to everyone. The design team worked hard to make the costing and construction process as simple as possible, and to make sure the five house models could be built within the fixed budget of the project.

The five "core" house models all have 35-square meters of built-up space and are based on the traditional courtyard house type that is common in and around Bhuj, with two rooms, a kitchen, a toilet and a washroom arranged around a shaded courtyard, which is a multi-purpose space used for cooking, washing and socializing by day and sleeping by night. The courtyard is an expression of community life in Kutch, where two or more families often share a single courtyard. The unit plan accommodates the future needs of growing families by providing a stairway up to a flat roof terrace which has been structured to allow for the construction of more rooms later on. The houses all face south and southwest, which is the most suitable orientation in Bhuj for ventilation and wind direction.

The housing construction systems in the three communities incorporated several innovative and more sustainable technologies, like:

- **Load bearing structure:** To cut costs and reduce the use of steel-reinforced concrete, the two-story buildings were designed as load-bearing structures, on nine-inch masonry walls.
- **Local sandstone blocks:** In Bhuj, the cheapest and most sustainable wall-building material is not concrete block or fired brick but the pink sandstone that comes from a quarry just 15 kilometers away and can be cut by machine. The 15 x 8 x 9-inch blocks cost just 25 rupees (US\$ 35 cents) each.
- **Shallow domes:** Another strategy to reduce cement and steel was using shallow domes instead of reinforced floor slabs. The initial plan was to use shallow domes over all the rooms, but the project's structural expert suggested using them only in rooms on the top floor of the buildings.
- **Seismic resistant construction:** Since Bhuj is highly prone to earthquakes, the housing designs incorporate disaster-resistant features. The load-bearing walls were all made with corner reinforcement and reinforced horizontal concrete bands at every 1.2 meters.

### Infrastructure design:

The redevelopment of all three communities included basic infrastructural services like metered municipal electricity and water connections in each house, but with some interesting "green" innovations:

- **Re-using what's there:** To keep infrastructure costs down, the new plans made use of existing drainage and water supply lines also, wherever it was possible.
- **Water supply:** Bhuj is in a drought-prone part of India, and so in addition to metered municipal water connections for each house, rainwater harvesting systems, recharge bore wells and localized water treatment were incorporated into the site designs, to save and manage scarce water resources.
- **Dual plumbing in houses:** Wastewater from the houses is separated with the use of dual plumbing. Grey water from bathing and cleaning is treated at the household level and is used for irrigating green areas in the settlements. Only black water from toilets will go into the city's main sewage system.
- **Solid waste management:** Household waste will be segregated, with the organic wet waste going to cattle owners within or near the settlement and the dry waste being collected, processed and recycled through a local recycling partner organization.
- **Lighting:** In addition to metered municipal electricity connections for each house, street lights powered by their own solar panels will keep the common spaces well-lit at night.

### Construction process:

Gujarat has a long tradition of people building their own houses. In the aftermath of the 2001 earthquake in Kutch, the earthquake victims did all the reconstruction themselves, and all the aid funds for rebuilding were

transferred from the government directly to the families. Technical organizations like the Hunnarshala Foundation supported this people-driven system with simple seismic-resistant construction guidelines and technical support to the families. Hundreds of thousands of dwelling units in Gujarat were built in this way.

Most government slum redevelopment and housing programs ignore that rich tradition of self-building, and ignore the fact that slum communities are full of skilled artisans who build the cities they live in: masons, carpenters, stone-cutters, plumbers, electricians and experienced construction laborers. Instead, the government almost always hires contractors to build housing in forms that are often wildly inappropriate for people's ways of living and far too expensive for them to afford. The 314 Houses project in Bhuj is one of the rare cases in which the subsidies from a major government housing program - the RAY Program - were given directly to the residents, who built their houses themselves, working together in groups, as communities. And in the process of constructing their houses, they've demonstrated that communities can design and build housing faster, cheaper, better and more appropriately than the government can.

Each community developed its own mechanism for managing the house construction. In Bhimrao Nagar, there are many skilled masons and carpenters living in the community, and they decided to build collectively. After buying all the materials together, in bulk, the people built the houses together, with one skilled team in charge and management by the slum committee. In Ramdev Nagar, they also did the materials purchasing and building collectively, but in smaller groups, with family members providing most of the unskilled labor, and a few small outside contractors being hired for the skilled work like shuttering and plastering.

By building their houses themselves, in groups, many families were able to find all sorts of ways to build more houses and for less money. By providing the unskilled labor themselves - carrying bricks and sand and mixing mortar - they were able to save a lot on labor costs. And by buying building materials together, in bulk, they were able to negotiate good discounts from local suppliers. In the GIDC community, the families were not able to do the building by themselves, so most of the work was done by local contractors.

While their new houses were being built, the families mostly stayed in make-shift transit accommodation they organized themselves, within the community, or stayed in the GIDC relocation site, where many of the temporary shelters constructed for earthquake victims were vacant.

The slum committees formed at the beginning of the project will maintain the infrastructure and common amenities in the future, and will be eligible for support from the municipality to do this. The slum committees were active in every stage and were crucial to the success of the project, from the development of the project proposal, to the construction, and to resolving social disputes and dealing with technical issues.

By May 2021, 300 of the 314 houses had been completed, and most of the infrastructure like roads, water supply, sewer lines, treatment plants and common areas was finished. The solar street lights, new tree planting and recharge bore wells were still underway.

#### **After the project was finished:**

Two new proposals for the second phase of the housing program were submitted in 2015 to the municipal government in Bhuj. Those proposals have been modified several times, based on conversations with the State, and by June 2021 had not yet been approved. The second phase includes 237 houses on three sites and will include families from four slum communities. These new proposals were made under the program which replaced the RAY Program - the Pradhan Mantri Awas Yojana (PMAY). The 314 Houses project received tremendous support from the state and central government, and once the project is fully complete, the results will be used to inspire and advocate for the same people-driven approach to be used to redevelop slums in other cities as well.

#### **Project timeline:**

- 2009:** RAY slum redevelopment program is launched, but only in big cities.
- 2010:** Women's savings network carries out the first citywide survey of slums in Bhuj.
- 2012:** 120 houses are built by community people in Bhuj with support from "Homes in the City" program. After intense lobbying and advocacy, the RAY program is extended to include Bhuj.
- 2014:** First project proposal for rebuilding 314 houses in 3 slums is approved for RAY support.
- 2015:** Chief Minister of Gujarat Anandiben Patel inaugurates the new project in February. Families start demolishing their old houses and moving into temporary houses to make way for reconstruction. Construction starts in Ramdev Nagar and GIDC in June. Construction starts in Bhimrao Nagar in November, after the delay caused by a land dispute. Proposal for rebuilding another 237 houses, in 3 slum communities, is submitted to local gov.
- 2016:** Half the 314 houses are completed.
- 2021:** All 314 houses are completed and occupied by owners. Most infrastructure is finished.

## IMPACTS OF THE PROJECT

The 314 Houses project in Bhuj has been recognized by the Government of India as "One of the best 15 housing planning projects in India." This is the first slum housing redevelopment project in Bhuj to be supported by a major government program, and the first to use public funds and public land to scale up a housing delivery system that is managed by people themselves, from start to finish. The project has given hope to people in other slum communities in the city that they can also build their own houses and get secure land with the support of government programs.

The project has given dignity and pride-of-place to a group of people who have long been considered to be helpless freeloaders who are outside the formal system in every way. The project has shown that with the right kind of support, the most marginalized, run-down and insecure slum community can transform itself into a healthy, beautiful housing colony. Now that these three communities have been fully redeveloped and have secured their land, it has become easier for the children to get their education and meals in schools and daycare centers within the communities. That frees their mothers to go out to work and to get better jobs. It has become easier for families to arrange their children's marriages now because they have their own legal, proper houses and are part of secure, permanent communities.

As soon as people moved into their new houses, they were able to access various government schemes easily and could even qualify for bank loans for their children's education or marriages, the way middle-class people do. The slum committees that were set up in each community at the start of the project continue to function and are actively developing a range of activities to support the lives and welfare of the families in the communities in different ways: setting up a legal counseling center in Ramdev Nagar and organizing group marriages which cut the costs of weddings, which can be a terrible burden on families. As one resident of Ramdev Nagar, Babubhai put it, "Ramdev Nagar will no longer be called a jhopadpatti [slum]. We are a society now."

The project has also shown that high-density housing can be achieved without the necessity of going to multi-story buildings, which tend to be too expensive and destroy community life. In most cities in India, there is an assumption that the only way to achieve a higher density of housing is to go vertical, and most cities are going that way. But this is not necessary in smaller cities. The 2011 census in Bhuj showed an average density of about 75 people per hectare in the city. The 314 Houses project shows that without going vertical, it is possible to achieve a density of 320 people per hectare, in an open, roomy arrangement of on-the-ground houses, with adequate shared open spaces. As families grow and add more rooms and units to their houses, that density can go up to 600 people per hectare, and still be quite comfortable.

### Problems

**Land conflict:** The house construction in Ramdev Nagar and GIDC started in June 2015. The residents of Bhimrao Nagar were ready to start too. After the Chief Minister had come to officially inaugurate the project, they had demolished their old houses, received their first installment of funds and were ready to start building. But the local government stopped them, because the status of the land they occupied was unclear. Some government records indicated it was privately-owned land, while others showed it was public land under the Revenue Department. Five months later, the issue had not yet been resolved, so the Bhimrao Nagar residents adopted a time-tested protest strategy in India and went on a hunger strike. Friends from Ramdev Nagar and GIDC came to support them and show their solidarity.

The strategy worked. The District Collector stepped in and ordered the concerned departments to fast-track the procedure for land allotment. The state-level Affordable Housing Mission also intervened, providing a much-needed push, and got the land cleared one month after the residents went on strike. The land allotted for their housing development had changed slightly, though, and the layout design had to be completely revised, which led to more delays.

**Delays:** Because the project was "owner-driven", the residents received the subsidies for their house construction individually, directly from the local government, at different stages of the construction. Each stage of the construction had to be documented and verified in completion certificates, which were prepared (with help from Hunnarshala - the project's official implementing partner) then submitted to the local government, before the funds for the next stage of the construction would be deposited in the family's bank account. It's no surprise that the local government was in no hurry to process and approve these completion certificates, and that foot-dragging led to serious delays in the construction process. It was only by constant pressure, negotiation, intervention by politicians and supportive authorities and shaming articles in the local press that the families got their funds and could continue building their houses. There have also



been delays in the infrastructure work, which the municipality was responsible for. If these various delays hadn't become such a problem, the project would probably have been completed two or three years earlier.

## FOR MORE INFORMATION ABOUT THE PROJECT

*This case study was written in May 2021 by Gaurav Dinodia and Mahavir Acharaya, with the support of the Hunnarshala Foundation's Community Empowerment Unit.*

*For more information about the "314 Houses" slum rehabilitation project and the larger community-driven housing movement in Bhuj, please follow the links below to watch two documentary films on the project:*

<https://www.youtube.com/watch?v=FvBLG66YfLg>

[https://www.youtube.com/watch?time\\_continue=49&v=y1d8jX1mtxo&feature=emb\\_logo](https://www.youtube.com/watch?time_continue=49&v=y1d8jX1mtxo&feature=emb_logo)

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## PHOTOS



Some photos showing the housing conditions in Bhimrao Nagar before the project began. Even though the houses are of poor quality, you can see how people put together the elements of the room, the shaded verandah, the courtyard and the outdoor space to make even such humble dwellings workable in Bhuj's extremely hot, dry climate.



These photos show the housing conditions in Ramdev Nagar before the project. Many families have stayed on this land for five or six generations, and the community has one of the city's strongest set of women-run savings groups.



This is the GIDC Relocation Colony, which was originally put up to provide temporary shelter to those who had lost their houses in the 2001 earthquake in Bhuj. When that first set rebuilt their houses and moved back to their own land, other poor families moved in.





The housing project in the three communities involved lots and lots of community meetings, at every stage. The Sakhi Sangini network of women's savings groups played a key role in disseminating information about the project, facilitating people's participation and putting the communities at the center of the process.



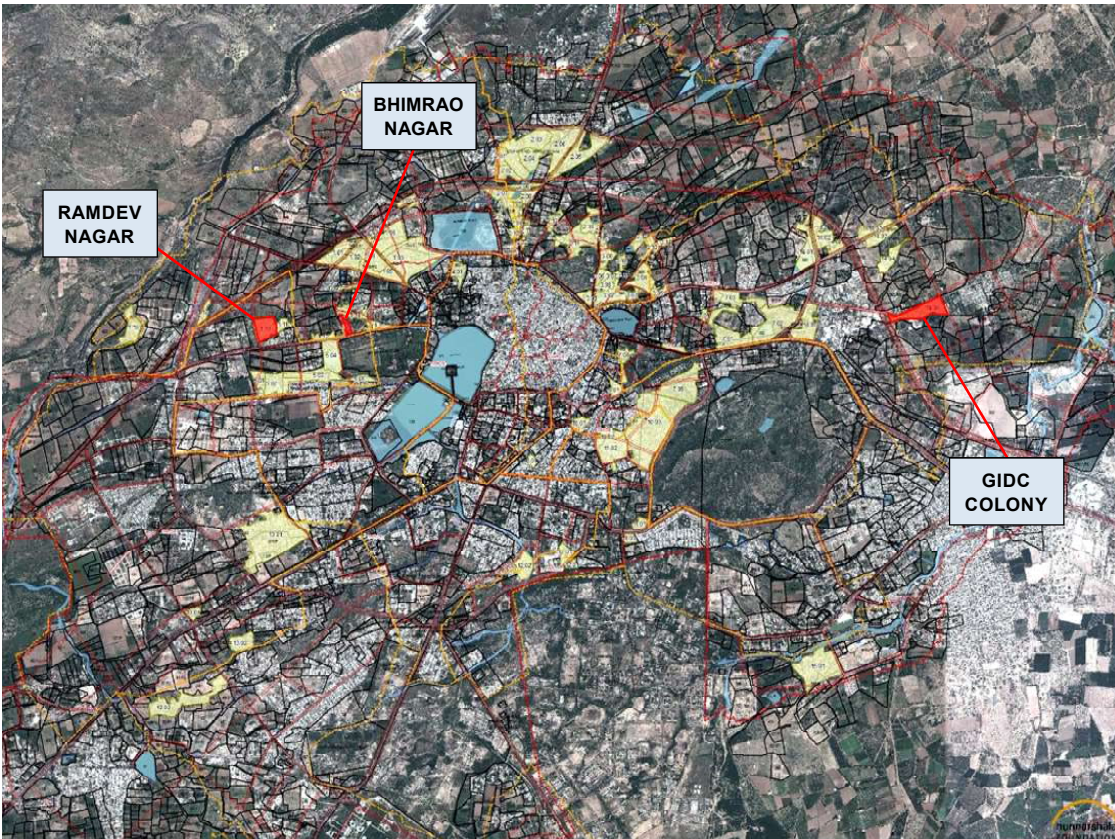
A community meeting in Bhimrao Nagar (above) to explain about how the RAY program works and what resources it offers. Many of the meetings, like this one in Ramdev Nagar (above right) was held in the evening, when all the community members were home from work and could take part.



Here the NGO teams are showing a group of local government officials around the communities where the housing projects would happen.

There were also lots of meetings inside the municipal government offices, to discuss the progress and address problems together.





▲ This satellite photo of the city of Bhuj shows the location of the three communities that were rebuilt in the project.



▲ Here is a somewhat blurry satellite photo of the Bhimrao Nagar community as it looked in 2012, before the housing project began.



▲ And that's the new layout plan for Bhimrao Nagar, with 42 new houses, and five existing houses that were not rebuilt, but included.





▲ This is a blurry satellite photo from 2013 of the part of the GIDC Relocation Colony where the housing project was implemented.

▲ This is the new layout plan for the GIDC Relocation Colony, with 156 houses arranged in clusters around shared open spaces.



▲ This is a satellite photo of the Ramdev Nagar community in 2013, two years before the housing project began.



▲ This is the new layout plan for Ramdev Nagar, with 116 houses arranged in clusters around common open spaces and shared amenities.





▲ The layout plans for all three communities went through many changes, with lots of discussion and inputs from meetings with the communities.

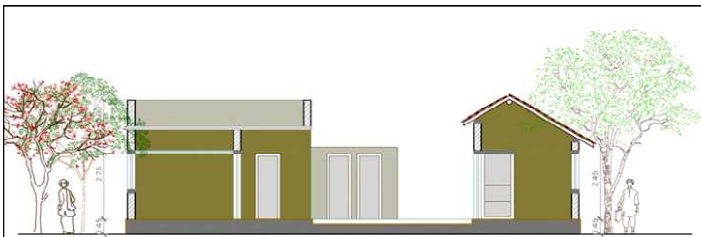


▲ The designs of the five house models also went through many changes and refinements, with help and inputs from community members.



▲ The architects at Hunnarshala found that 3-D models of the different courtyard house designs were much more effective than drawings in helping community people understand how the houses worked and getting their ideas about how to improve them.

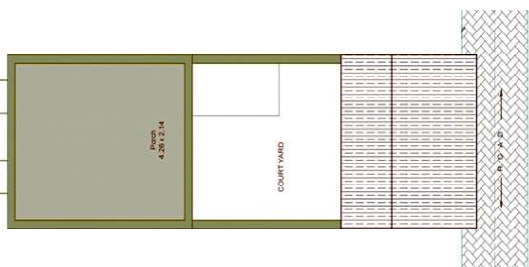




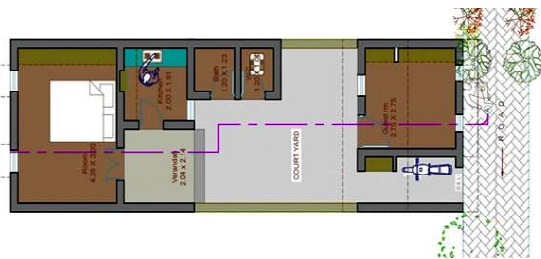
"CORE" COURTYARD HOUSE



UPSTAIRS ROOM ADDED LATER



UPPER FLOOR PLAN



GROUND FLOOR PLAN



A wooden model of one of the courtyard house designs, with rooms and walls that can be lifted up and taken off, to explain how the house can be expanded in the future.



This plan shows one cluster of houses in the Ramdev Nagar community, with some of the adjacent houses sharing the courtyard.

This is one of the five expandable "core house" designs that were finally agreed upon by everyone, for people to choose from. And this particular plan was the most popular, with most families in all three communities choosing this model.







After the surveying team had pegged the house plots, the guidelines for digging the foundations were marked with lime powder.



Digging the trenches for the foundations in the fierce Bhuj sun was hard work, but most of the families did it themselves, to save labor costs.



Work going on to lay the foundations for the heavy, load-bearing walls, which used blocks of local sandstone. The steel reinforcing at the corners is for seismic safety purposes.



Here the walls are going up, with seismic reinforcing at the corners and in horizontal bands. The pinkish sandstone blocks are machine cut and come from quarry that is just fifteen kilometers away.



A photo of one of the sites where the construction is well along. Some houses are almost up to roof level and some are starting on the walls.



In this cluster of houses in Ramdev Nagar, you can see the underground tanks in the courtyard that will be used for storing water.





*These shallow-dome roofs, made from the local sandstone, can carry the weight of concrete floor, without the need for any steel reinforcing.*

*A cluster of houses in Ramdev Nagar, where a highly skilled plasterer is doing his magic, and someone is already adding a room upstairs.*



*The community meetings continued throughout the construction process, to discuss the progress and work together to deal with whatever problems and delays came up.*



*These two adjacent houses will share the courtyard and stairway up to the roof terrace.*

*This finished cluster of houses in the GIDC Colony has just been crisply white-washed.*





*In this cluster of houses in Ramdev Nagar, the families have put their funds together to build a statement-making gateway and pave the lane with rain-permeable blocks.*



*Another shared courtyard soon after construction was finished, with a canvas sun-shade rigged up to keep off the scorching midday sun.*

*Vivid colors and pride of place are in every detail of this shared courtyard. Note the way people make use of shady corners for hanging out.*



*An interior photo of a "stand-up" kitchen with a sit-down cook making supper for his family.*

