

# \$300 house – India

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## **Summary**

Our trip to India in March 2011 was instrumental in helping us better understand the landscape, scope, challenges, and opportunities of building a \$300 house. As a result of our visits to several slums in urban and rural India, and our meetings with stakeholders in the private sector, Government of India (GOI), and Non-Governmental Organizations (NGOs), we understood the demand side of the equation, and realized that a renewed focus was required on the supply side – i.e. building a prototype first and then making these houses available. While several people challenged us by noting that it was difficult to meet the cost requirements of a house which would be considered a reasonable shelter, the resounding message we heard from everyone was "if you can build it, we will buy it." In terms of geographic focus, we learned that big urban centers such as Mumbai and New Delhi could not be our focus, but rather tier 2 and 3 cities, villages, or rural areas, where people are either living in shabby, makeshift homes or do not have homes at all should be our main focus. Most Indian cities are undergoing immense urbanization and local politics coupled with expensive land prices would make it difficult to build a \$300 house in such large cities.

We were surprised to learn about slum dwellers' aspirations for upward mobility. In Tier 2 cities or towns, although the local governments are beginning to address the issue of low-income housing, they are not targeting the economically weaker sections (EWS). Yet EWS account for the majority of people facing a housing shortage in India, mainly because they represent the bulk of rural-urban migration in the country. According to the Government of India statistics, housing shortage in urban areas for EWS will significantly increase in the coming years. As a result, our objective should be to develop affordable housing for Indians in the EWS who are migrating to Tier 2 and 3 cities.

We identified several potential customers for the \$300 house. The government could be a potential customer under the Rajiv Aawas Yojana, a housing scheme in which the government subsidizes housing for low-income families. Other customers could include migrant workers and local service providers such as housekeepers, nannies, and watchmen. Additionally, the \$300 house could serve as temporary housing (post-disasters) or as rental housing, as some people might simply want to rent low-cost housing until they find permanent housing. Finally, there is the possibility that middle-class Indians might be interested in buying a \$300 house as a home for their servants. While obtaining land will be challenge, we must focus on building on a \$300 house that fully leverages existing or new technology.

## **How did we decide on places to visit?**

During our trip to India, we ended up visiting Delhi, Mumbai, and Raipur. Here is a brief commentary on why we selected these three places. During the early days of our project when we were deciding the scope of the project, we felt convinced that Dharavi (in Mumbai) was the place to start off with for several reasons:

- **Size:** Asia's biggest slum; world's 16<sup>th</sup> most populous slum
- **Public Awareness:** Several documentaries, movies, and books written on Dharavi (e.g. Slumdog millionaire won Oscars putting Dharavi on the world map). In world-wide rankings for slums, Dharavi ranks 16<sup>th</sup> in the list of world's most-populous slums, and it is the only Indian slum that ranks in the top 30 slums
- **Data:** Significant public research/data available on this slum (including an HBS case study)
- **Location:** Dharavi is located in Mumbai; and in the past, local governments have made several attempts to fix slum problems in Mumbai, but failed. Also, increased accessibility to Dharavi with several tours that provide detailed information on the slums
- **Diversity:** Dharavi is a world in itself providing us with different viewpoints

Because of the above reasons, Mumbai was the initial focus of our trip. However, internal discussions with our team raised the argument that Dharavi was no longer just a slum anymore, but a thriving community of its own with huge growth in manufacturing industries – leather industry being one of the prominent ones. Additionally, residents of Dharavi were no longer living in shabby conditions, but had improved economically as India as a country saw a rise in economic prosperity over the last decade.

With these arguments on the table, we decided to add Raipur as our other focus region. Raipur was chosen as a field trip target for several reasons:

- **Newly-formed state of Chhattisgarh:** The Government of India formed the state of Chhattisgarh in the year 2000; as the state is newly formed and as major portions of the state still live below poverty line, we thought it would give us a different view of housing issues in India
- **Not a metro city:** Even though Raipur is an up-and-coming city, it ranks much behind in terms of urban development, where it stands behind metro cities like Mumbai and Delhi. Not being a top-tier city in a newly formed state still battling with extreme poverty was a big reason for us to visit the city
- **Economically weaker slums:** Slums in cities like Raipur provide insights into the economically weaker section of the Indian society
- **Contacts:** We had contacts in the region who would help us understand the problems better and expose us to the difficulties facing the residents of these slums

With limited time at our disposal, we were lucky to add Delhi – the capital of India to our list of itinerary primarily to meet up with couple of NGOs. NGOs are a key stakeholder in working closely with communities to further their development and it was critical for us to incorporate their input to our analysis.

## **Our Key Takeaways from the trip**

- **Geographic focus:** Cities versus towns versus villages

- **Cities:** Cities are undergoing immense urbanization. Local politics combined with expensive land prices and aspirations for upward mobility, especially among slum dwellers was a surprise. Hence, \$300 house is difficult to implement in the cities. Plus, slum dwellers are living in houses ranging from \$2000 (Rs. 100,000) to \$12000 (Rs. 1,200,000)
  - **Towns:** Slums exist in these places and local governments want to urbanize these towns (also referred to as tier-2 cities, tier-2 metros). Government land is easier to find in these towns and new portions of “towns” being created (e.g. New Raipur). ~15% of this new development being addressed towards low-income housing (still not addressing the economically weaker sections)
  - **Villages:** Probably where our real market exists as most people have no homes or live in really shabby homes
- **Market:** The market for \$300 house exists. This was the universal message. What we heard was: if you *can* build it, we will buy:
- **Size of the market:** We found solid analysis and numbers from Monitor presentation when we met them in Mumbai
  - **Segmentation:** Low-income housing (\$3000+); economically weaker sections (\$300+). Our focus is on economically weaker section
  - **Customers:** The customer base will come from unexpected areas
    - **Government:** The government could be one of the customers – under the Rajiv Aawas Yojana (a housing scheme under which they provide significant subsidies for houses to low-income housing and economically weaker sections)
    - **Temporary Housing:** Post-disaster housing
    - **Migrant workers:** People moving from villages to towns/cities have no place to stay
    - **Local service providers:** E.g. housekeepers, nannies, watchmen
    - **Rental Housing:** Some people might just want to rent \$300 houses until they “figure out” their permanent housing
    - **Second homes:** Middle class people might buy these \$300 houses as second homes for their servants; maybe even for themselves (depends upon the quality, Tata Nano being an example)
- **Land:**
- Acquisition of land of course one of the biggest challenges for this project; however, we had to separate this piece from the actual building of the house.
  - Focus should be on building a \$300 house with a profitable margin and new/local/off-the-shelf technology. Land issues cannot be ignored, but unfortunately, the reality is that the only ways to build \$300 houses are if:

- Owners own the land; OR
  - Land is provided by GOI, NGOs, or philanthropists
- **Prototyping:**
- **Communities:** Build communities. That is, maybe build 20 houses, one common toilet, and see how these could interact. This needs acute focus especially in the phase of initial prototyping
  - **Concrete houses:** Mud houses, houses from cow dungs, bamboo houses already exist
  - **Youth involvement:** Where local folks could be trained to construct this together
  - **Materials:** Made of off-the-shelf products; needs a little bit of skill in which village youths could be trained; helping provide them with a means of earning
  - **Toilets:** Most expensive item in the house
- **Alliances:**
- **Pratham:** Mr. Madhav Chavan from Pratham said that he could provide land, if we could provide the technology. There was nothing in writing, but he mentioned it a few times during our meeting. We took this as one of the biggest successes of our trip.
  - **Monitor Inclusive Markets:** Good to exchange ideas, but they are in a different segment, and kind of like a competitor
- **Other notes:**
- Indian real-estate prices are booming, and there exists a huge competition in a segment just above ours (i.e. houses ranging from \$3000 - \$15000). Several developers like Mr. Jerry Rao, Spice builders (owners of Spice Jet), etc. are working on these houses; Monitor Inclusive Markets (we met one of the consultants, Bala Venkat) is also working on making this a reality with several of these developers. While their current focus is on a different segment, they also want to see how a \$300 house is feasible

## Notes from our meeting with CORD in Delhi

A meeting was held on 8 March 2011 on the premises of the Chinmaya Mission in Delhi with Ms. Mona Malkani, Director of CORD (Chinmaya Organization for Rural Development) in Delhi. The purpose of the meeting was to understand a) existing schemes, specifically housing, in rural communities, b) how the idea of the \$300 house can be pitched to these communities, c) key issues/programs/processes that the team should be aware of in preparing to interact with key stakeholders involved in rural development.

We gathered from the discussion that the rural population is unaware of the schemes that the government has in place to promote sustainable development and is not literate enough to know how to implement these schemes.

The **Panchayat** (local self-governing body responsible for 8-9 villages) plays the central role in overseeing development in rural areas. The Panchayat comprises leaders elected by villagers. The flow of funds from the government for various rural schemes is carried out according to the following structure:

*Federal → States → Districts → Blocks → Wards → Panchayat*

The challenge is that while funds have been set aside for various rural schemes, there exists a shortage of experts/organizations that can help government officials and villagers in working together to implement these programs. As a result, much of the money remains unspent and is returned to the Central (Federal) government at the end of the fiscal year. Organizations such as CORD act as a conduit for implementing these rural schemes.

*(a) CORD and Housing*

CORD is working with rural communities primarily in the states of Himachal Pradesh, Orissa and Tamil Nadu. Orissa is one of the poorest states and communities have virtually no money to build houses. As such, communities are living in mud-built houses and derive their income from agriculture which itself is a seasonal activity. CORD is thus focusing on agricultural schemes (vermicomposting, animal husbandry, small-scale farm business development).

In Tamaripakkan (Tamil Nadu) CORD has been involved in housing rehabilitation. Funds are disbursed for house repairs based on applications by individual villagers to the Panchayat which verifies the identity of each villager. Upon ID verification and application review, the Panchayat approves the funds which can be anywhere between 4,000 to 40,000 Rs/- (recommended that we read up on the different government housing schemes).

*(b) CORD Rural Development Strategy*

CORD's development focus has been to a) empower leaders of the local Panchayat to develop their communities, and b) creation of *Mahila Mandals* (group of rural women coming together to discuss social and economic problems). The premise is that development in rural areas will be disconnected unless entire communities and families take 'ownership' of their own development and are fully engaged. As such, the Mahila Mandals are critical in that they provide women with the confidence to speak out about those issues that matter most to them and their families on a daily basis. Through MMs, self-help groups have been formed.

When attempting to enter a community, CORD first conducts a full needs assessment by surveying every household, assessing the condition of schools, roads, sanitation and water supply system. The surveys also look at how successful existing government schemes for scheduled castes (SC) and scheduled tribes (ST) have been. Through the surveys, CORD is able to ascertain potential areas where schemes can be implemented. While CORD does not focus on any particular sector, assistance is targeted based on the priorities determined for each community.

The key takeaways from these conversations were:

1. In terms of identifying community needs, villagers will not come forward to tell you what they need/want the most as they seem to be content with the existing state of affairs. Thus, there is a need to create demand for schemes and tap into their skills and resources.
2. CORD's view is that we need a buy-in from an NGO. In order to eventually 'sell' the \$300 house model to rural communities, the best conduit would be through an NGO that has established links with the Panchayat and the specific community. The role of the Panchayat cannot be more emphasized. Buying land has become difficult and the Panchayat decides each housing application in its community.
3. As many communities are poor and have few means for income generation, they will ultimately bear the cost of a house through the allocated government subsidies.

Further, we identified the following follow-up items:

1. NGOs working specifically in the area of rural housing need to be identified and contacted for further consultations and eventually selection as an implementing partner.
2. Need to look at *Indira Gandhi Pravas Yojna* to obtain further information on ongoing government schemes for the poor in the housing areas
3. Possible Contact in Mumbai: **SUSHIL SHUTRE** is an IIT graduate who is teaching in schools in Dharavi. He travels to Dharavi every day and FYP team could join him one day to go into the slum and speak directly with residents. He could be relevant in the event that the initial Dharavi tour does not enable the team sufficient time to speak firsthand with slum dwellers. Accompanying him to the slum could also provide another perspective of the place in addition to the tour. I am awaiting his contact info from CORD
4. Watch film 'Back to School' on Dharavi involving Sushil Shutre. A copy will be made as part of the information/background research materials gathered for the project in India.

## **Essential elements of a \$300 house in India**

After our return from the trip to India, we focused our energy on determining what it would take to make this project a reality in India. We have had several internal meetings with various stakeholders, spent several hours researching this topic, read hundreds of articles, explored the work that is already being done in this space, and seized the opportunity for our entire team to visit India in early March. Here, we distill some of our key findings, especially with regard to the design of the \$300 house. We strongly feel that meeting these requirements is imperative to ensure the success of this project. We also hope that our findings will help the broader community of designers, architects, and interested folks to gain additional insights. We seek to answer two main questions:

- What are the most important design criteria (requirements) for a \$300 house in India?
- What would this house look like?

Based on our visit to several slums in Mumbai and Raipur, and through our surveys with the inhabitants of these slums, we established the following key criteria to guide the construction of a \$300 house. Please note that these do not apply to all the houses in slums, but to the majority that we visited:

- **Sunlight:** A lot of these slum houses do not have any windows or doors. Upon entering these houses, the rooms are dark, and they remain dark throughout the day. In houses where there is no electricity, this problem is even more acute because families, when inside, are spending their time in darkness or in lantern. (Note: there is one door to enter the house, but it is usually covered by a bed sheet or plastic sheet to maintain some privacy)
- **Ventilation:** With no doors or windows inside the house, and no specific outlets for ventilation, fresh air does not circulate the house
- **Height of 10 feet:** When some of us entered the house, we could not stand straight. We had to bend to talk to these residents. Height of the ceilings is a big issue in these houses, where the houses are less than 6 feet in height. Hence, we think that having at least 10 feet of height has the following benefits:
  - o Allows opportunities to create outlets for light and ventilation
  - o Creates perception of larger house space
  - o Provides an opportunity for the residents to build additional structures (like a small loft or additional storage space)
- **225 Square Feet:** Most houses that we visited ranged from about 90 sq. ft. to 180 sq. ft. We think that these houses, if possible, should be at least 225 sq. ft. in size. We borrow this number from the fact that the Government of India is making houses of at least 225 sq. ft. in places like Dharavi and New Raipur as part of their initiative to provide low-income housing. This requirement could be tougher to meet because of land issues. But in places where the land is owned by the residents themselves, and possibilities exist to redesign the house (albeit for a cheaper cost), the size should be an important criteria
- **Current family size:** Most families are 4-5 members in size; 2 parents and 3 kids
- **Private showers:** Most of these houses do not have bathrooms, leaving the residents to go and shower publicly. If public showers are available, they use that; but in our observation, most residents take showers right outside their own houses, leaving no privacy for these residents, especially women and girls. Also, these activities cultivate an

unhygienic environment in the neighborhood and community increasing dirt and accumulation of trash. Hence, having a shower inside a house is important for two reasons:

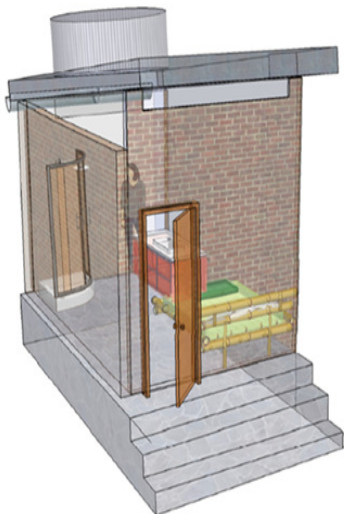
- Hygiene
  - Privacy
- 
- **Communal restroom per 10 families:** Similarly, private restrooms in each house are missing. We also heard and read that restrooms can get very expensive to build in each and every house. Additionally, our observations tell us that community restrooms, where 10 families use a public restroom, separate for men and women are working well today. We would like to propose the same. From a cost perspective, this helps is average the cost of a single restroom across 10 (or so) families, while providing these facilities, which are then maintained by the respective owners. A key for these restrooms is available to each of these 10 families
  
  - **Security (and ownership):** As mentioned earlier, most houses had small doors to enter the house, but no way to protect anyone from entering. These doors are usually covered with bed sheets or plastic sheets (for privacy reasons), but anyone can enter the house at their will. This prevents building a sense of security and a sense of complete ownership for this house. We feel providing a closed door is critical in elevating the living conditions of these people. While they might not have a lot of items that people could steal, it is the perception of ownership that matters
  
  - **"Pucca" houses:** This is an important criterion. Many of the houses that we visited were built from mud, cow dung, tin roofs, bamboo, and plastic sheets. They are falling apart. It is important to provide a pucca house (pucca means strong). This could be in the form of concrete or other materials. The choice of material is important here because of the perception of people to move to a \$300 house from their existing homes

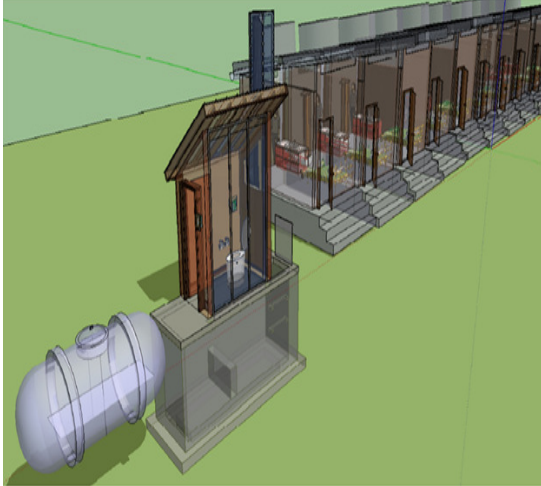
The last point is important and deserving of further explanation. Please note that the \$300 house can be targeted to two sets of people: (1) Those who own a house that is currently falling apart; AND (2) those who do not own a house. For those who own a house, they need a set of reasons to catalyze them to move to a \$300 house. What are they? We think the above list captures the most important ones. These criteria are not new, and nothing fancy, but the fact that the current residents do not enjoy these is a BIG ISSUE. If we could meet the goal of providing these features at a decent cost, there is a very STRONG INCENTIVE for the current residents to upgrade. In other words, our housing design needs to cross a certain threshold of aspirational value that would convince the current residents to shift to a \$300 house. This is a critical part of the design!

Additionally, we also captured additional criteria and grouped them in three separate categories:

- Additional requirements that could be met over time:
  - Resistance to heat
  - Resistance to heavy rain/floods
  - Resistance to fire
  - Water tank
  - A sink
  - Scalable design and material so it is not problematic to build these houses in scale
  
- "Nice to Have" features for the house include:
  - Flexibility: modularity to expand the house beyond what it is
  - Small porch
  - A few steps at the front to prevent mud, rain, etc.
  - Gutter to collect rain water

As mentioned earlier, we believe that one of the ways to reduce costs and stay within budget is to provide some of the basic services for the community rather than for each individual house. We would need a big tank and a water filtration system to clean the rain water or other water collected and provided people with a source of potable water which could be different than the tank they need for their shower water for instance. We would also need a community restroom. Our estimate is that we would need one for every 10 houses (50 people), which would constitute a marked improvement over what currently exists. The restroom should be self-sufficient (i.e. compost, etc.). Luxury items would include a space for washing clothes, a community center, etc. but are not required and certainly very challenging given the budget.





Based on the above criteria, we tried to brainstorm as a group to envision the design and layout of this house. Subsequently, we went on to realize this design in the form of a Google Sketch Up design. Please note that the above designs are just conceptual in nature, and do not meet the scale requirements. It was our first attempt at prototyping, with the aim of building upon this prototype, and refining it even more. (One of the skills which our group lacked was experience in design/architecture).

Here are things we discussed in India and observations about house design from our trip:

- **Light/Ventilation**
  - Absolutely no light; completely dark rooms
  - Provide a large entry door, provide roof top sunlight (if feasible)
  - Absolutely no windows, no ventilation
  
- **Height:**
  - Less than 6 ft. in height; I could not stand straight in those houses
  - Increased height gives a perception of a bigger house
  - Allows people to expand their houses in future (by building their own lofts)
  
- **Size:**
  - Existent houses are less than half our traditional room size; which means, if we build a house, we will occupy space of two slum houses per our house design
  - One option is to provide one additional story (similar to Manick's house – the guy whose kids spoke fluent English in Nehru Nagar); but then we lose the top-of-the-roof sunlight option
  - This was a **BIG DESIGN DECISION POINT** for us.
  - Most houses for slum replacements are being sold for 225 sq. feet
  
- **Perception:**

- In India, the perception of a “pucca” (strongly built) house is important
- This drove our choice of material (similar to Tata Nano – the car looks quite good, and no one can say it is a “cheap car”)
  
- **Flexibility:**
  - Another BIG DESIGN DECISION POINT for us.
  - How flexible should we make our house?
    - For size? Not everyone wants to live in 225 sq. feet. How can they expand their house, assuming they find space, materials, OR buy the house of the neighbor?
    - Options to grow vertically? Probably easier for us to provide. Important in roofing considerations.
  - Step-by-step assembly
  
- **Other notes:**
  - A small porch in front of the house
  - A little bit of rise from the ground (to avoid collecting the rain water)
  - If we build communities, we can sell them to multiple people at once (less convincing). But then, we risk not selling a single home.
  - Water drops into the alleys and collects there; absolutely no drainage
  - Very limited spacing between two houses
  - Absolutely no privacy!

## Deciding the materials

In considering the materials to be utilized for constructing the \$300, our team made the following observations:

1. Construction materials that are most commonly available in India include gypsum, concrete and bamboo. The first option (gypsum) can be used to manufacture building blocks. If produced locally with natural resources, semi-skilled labor and few transport needs, gypsum-stabilized earth construction for low-cost housing can be very cost effective. Gypsum bricks are a very durable option for the construction of boundary walls and can be produced through the utilization of industrial waste. The second option (concrete) would be the most expensive of the three materials. It is environmentally friendly, energy efficient and entails a simple manufacturing process. The key ingredients would include cement, sand and industry wastes such as fly ash and blast furnace slag. The third option (bamboo) is highly resistant to water, termites, borer, insects and wood rotting fungi. Bamboo is also stronger than plywood, more durable and can withstand severe climatic conditions.

2. Materials will constitute approximately 60-70 percent of construction costs depending on the type or combination used. The challenge is that house will be piloted in three different states (Gujarat, Chhattisgarh and Maharashtra) with different climatic conditions and availability of natural resources. We explored various cost options as part of the business plan to propose a combination of materials at minimized costs based on durability, environmental compatibility

and availability. At the same time, the more homogenous the product, it is less costly and greater the possibility that it can be modular and be scaled.

We considered five other material types that could be explored separately or in conjunction with some combination of the aforementioned three common ones.

1. **Cellular Concrete** would be highly conducive for walling blocks and roofing slabs. This type of concrete is manufactured through an aerated cellular concrete manufacturing process and has a high fire resistance rating and can improve insulation in the house.

2. **Micro Concrete** can be used for roofing tiles and is made of graded cement mortar layer vibrated and formed over sloping mould and cured. It would be most appropriate where fired clay tiles are not available and timber is costlier. Further cost reductions can be made by using ferro cement rafter and purlins.

3. **Corrugated Bamboo** is a strong candidate, as it is eco-friendly, light in weight, strong and durable and poses minimal fire hazards compared to thatch and other materials. Corrugated bamboo sheets can be used for roofing, walling, door and window shutters and other components in building construction. It is both termite resistant and fire retardant as well. Moreover, bamboo can also be utilized for walls. A bamboo mat can be placed between horizontal and vertical timber/bamboos as a frame. These walls could be easy to construct, less expensive, and are popular in hilly areas given a self-help system. This walling technique is also relevant from the perspective of earthquake resistance. Treated bamboo can be used for the construction of this with bamboo mat walling between bamboo columns plastered with cement on both sides. The structure is light and economical as bamboo is abundant. Bamboo is also termite resistant and fire retardant.

4. **Mud** is extensively used for construction in rural areas, as it is readily available and widely accepted. Mud is an alternative building material that is significantly cheaper than conventional brick and concrete, and is also environmentally sustainable. Mud has been used as a construction material on every continent for centuries.

5. **Cement** is widely available across India and this option must be accorded serious consideration for construction purposes. Gujarat, one of the focus states of the \$300 house project, would be very suitable for this material based on the *Bhungas* of Kutch, where compressed cement stabilized earth blocks are used for the walls. Earthquake resistant features like vertical and horizontal bands are provided to each *Bhunga*.

As mentioned earlier, building materials account for nearly 60 to 65% of the cost of house construction. With the constant rise in the cost of traditional building materials and with the poor affordability of large segments of the Indian population, the cost of an adequate house is increasingly going beyond the affordable limits of more than 30-35% of our population lying in the lower income segments. This calls for wide spread technology dissemination and availability at decentralized locations of cost-effective building materials and construction techniques.

Additionally, with all the research that we did surrounding the building materials, our ultimate goal was to find a material that would be sustainable in the long-term and which would meet our cost requirement. We were also looking for commercial viability of the material – most of the discussions surrounding materials we found were mostly from a research point of view. Lastly, one other important criterion that we focused on was the ability to form building blocks with the material. We found adobe to be a material that was mentioned in research literature quite a bit. It was only when we stumbled upon Hydraform – a company based in South Africa which sells machines to form Compressed Earth Blocks. These blocks are similar to Adobe, but with the new technological machine, provide a concrete like quality to blocks made out of mud.

Finally, we believe that identifying the right combination of materials will be the single biggest challenge in ensuring a sustainable final product that can meet the needs of low income families. For the house to appeal to customers across the country, it will need to be modifiable in order to conform to local conditions and be affordable. This will require additional discussions with local contractors and raw material suppliers in order to obtain information on prices, product quality and suitability, manufacturing technology and masonry.

I also included various other approaches we considered before settling down on CEBs for above-mentioned reasons (these are just for reference and to showcase the completeness of our research before we settled on CEBs):

#### Approach 1:

- We build a minimum of X houses; we have financial models which predict the break-even value of X.
- We go and analyze the community with an architect. The house design stays the same; the layout might change just to make sure we provide good/right design of infrastructure

#### Approach 2:

- We connect with existent affordable home builders and see if some meet our needs, or can be tweaked? This is critical to even answer this question: Have you looked at your competition? Why has this not been done on a large scale yet?
- One option is: <http://haitirewired.wired.com/profiles/blogs/uber-shelter-project>
  - o Initial price (\$1500) in 2010
  - o <http://www.ubershelter.org/info.html>
  - o We can contact him to see what's going on:  
<http://www.ubershelter.org/contact.html>
- I-beam design:
  - o <http://www.youtube.com/watch?v=4Z7WI2v1Mh8&feature=related>
- Solar homesteading:
  - o <http://www.simplesolarhomesteading.com/>
  - o <http://www.youtube.com/watch?v=zLHnOWY9Lt0&feature=related>
  - o This is the kind of house design that we want
- NHB in India looks at housing related issues from policy perspective. <http://www.nhb.org>

- Differentiates between affordable housing and low-income housing; which is great and matches our definition

Approach 3:

Bamboo Pre-fab houses:

- Includes Specification as well: <http://www.bamboocomposites.com/prefab.htm>
- A great housing example: <http://www.bamboocomposites.com/bamboo%20based%20housing%20system.htm>

## **Determining the market potential**

After we returned from India, we completed our first analysis on the market potential for the \$300 house as soon as we could.

As mentioned earlier in this paper, our objective was to focus on the economically weaker sections (EWS) of the urban population in India. As of today, these households are facing three main issues. First and foremost, as shown in the figure below, they have largely been excluded from traditional, affordable housing projects that were focused on the higher income population. Moreover, EWS represent the bulk of urban households facing a housing shortage: approximately 23 million out of the 33 million EWS urban households in India are currently facing housing shortages. Finally, due to their inherent socio-economic difficulties, EWS households are sometimes not even aware of government schemes and programs that could improve their housing conditions.

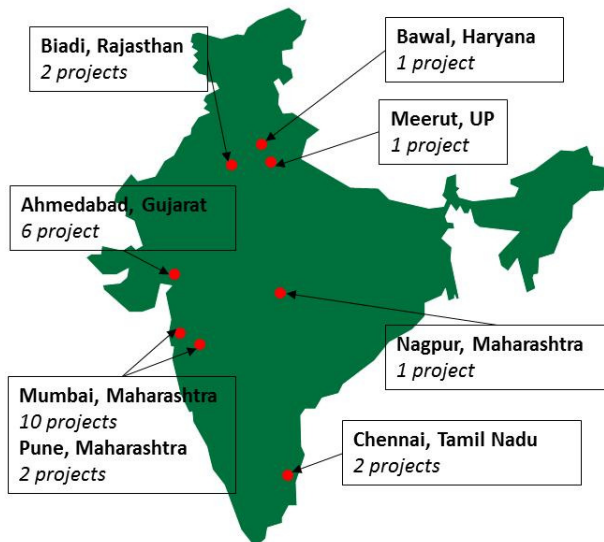
Based on our analysis, we estimated the total market potential to be \$41 billion in India and \$8 billion in the three states where we will first focus our attention: Maharashtra (excluding Mumbai), Gujarat, and Chhattisgarh. As with any other market, we have estimated its size by combining the potential volume with the customers' willingness-to-pay (WTP). Potential volume logically represents the total of EWS households facing house shortage in India (i.e. approx. 23 million), while WTP has been estimated as the average government subsidy that EWS households are entitled to receive under various government schemes such as the *Rajiv Aawas Yojana* scheme (i.e. approx. Rs. 79,000).

These numbers are based on a preliminary analysis and may change in the future as we refine our work and integrate other information.

The way we started thinking about our business model was top-down. Our research showed us that low income housing in India has been growing for some time now. The growth in lending from banks to low-income people, the rise in income levels at all levels of Indian society, the increase in employment opportunities, the rise in real-estate development across the country, and the emphasis from the Government of India to push affordable housing initiatives has led to a big boom in low income housing across the nation.

# The low income housing market in India is booming

## Map of low income housing projects in 2010



Source: Monitor Inclusive markets

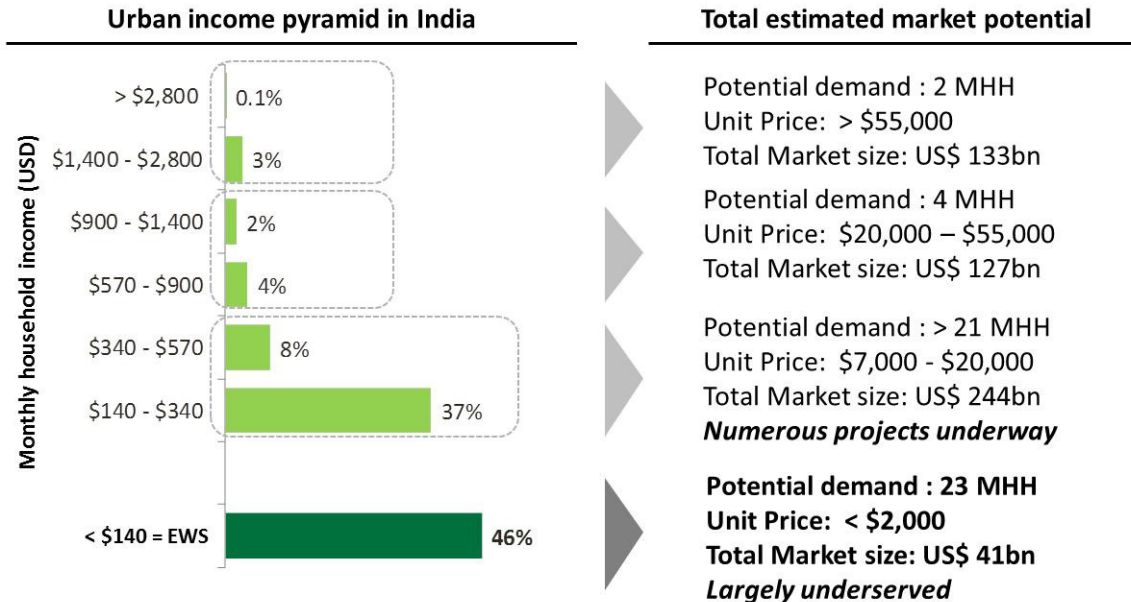
## Key findings for this market

- 25 developers building or planning to build low income houses across 7 states
- Prices range from Rs. 3 to 7 Lakhs i.e. from \$6,800 to \$15,900
- Target customers are households earning between \$170 and \$340 per month
  - Civil servants
  - Office clerks
  - Shop owners
- Gross margins are between 20% and 30%
- Projects' returns between 40% and 50%

But, even though there was significant activity in the low income housing market, the Economically Weaker Section (EWS) of the society has largely been ignored. This segment is the largest among all (with 46% of the Indian population at low income level). This segment is also the one at the bottom of the pyramid and has largely been ignored in the Indian growth story. The trickle-down effects of growing economic prosperity have really not reached this base yet. With \$300 house, our goal is to cater to this market exclusively because we think the need is the highest in this segment.

The below figure discusses the classification of these various segments.

# Total Addressable Market is huge and underserved



Source: Monitor Inclusive markets, Indian Ministry of housing and Urban Poverty Alleviation

During our India visit, we were able to tap into the following resources to gather field data on determining the market potential:

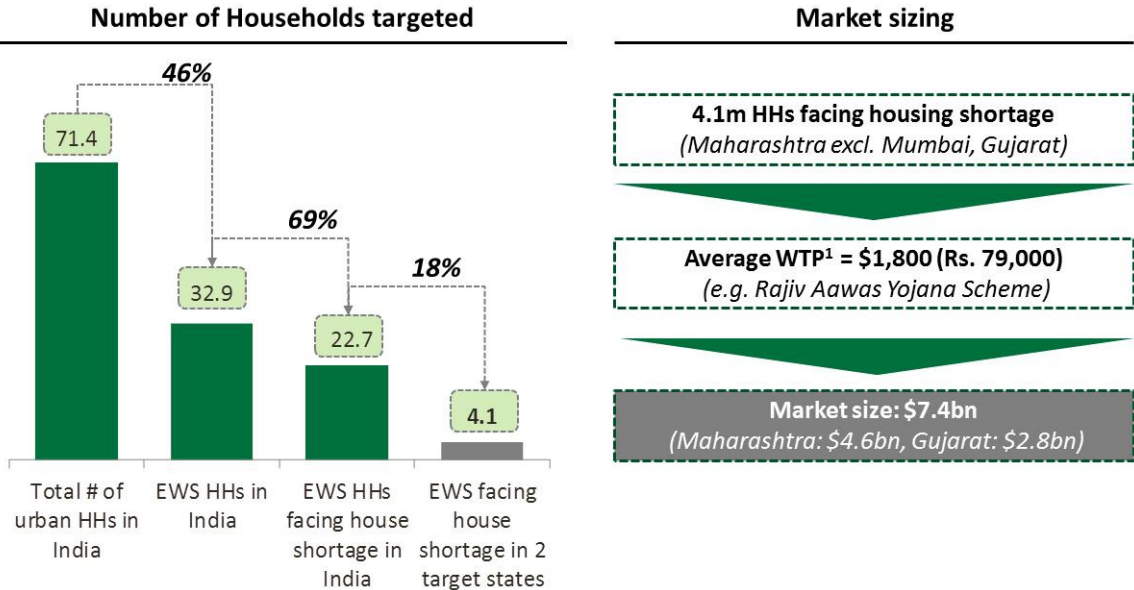
- Monitor research report
- Discussion with government officials in Raipur
- Discussions with slum dwellers
- The total number of people without proper accommodation of their own
- Our research where the Indian government itself wants to provide a better life to slum dwellers; floating schemes like Rajiv Aawas Yojana

We also realized that financing was a challenge for our end-market customers:

- Extremely poor people probably cannot afford to pay \$300
- While microfinance is one option, we focused on seeing if government would be interested in becoming our customer
- We explored Rajiv Aawas Yojana where the government would be helping to build these houses and providing them with subsidies, up to 80%
- We also got interest from two village heads through an organization that we connected with. Their claim was that even for \$600, they would be interested in talking to us in talking about our technology to reach the price point

With this data in hand and having had several discussions with the above stakeholders, we decided to focus exclusively on laying down an execution plan for the implementation of a \$300 house in India. From the places we visited, and from the places we knew well based on where some of our team members grew up, we decided to focus on two states of Gujarat and Maharashtra. As noticed from the below figure, the total number of households that lie in the EWS strata in these two states is 4.1 million. Based on our calculation of Willingness-To-Pay (WTP) from our market research and survey, we calculated the market size of \$7.4 billion. Of course, this number assumes 100% market capture. Additionally, the Rajiv Aawas Yojana states that they are willing to give Rs. 50000 as central government subsidies. However, we assumed higher subsidies because there might be additional subsidies from the state or local village heads. Additionally, this is the number we got first hand from two village heads who have shown interest in buying \$300 house if we had the technology and means to deliver these to them.

## Gujarat and Maharashtra (excl. Mumbai) represent approx. 20% of the total market



Source: Indian Ministry of housing and Urban Poverty Alleviation, Pratham

In terms of execution, we focused our efforts on CSEB or Compressed Stabilized Earth Blocks. As discussed in the materials section above, we realized that the CSEB solution was feasible, locally available, and was within our cost requirements. Additionally, it allowed us to scale in different parts of India. In our search for finding the right way to build these CSEBs, we narrowed down on Hydrafarm, a company based in South Africa that manufactures machines that can be used to make CSEBs.

From our analysis of the machine operations combined with our understanding of how the local economy in India works, we came up with the following initial execution model in terms of the number of machines needed to kick start the project as well as a timeline to get the project done for a typical community site (also included below). As you can notice from the community layout, our research indicated that it made most sense for us to focus on community layouts instead of building one house at a time. This was important not just for scale or cost reasons, but also because owners of these \$300 houses want to feel part of a community.

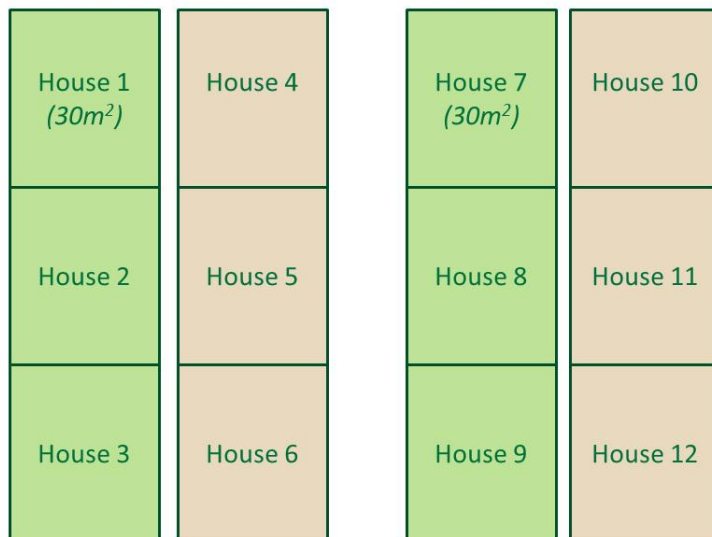
## Our execution model



Source: Hydraform, Our estimates

# Typical community layout

## 12-house-communities sharing sanitary units



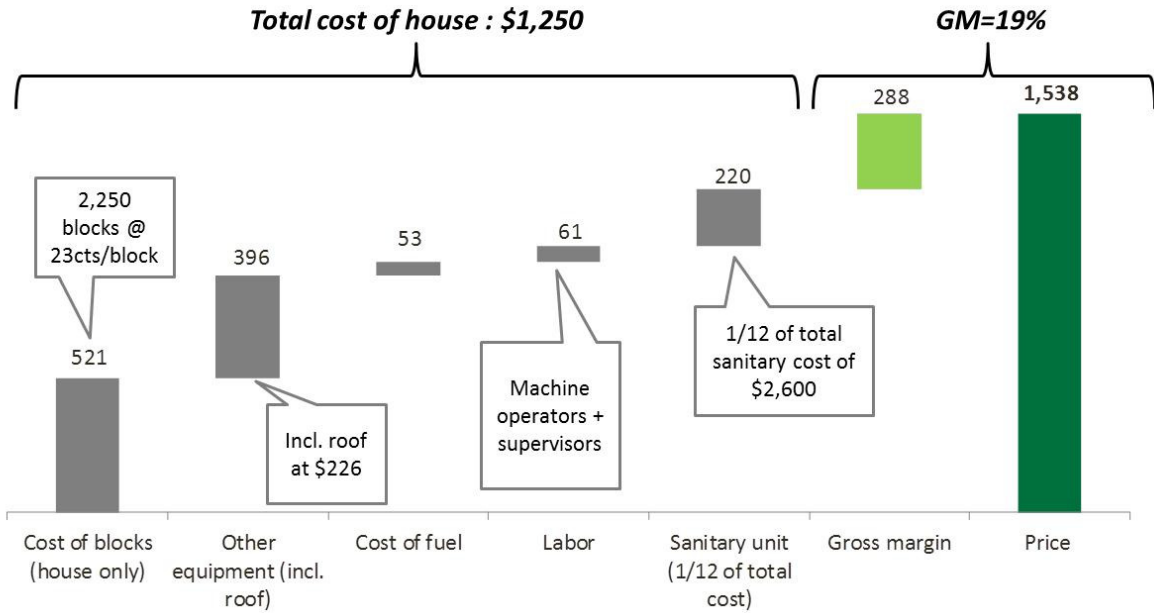
### **Total requirements**

- ~30,000 blocks
  - 413 tons of soil
  - 41 tons of cement
- ~5 roofs
- Equipment for 2 sanitary units only

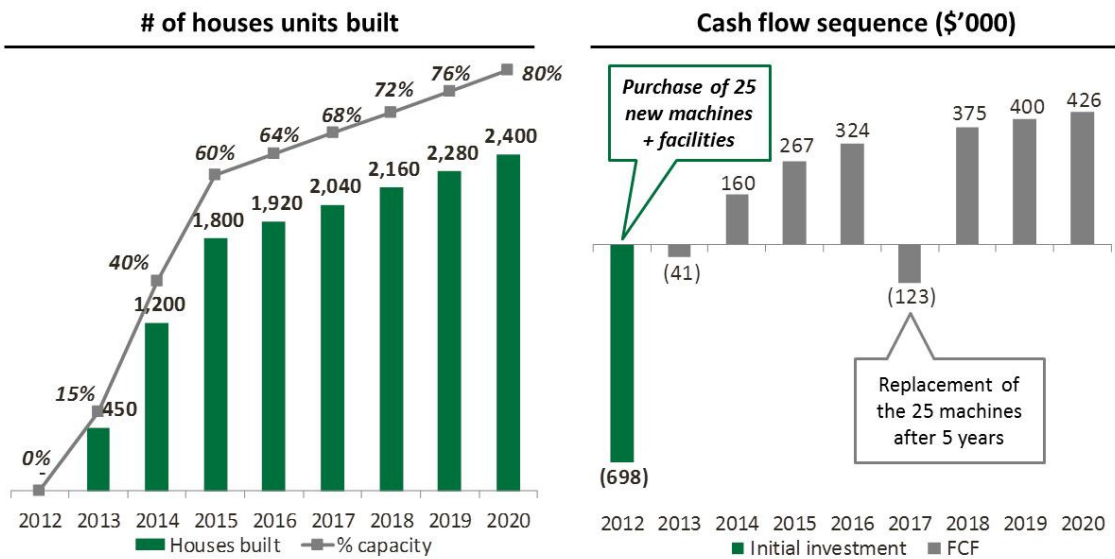
Our cost estimates for a house with the above execution model and community layout came out to be about \$1250. This was way above our goal of \$300, but we considered it to be a start. We also knew that since none of us were from design / architecture background, we had to do our best in providing as much cost buffer as we could in our estimate. Lastly, our cost estimates are largely conservative in terms of cost savings due to economies of scale. We expect these costs to come down significantly as we continue to collaborate with designers all around the world.

A successful execution of this business model will provide an IRR of about 31%. Contrary to what people might think for a social enterprise, we thought this was a very solid return – hence providing a huge incentive for businesses to engage in this entrepreneurial venture.

# Price Breakdown (USD)



# Revenue and cash flow sequence



**Return on investment (IRR) is over 30% p.a.**

## **Existence of gangs and other slum-dwellers associations**

We did not have direct interaction with gangs or any other slum-dweller association. However, we know that such activities exist. For e.g. as we were touring one of the slums, one drunk person approached us and asked us as to why were we touring the place. He also asked my phone number, and when I tried to avoid him, he became a little forceful. He was a little man and he seemed harmless, but it did seem that it was on the residents mind what the purpose of our visit was. This is not uncommon and it is not unexpected as most of the land that these slums have sprung upon is illegal land. Additionally, these slums reside on prime land in the middle of the cities, where land valuations have risen enormously over the years. Land being such a prime resource in bigger cities, there has always been a tussle between builders, who would like to take the slums away and provide new housing to the growing needs of Indian diaspora, and these slum dwellers who know that their occupation is illegal, but at the same time argue that several generations of their families have resided on the same piece of property, hence giving them the right to continue living there. This conflict over time has caused residents of slums to come together and form associations to have a voice of unison and representation in these conflicts. These facts were also clear from the conversation with the drunken person. It is also the reason that Dharavi no longer views favorably upon visitors taking photographs of the slums. They not only see that as an invasion of their privacy, but they also question the intentions of people taking these photographs.

## **Land available, issues surrounding it, and potential solutions**

One of the biggest challenges of implementing the \$300 house project is finding the land upon to build these houses. However, there are solutions on the table that can be explored in getting around this huge challenge:

- **Allocation of land through the state and national government:**
  - One option is that the government provides the land to developers working on the development of \$300 housing communities. This would be an ideal situation for any developer undertaking the project.
  - A slightly different variant to the above option came about in our discussions with GOI officials at Raipur. Chhattisgarh government is building a new township called New Raipur at a brand new location at the outskirts of the boundaries of Old Raipur. As part of GOI mandate to develop New Raipur, to attract new industries, and to retain local talent, New Raipur would be the new symbol of success for the growth that the state and the capital city are experience. GOI officials told us that as part of the development of townships in the New Raipur region, the Chhattisgarh government is incentivizing developers to allocate 15% of the land that they develop to housing for low-income families. Hence, for certain pieces of land that the government is providing to developers to initiate development, 15% of the houses would go to low-income families at very cheap cost. As we noted earlier, our target market is for EWS, which is below the low-

income strata, but a similar model can be used for allocating land and incentivizing developers to build houses for EWS segment as well.

- **Redevelopment on existing land:**

- Our continued communication with Pratham brought about another interesting proposition to solve the land issue. Similar to the way GOI officials in Chhattisgarh are looking to attract investment opportunities in the state, several Panchayat and village heads, who want to serve the housing needs of the residents of their area, are very interested in providing \$300 houses on existing land as part of village redevelopment efforts. This would not require new land, but rather reconstruction on existing land. There are three big benefits of this approach:
  - Villages / rural areas are already our target market where most EWS segment customers reside;
  - This option would help us the village / rural area's housing needs by providing them better housing communities through the redesign – already a goal of \$300 house project; AND
  - There are no new land requirements
- Of course, this is easier said than done because communities are already laid out in these villages – hence, a single design would not work across all villages / rural areas. There will be huge customization requirements
- But, I strongly believe this idea should be explored further for several reasons:
  - Existing land rights are maintained and no one has to provide any additional land;
  - These villages / rural areas are the least-served market with most of the problems that our \$300 housing solution is trying to solve;
  - Most of our EWS segment customers reside in these areas;
  - This is a huge market even in a fast-growing economy like India; AND
  - We saw actual customer traction on this from village heads who communicated via Pratham that they would be interested in looking at our technology even if we could not meet the \$300 house price target
  - Lastly, this is a perfect example of market disruption where we start at absolutely at the low-end of the market which is completely underserved (EWS). A successful execution plan would lead to high volume and huge scalability reducing overall housing costs

- **Business owners providing land with the goal of benefitting from long-term economic development:**

- I would rate this as another big possibility for solving the land issue. As you might notice from our report, \$300 housing communities could serve as economic hubs. They could develop into communities where local enterprises evolve over time. This has been one of the goals of this project from the beginning – to provide \$300 housing communities which would lead to economic prosperity for these communities *over time*. We don't know yet what form or shape these communities would take, but I would guess that enterprising entrepreneurs and businessmen who see benefits from the development of these communities would

like to invest in the development of \$300 house communities (similar to a venture) where they would provide the land, and even the capital to develop these communities, and getting returns on these investments over time as these communities evolve. To cite an example, this was exactly what Pratham had in mind when they suggested they would make land available if we had the technology. While they were not thinking from the point of view of return on investment, they were thinking in terms social return on investment by way of youth development over time in these communities – the investment would be the land and the return would be youth development to an extent that these youth would go out and run their own entrepreneurial ventures over time. I think small and big businesses over time could see huge potential in developing such \$300 housing communities with the intent of leveraging from the local economic development that would happen in these communities

- **Philanthropists donating land:**

- o And lastly, there is always the possibility of philanthropists who would like to see communities getting access to better opportunities by donating land just for the purpose of seeing these communities prosper

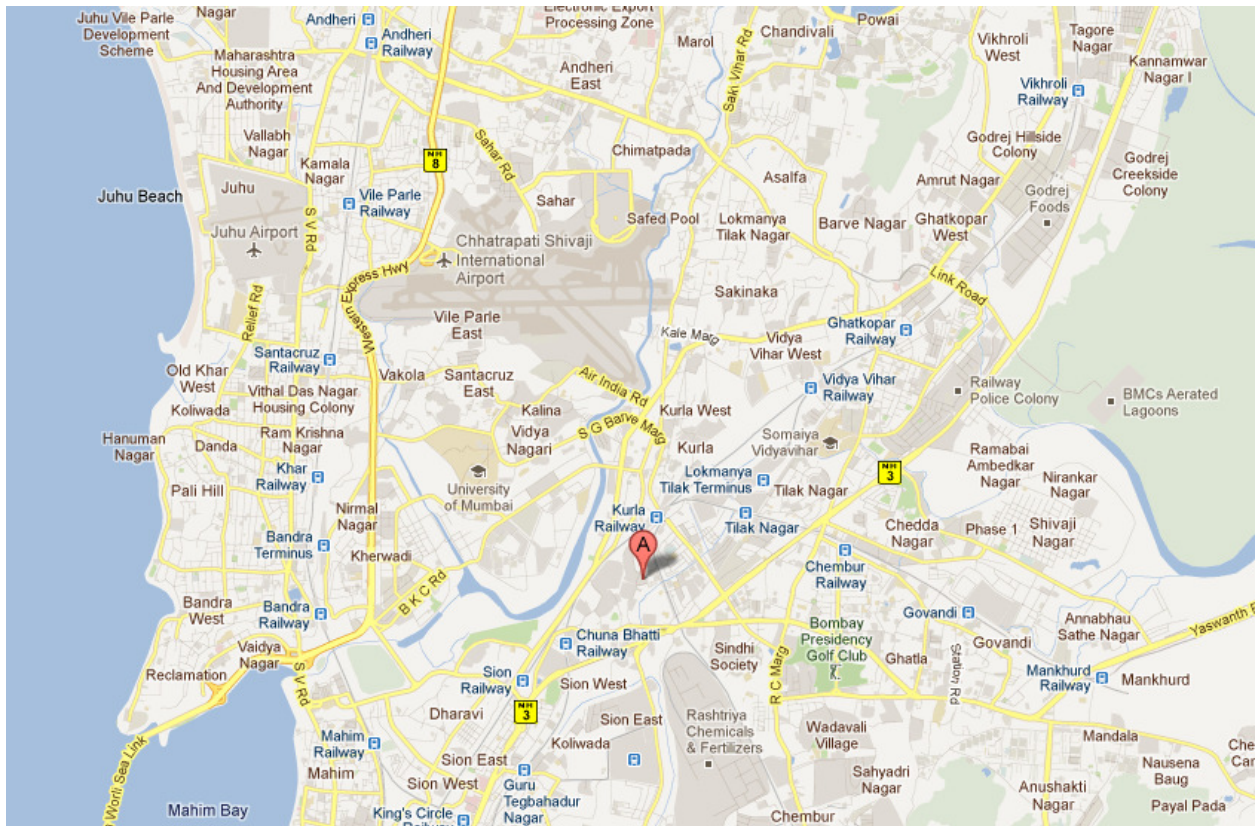
## **Issues related to health, education, and jobs that could be addressed by living space**

If you look at the photographs that we took (and sent out as part of the top 12 photos), and if you read into the list of requirements that came out from our visit, most slum dwellers are living in poor hygienic conditions. This stems from the fact that the houses that people have lived in have come about in an ad-hoc way.

This is a critical point, and there is a reason the slums today have come about in the way they have. If you look back and think about the reasons for the design choices that the slum dwellers made when building their houses, it is clear that these slums sprang up on illegal land with the sole purpose of providing a roof on top of their heads. When you are living on the streets and have no roof on top of your head, the last thing a slum dweller would think about is whether the house is properly designed. Consider that to be the revision 1 of the houses. Over time though, and this is the time that we live in today, these houses have undergone modifications, mostly in terms of improvements, as the owners of these houses have seen their economic well-being improve. And this is when our design input comes in. \$300 house designs should be seen as a revision 2 of what already exists. It is necessary because of all the benefits related to proper hygiene and economic prosperity that comes about by living in spaces that meet the basic necessities in life. This proposed revision 2 (and further revisions) is why societies progress. Critics cite change as bad; however, change is exactly why humanity has progressed. Our design revisions provide simple improvements over housing designs which came about in an ad-hoc way, at a price point which nobody had dreamt of (assuming we can make it happen

technologically). How can this be bad in any way? Should we punish businesses that provide improved housing design revisions at \$300 if they are able to make a small profit? My answer is no. And the ultimate decision on the feasibility of this should be made by people themselves.

The housing requirements that we mention take hygiene into account. Everyone has a right to proper sunlight and ventilation as long as the house is designed right. We also noticed that a properly designed housing community would turn into an economic hub over time. As a proof of this, please look at the arguments that we make at the beginning of the paper on why we excluded Dharavi as our study ground in the first place. Our visit to Dharavi surprised us exactly because now Dharavi has turned into a major economic hub of its own. There are local industries (e.g. leather), which are now exporting products out of Dharavi to other places in the country. This would have been unimaginable just as early as few years back. If a large housing community such as Dharavi can turn itself into a major economic hub, with industries springing around in all corners, where local shops have come about at various places, and where we met children who not only speak fantastic English, but are acutely aware of world affairs, it is not far-fetched to expect the same from better designed housing communities such as the one we are proposing.



This human spirit of providing a better life for themselves and their families was exactly what impressed us the most in India. In Mumbai, we visited Nehru Nagar, which is a slum with about

500,000 residents in the posh colony of Juhu. It was during our visit to Nehru Nagar that we met a person named Manick, as shown in the picture below.



Manick is a civil engineer who lived and worked in UAE for several years before returning back to India. He owns a house in Nehru Nagar, which today could be sold for between Rs. 500,000 – Rs. 700,000 (between US\$ 11,000 – US\$ 15,000 assuming 1US\$ = Rs. 45). His house has two floors where the bottom floor has just the living room and the top floor has a kitchen and bedroom. He has a son Rajesh who is in 11<sup>th</sup> grade. Rajesh asked us about our Facebook accounts, he has a desire to study in France, and he speaks flawless English. Manick also has a daughter who has finished her Bachelors in Commerce, and she is now employed at a call center providing customer service to foreign multinationals. Her command over English is commendable. If you meet her or Rajesh outside Nehru Nagar, you cannot say that they live in a slum. Manick's own education, his experiences, his ambitions to provide a better quality of life for himself and his family have led to a phenomenon where his children, even though they live in a slum, are working for multinational companies and have an intense desire to study abroad. Manick is just one example among an entire set of families that live and breathe in Nehru Nagar. And all this has happened even though these communities have come about in an ad-hoc way with no specific focus on design, hygiene, education, and jobs. Imagine the human potential we

would unleash if we could provide improved housing! (We should also mention that Manick's house was used by the Slumdog Millionaire crew to shoot the film – while the house itself was not featured, the camera crew laid out the cameras in his house to shoot a few scenes. He and his family invited us to his house for tea, and he gave a few rupees from his hard-earned income to send his daughter to bring fresh milk for us).

We were also invited to Sudha's house to take a look at her house design. Sudha is pregnant and is expecting a child in September. There was only one room in the house, which was about 120 square feet in size, where she lived with her husband and mother-in-law. We asked her about what the government was doing in terms of providing water and electricity to Nehru Nagar. She told us that over the last few years, the local municipality (local government) had been proactive in providing electricity to houses in Nehru Nagar. She also showed us the water pipes that the local municipality had laid out, but there was no water flow yet. Residents still have to queue up at a water station to fill-in their water vessels – between 3:00PM – 5:00PM every day. (One of the photographs that I included in my top 12 photos shows Nehru Nagar residents filling up their water vessels). When we asked Sudha how much she was paying for electricity every month, one other resident, Mohan jumped in and told us that on an average, they were paying Rs. 300 per month (US\$ 7) for electricity. Additionally, they would pay about Rs. 300 (US\$ 7) for water as well once the water starts to come directly to their houses through the pipes.

As we moved ahead to visit other places, few other residents told us about how they were using community restrooms. Most residents of Nehru Nagar were using public / community restrooms. These restrooms were maintained by a set of people who would charge a rupee every time someone used these restrooms. These people would be responsible for maintaining the cleanliness of the restrooms. However, we also noticed that giving a rupee every time to use restrooms is quite expensive for the residents, so most of them just go out in public at the nearby pond, which is also where the entire communities' trash is collected. We heard similar points from residents of Mahanadi Canal in Raipur where they were using public places as bath areas and restrooms.

## **How can the Government of India (GOI) help?**

The GOI has come up with various schemes to help EWS (economically weaker sections) and LIG (Low Income Group) attain affordable housing. Below is an adaptation from an article that the Press Bureau of India published recently as part of a summary of various GOI initiatives that are planned to achieve the goals of affordable housing. It is interesting to see that the GOI has put together a solid set of government initiatives / plans / schemes, which in an ideal world, if implemented, would provide huge improvements to the lives of millions of slum-dwellers. As can be noticed from these initiatives, providing better living conditions with access to basic amenities has been a major goal of the GOI. Additionally, the government has put together a framework for solving land-related issues. For example, as noted below, under Rajiv Aawas Yojana (RAY), the GOI has put together a framework for providing land and land entitlement to

women of the house. Under AHP, the GOI is proposing a major involvement of various private enterprises in solving the affordable housing problems in India. Similarly, the GOI is conscious of the fact that only through economic development would such new-formed slum-free communities could thrive, and hence, it has put together another initiative to help the urban youth engage in vocational training under the SJSRY. In other words, there are several initiatives that the GOI has put together. The fact that the GOI has recognized all these problems combined with the fact that there is autonomy in how state governments tackle these problems along with definite funds allocated to these is a significant positive.

However, India also suffers from extreme corruption at all government levels. It remains to be seen that whether an entrepreneurial venture, which aims at providing \$300 houses to slum-dwellers, will get mired in the bureaucracy of the Indian political system, or would such an entrepreneurial venture succeed? It remains to be seen if the below initiatives are available only for rich developers who have political connections. Lastly, practical examples of success remain to be seen which might have benefited from the below initiatives. That is, answers to questions such as: how has the government fared under these initiatives? How many lives have improved because of these initiatives – those measures remain to be seen.

It is also interesting to see that the GOI recognizes land is a prominent issue for the successful execution of this initiative. Here is an excerpt from the guidelines that the GOI has put forward with regards to RAY.

#### *Land*

*Cost of land is a very significant component of the cost of housing. Not only the master plans but also state, development authority and urban local body policies in the past have made no provision for ensuring adequate supply of serviced land towards housing the EWS and LIG segments. In fact, some states and urban development authorities have resorted to auction of the limited land available with them in cities, setting exorbitant benchmarks for the market price of land. There is need for a well-defined policy for allocation of land to EWS and LIG segments to compensate for the 'historic lack of earmarked space' for them in the formal master plans. There is also need to continue, till completion and internalization into practice, the reform of JNNURM for reservation of 20%-25% of developed land in all new housing colonies for EWS/LIG housing. In respect of slum areas, and in line with the practice followed globally in upgrading slums, the occupied land or a part thereof should be allocated to the slum-dwellers to enable them to have access to housing and basic amenities. Both reforms need to be pursued.*

This is in line with what we noticed at Raipur where Raipur government officials told us that in the newly built New Raipur apartments, 15% of it was being mandated for EWS. Hence, there is certain leeway in terms of how the states implement these initiatives at the execution level.

It is also interesting that throughout the RAY guidelines, the GOI emphasizes PPP – Public Private Partnerships. Hence, the realization that a scalable solution for affordable housing will require private enterprise partnership is a critical one. Similarly, the GOI is aware of the roles NGOs can play at a local level, and hence emphasize their role as well throughout the guidelines.

In summary, it is my viewpoint that as long as \$300 house can be built with sound technologies, the GOI would be interested.

### **Details of government initiatives related to housing**

The urban population of India has grown rapidly over the past few decades. In 2001, 27.8 per cent of Indian citizens (286 million) lived in urban areas [1], which has increased to 31.2 per cent (377 million) in 2011 [2]. In addition, India is expected to represent 26 per cent of Asia's proportion (54 per cent) of the world's urban population by 2050 [3]. However, this large growth in urban population has posed a serious challenge with regard to the provision of civic amenities, shelter and livelihood for the vast sections of population especially those that belong to the Lower Income Groups (LIG) as well as the Economically Weaker Sections (EWS). A majority of these people reside in slums – 93 million in 2011 [4]. The housing shortage, estimated at 24.71 million in 2007, is expected to grow to 26.53 million by the end of the current plan period [5].

In a bid to address the issue of slums and urban poverty, the Government of India has undertaken several measures through the five-year plans as well as other policy initiatives and schemes such as:

- **Valmiki Ambedkar Aawas Yojana (VAMBAY)**
  - o Launched in December 2001, VAMBAY was a centrally sponsored scheme with an in-built subsidy for undertaking construction of dwelling units for slum dwellers
  - o The scheme was successful in providing affordable houses to the urban poor and with the launch of JNNURM, elements of this scheme were dovetailed into JNNURM
  
- **Jawaharlal Nehru National Urban Renewal Mission (JNNURM)**
  - o Launched in 2005 with a 7 year mission period, JNNURM was developed to facilitate fast-track, planned development and renewal of urban areas in the country, and in particular in 65 mission cities. The sub-mission for Basic Services to the Urban Poor (BSUP) focused on granting a 7-point charter of entitlements to the urban poor, namely, affordable housing, water supply, sanitation, security of tenure, health, education and social security
  
- **Swarna Jayanti Shahari Rozgar Yojana (SJSRY)**

- Aims at addressing urban poverty through the promotion of gainful livelihood opportunities for the urban poor through both wage employment and entrepreneurship development focusing on community-based delivery mechanisms and particularly targeting women
- **Integrated Low Cost Sanitation (ILCS)**
  - This scheme envisages the conversion of dry latrines into water seal twin-pit sanitary latrines on a whole town basis
- **Affordable Housing in Partnership (AHP)**
  - This aims at operationalizing the strategy envisaged in the National Urban Housing and Habitat Policy (NUHHP) of 2007 and was launched in April 2009. It seeks to promote various kinds of public-private partnerships – government with the private sector, the cooperative sector, the financial services sector, the state parastatals, urban local bodies, etc. – to create affordable housing stock. Under the scheme, the Government provides subsidy at the rate of Rs.50K / affordable unit or 25% of the cost of infrastructure (internal and external), whichever is lower
- **Scheme for Interest Subsidy for Housing the Urban Poor (ISHUP):**
  - This scheme, introduced in Feb 2009 aims to lighten the repayment burden of home loans with Central Government subsidies for those EWS and LIG households who have no pucca dwelling (a well-built house) but own land in an urban area and want to construct or buy a house. The subsidy has been so designed as to provide the banks the comfort of risk abatement

### **Announcement of Rajiv Aawas Yojana (RAY) – June 2009**

In June 2009, President of India announced “Rajiv Aawas Yojana” with a vision of a slum-free India. In pursuance of this vision, the Ministry of Housing & Urban Poverty Alleviation launched the preparatory phase of RAY – i.e. the Slum-free City Planning Scheme (SFCP), which mandates the development of Plans of Action to make cities and states in India slum-free. These Plans focus, not only on curative aspects of existing issues of urban poverty alleviation, but also perspective plans to ensure that every citizen of India, whatever their socio-economic status, is not forced into slum-like conditions in the future. To date about Rs.100 crores have been released to 157 cities across 34 States/Union Territories for the preparation of the city and state-level plans of action. At the same time, the Ministry of Housing & Urban Poverty Alleviation has been steadily working towards the development of the main scheme of Rajiv Aawas Yojana (RAY) and has held a series of consultations since 2009 to engage a variety of stakeholders like planning experts, NGOs, State Governments, Urban Local Bodies, bankers, representatives of the real estate industry, Central Government Departments including Planning Commission etc. in the design of RAY.

## **Recent approval by Cabinet – June 2011**

On June 2<sup>nd</sup> 2011, the Cabinet Committee on Economic Affairs approved the launch of Phase I of RAY to provide financial assistance to States willing to assign property rights to slum dwellers, for the provision of shelter and basic civic and social services for slum redevelopment and for the creation of affordable housing stock. The scheme is expected to cover about 250 cities (with a population of 1 lakh and above) covering about 32.1 million slum dwellers by the end of the 12th Five Year Plan (2012-2017). The key features of the scheme include:

- A ‘whole city, all slums, whole slum’ approach;
- Pace of progress to be set by the states;
- Central Government to bear 50 per cent of slum re-development costs;
- The two schemes of AHP and ISHUP have been dovetailed into RAY (i.e. RAY is the most recent scheme);
- RAY encourages the use of Central Government assistance by the states and cities towards viability gap funding;
- Mortgage Risk Guarantee Fund will be established to facilitate lending to the urban poor for housing with an initial corpus of Rs. 1,000 crores from the Central government;
- Reform-driven approach to urban poverty alleviation crucial to the process; no fresh sanctions after the 1st year of project sanction without reforms; AND
- Centrality of community participation across all activities of the scheme

## **Reform-driven Initiatives**

RAY, designed on the basis of the experience of implementing BSUP (JNNURM), focuses on the implementation of reforms as a larger policy overhaul to give the urban poor a voice in the governance of the city. Central assistance under RAY, therefore, is conditional to the implementation of reforms by the states. These include:

- Enactment of law regarding the assignment of property rights to the slum dwellers;
- Reservation of 20-25 per cent of developed land for EWS/LIG housing;
- Earmarking 25 per cent of the municipal budget for providing basic services to the urban poor;
- Implementation of the 7-point charter of entitlements (as under JNNURM); AND
- Commitments with timelines for amending rent control acts, review of land policies and simplification of approval processes for housing projects

The most crucial reform to be enacted is the property rights reform. To that end, the Ministry of Housing & Urban Poverty Alleviation has drafted a Model Property Rights to Slum Dwellers Act 2011 focusing, inter alia, on the following:

- Each individual urban poor household living in slums is to be given the right to a dwelling space (either a unit/house, or a plot on which a dwelling unit/house may be built);
- The title is to be either exclusively in the name of the female head of household, or jointly in the name of the male head of household and his wife;
- Every slum dweller will be given a legal document of entitlement to the dwelling space, and by extension, the provision of basic civic services and amenities and
- The dwelling space is mortgage-able, allowing slum dwellers to use it to raise finances

### **Duration, scope, and coverage of RAY**

The duration of Rajiv Aawas Yojana will be in two phases: Phase-I for a period of two years from the date of approval of the scheme and Phase-II which will cover the remaining period of the Twelfth Five Year Plan 2013-17, RAY will be run in a Mission Mode.

RAY will provide the support to enable states to redevelop all existing slums in a holistic and integrated way and to create new affordable housing stock. The existing schemes of Affordable Housing in Partnership, and Interest Subsidy for Housing the Urban Poor (ISHUP), would be dovetailed into this scheme. No new projects under the BSUP and IHSDP scheme of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) will be sanctioned once implementation of RAY scheme is taken up except to consume existing 11th Plan allocations that may be left uncommitted. However, projects sanctioned under the two schemes will continue to receive Central assistance as per the sanctions and the existing provision of the schemes.

The choice of cities would be made by the States, according to their aspirations and financial and resource arrangements in consultation with the Centre. About 250 cities, mainly Class I, are expected to be covered by the end of the Twelfth Five Year Plan.

Among the cities selected, States would be required to include all the mission cities of JNNURM, so as to complete the process begun; preferably cities with more than 3 lakh population as per 2001 Census; and other smaller cities, with due consideration to the criterion of pace of growth of the city, of slums within the city of predominance of minority population, areas where property rights already stand assigned. In the case of North-Eastern States and special category States (Jammu & Kashmir, Himachal Pradesh and Uttarakhand), where town sizes are very small, criteria other than population may be adopted. However, priority should be accorded by all States to towns with larger number of people living in slums so that the goal of RAY to achieve the status of Slum-free State/Country is attained in the shortest time span.

### **References:**

The above summary was adapted from GOI's Press Information Bureau article published on August 01, 2011 along with the following references:

[1] Census of India, 2001

[2] Provisional figures released for Census of India, 2011

[3] UN Urbanization Prospects, 2009

[4] Report of the Committee on Slum Statistics/Census, 2010

[5] Report of the Technical Group for the Estimation of Housing Shortage (11th Five Year Plan: 2007-12), 2006