

Annual Report 2015-2016
Hunnarshala Foundation for
Building Technology

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Chairman's Statement

Shri Neelkanth
Chhaya

It is with great pleasure that we present this Annual Report of Hunnarshala's activities to shareholders, partner organizations, friends and the general public. During this year, Hunnarshala has been energetically pursuing all its objectives, namely, facilitating housing and services for the urban poor, promoting eco-friendly, low cost materials and techniques of construction, furthering the interests of building artisans and working for reconstruction in post-disaster situations.

In each of these areas, Hunnarshala's unique approach and knowledge base continues to develop, and the benefits accrue to the community. As a result, Hunnarshala has become known nationally and internationally, and is continually approached by governments, like-minded organizations, educational institutions and citizen groups as a group that will apply its creative energies in the spirit of service.

Over a period of time it has become apparent that a certain re-focussing and reorganisation would be useful for increasing effectiveness. As a result, three key areas were discussed in the Board, and Hunnarshala's management structure has been fine-tuned to address these three thrust areas. Thus, Community Empowerment, Artisan Empowerment and Artisan School (Karigarshala) are now the main arms for organising and coordinating activities.

There are innumerable activities that Hunnarshala has undertaken in the past year, but we can note a few key initiatives to get a sense of Hunnarshala's range. Post-disaster reconstruction activities were carried out in Muzaffarnagar and after the earthquake in Nepal. In each, several innovative methods of creating appropriate environments were evolved.

In the area of developing housing systems for the urban and rural poor, Hunnarshala has become an institution that gives leadership in developing creative approaches. The programs for Indira Awas Yojana, the Rajiv Awas yojana and other government programs have been supported with innovative methods of Hunnarshala and partner organisations. The Slum-free city program at Bhuj is an outstanding example.

A number of activities in empowering artisans were carried out. Notably, the programs for incubating artisan entrepreneurship took the form of facilitating the groups Layers (rammed earth technology), Mathachaj (thatched roofs), Ozari (wood construction), Woodgrain (woodwork) and Lustre (Lime Plaster). All these artisan companies were able to increase their workload and earnings as well as establish themselves as specialists in their respective fields. The works that they completed were of the highest standard.

Research in unconventional materials and techniques continues apace at Hunnarshala. Research into earth and stone construction, thermal behaviour of materials and into Dewats is at the cutting edge and is respected by the community of architects and engineers.

Of special note are the expanded program in artisan education carried out by Karigarshala. Both carpentry and masonry techniques are taught, and the unit trains excellent craftspeople with a deep sense of responsibility.

Hunnarshala personnel have been in great demand at meetings and training programs everywhere. Educational institutions keenly look forward to providing experiential learning to their students, and the number of students coming to Hunnarshala continues to grow.

In short, you can be proud that the company that you have supported all these years continues its work with energy, ability and enthusiasm. Let us congratulate and thank all those who are working at Hunnarshala for the wonderful service that they are giving to society.

Director's Message

Shri Ramesh Sanghvi

હુન્નરશાળાનાં શીલ, શૈલી અને શાણપણ

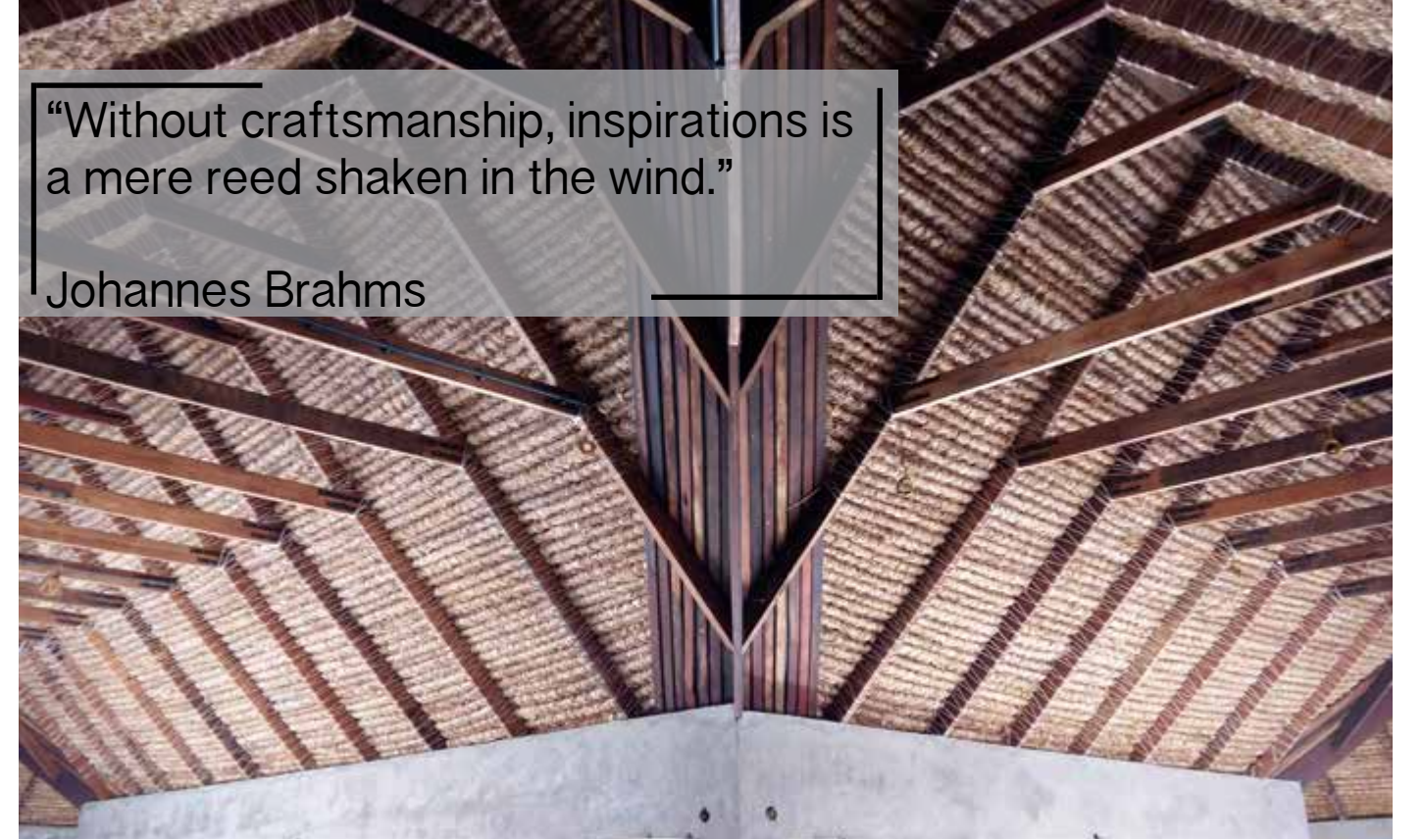
"હુન્નર શાળા"ની ભીતર જ તેનાં શીલ, શૈલી અને શાણપણ અનુસ્યૂત છે. હુન્નરશાળા એટલે કળા અને કૌશલ, કલ્પના-સર્જનશીલતા અને જ્ઞાન-વિજ્ઞાનની સમુચિત ગૂંથણી અને તેની ઉપાસના. આ હુન્નર શાળાનું શીલ છે. શીલ એટલે તેનો સ્વભાવ, તેનું અંતરંગ. આ શીલની ઉપાસના એ અંતતોગત્વા એક નવા-નરવા સમાજની આલબેલ છે જે વારસારૂપ કસબ-પરંપરાને સમજણનો -વિજ્ઞાનનો આધાર આપે છે, જે જ્ઞાન-વિજ્ઞાનને તળભૂમિ સાથે જોડે છે અને જે વ્યક્તિ-સમાજ ઉભયના શ્રેય અર્થે પ્રવર્તે છે-આ છે હુન્નરશાળા શૈલી. શૈલી એટલે પ્રક્રિયા અને અને પ્રવિધિ. આખરે જીવન એ કેન્દ્રમાં છે અને કોઈ પણ કાર્યનો તે જ અંતિમ આધાર અને માપદંડ છે. પ્રવૃત્તિ કેટલો વ્યાપવિસ્તાર પામી તે નહીં પણ કેટલી જીવનલક્ષી બની, કેટલી માનવ કેન્દ્રી-સમાજકેન્દ્રી બની તે અવલ છે. જે હેતુ-લક્ષ્ય સાથે સંસ્થા પ્રવૃત્તિઓની શરૂઆત થયેલી તે પ્રતિ જાગૃતિ અને સાવધતા ક્રમશઃ વિસરાતાં જાય છે, એટલે આત્માવલોકન અનિવાર્ય છે. આત્મનિરીક્ષણ, આત્મસંશોધન અને આત્મશુદ્ધિ એ જ ઉપાય .આ છે હુન્નરશાળાનું શાણપણ. હુન્નરશાળા આ શીલ, શૈલી, અને શાણપણને નજર સામે રાખી ઉર્ધ્વયાત્રા કરે. આ ત્રિવિધ માર્ગે સંસ્થા વિશેષ પ્રાણવાન - ઉર્જાવાન બને ભીતરી ભાવસંવેદના અનુભવું છું.

Shri Kiran Vaghela

કારીગરી શીખવી અને શિક્ષીત થવું તે બન્ને એક જ છે. જીવન જીવવું આનંદ થી તે જ જીવનનો ધ્યેય હોઈ શકે. શિક્ષણ એને કહેવાય કે જે જીવન આનંદ સુધી લઈ જાય. કારીગરશાળા નો આ શિક્ષણ પ્રયોગ ખુબ શક્તિ આપે છે.

આવડત, જે સ્વરૂપ આપવાની પ્રક્રિયામાં સીધો જ ભાગ લે છે, કારીગર મિત્રો તેમનાં કામ નાં સર્જનનો આનંદ પામે અને જીવન મુલ્યો વડે આત્મ સ્વમાન પામે એ એક સપનું હુન્નરશાળા, કારીગર યુનિટ અંતર્ગત સાકાર થઈ રહ્યું હોય તેમ લાગે છે. આખા કારીગર યુનિટ ને અભિનંદન

Karigar Unit



"Without craftsmanship, inspirations is a mere reed shaken in the wind."

Johannes Brahms

Karigars or Artisans have been an integral part of Hunnarshala Foundation, as they are the ones who help us in promoting and linking traditional building knowledge within contemporary practices.

Since inception, Hunnarshala has been involving karigars in its projects due to which a large artisan group has been created who associate with Hunnarshala from time to time. This also provided an opportunity for the karigars to develop their building skills and later specialize in a particular construction technique. From 2011 onwards, the karigars were encouraged to form their own business entities and work directly with the client under technical guidance and administrative support of Hunnarshala. This model has been successful in many ways. The karigars have become independent and more responsible towards their work. They are creating employment opportunities for fellow karigars thus contributing towards the prosperity of their community. This model has helped Hunnarshala to undertake more number of projects and in the process involve more artisan groups.

This year we could see the results of the efforts started in 2011 at Karigarshala wherein students enrolled for carpentry and walling systems courses. After being involved with the incubation companies for almost two years, these karigars (students) were confident enough to form proprietorship / partnership companies to participate and implement specialized jobs, be it stabilized rammed earth walls, adobe walls, roof understructures, doors and windows etc. in projects undertaken by the Karigar unit.

Now with Karigarshala and the Karigar unit working in tandem, a great opportunity has been created wherein education and professional practice are made available to the karigars in continuity. This is also helping in keeping the traditional wisdom of building alive.

Projects



Buddhist Centre, Sakarwadi

“Jetavana” Centre for Buddhist Studies, Sakarwadi

Jetavana, is a grove of trees in Shravasti, northern India, where the Buddha once walked and preached and where there had been a great monastery and vihara (monks’ retreat).

Jetavana the center for Buddhist Studies at Sakarwadi has been constructed inside the campus of a bio-refinery, especially for the people associated with the refinery and surrounding villagers who predominantly practice Buddhism. This center has been built as a resource center for visitors to develop insight on Theravada Buddhism and also use the space to engage with all religions and spiritual pursuits.



Approximately 8000 square feet of work was implemented which includes rammed earth, wooden understructures, mud-rolls and RCC beams by Layers – The Rammed Earth Construction Company, Ozari Joinery, Matha Chhaj and Lustre – specialists in building finishes respectively.

An inverted truss was designed for the roofing system. To ascertain the structural load of trusses, an in-house research activity was conducted in Hunnarshala Campus. On satisfactory results of the research the trusses were installed on the site.

Institute for Studies and Transformation, Ahmedabad

The Institute for Studies and Transformation (IST), Sanand, Ahmedabad designed by Architect Hiten Kakadiya, is a training center, guesthouse, kitchen and dining facility. Stabilized Rammed Earth walls, (ground and first floor) and wooden roof understructures were part of the building design.

The stabilised rammed earth walls were constructed by Layers – The rammed earth construction company and the wooden roof understructures were installed by Woodgrain, a joinery firm promoted by Hunnarshala Foundation. In this project, the artisans had the opportunity to construct stabilized rammed earth walls on the first floor.

“Jetavana” is designed by Architect Sameep Padora (principal Architect of sP+a’s), a Mumbai based architect. Hunnarshala Foundation has provided inputs in incorporating the eco-friendly construction practices into the design and has involved various artisan groups specialized in earthen construction practices and carpentry.

Penha de Franca, Goa

Penha-de-Franca is more than 400 years old church located in Britona area of Goa. Heritage Acoustics and Dr. Allan contacted Hunnarshala Foundation to collaborate for application of Lime plaster on the interior and exterior walls of the church. Dr. Allan provided the lime plaster recipe for the application.

In response to this project, Hunnarshala promoted an artisans company named “Lustre – specialists in building finishes”. Prior to commencement of work, various lime plaster

sampling options were tested in the church with a joint effort of HeritageAcoustics, Dr. Allan and Hunnarshala Foundation. After the sample of lime plaster was selected, Lustre started the work in the church. Almost 15,000 square feet of lime plaster work on the exterior, interior walls and ceiling has been completed. The management of the church is very satisfied with the finishes provided by Lustre. They have now involved the artisan group to work on other areas of the church, like flooring, landscape finishes etc.



Restoration going on in Penha De Franca

Art Village, Karjat

The architecture of the art village is a result of artists, architects and artisans sharing the same platform to create an expression using natural materials to build facilities consisting of recreation center, dining & kitchen and guestrooms. In this project, earth, stone and wood have been used to create spaces. The recreation center has been built with stabilized rammed earth and the guestrooms are built with adobe walls. The roofing system consists of thatch and terracotta tiles on wooden understructures.

In this project, the incubation companies – Ozari Joinery and Kamerai were involved to implement the wooden works and walling systems of rammed earth and adobe. This project provided a platform to individual artisans and students to learn, demonstrate and understand the intricacies of delivering professional work.



Art Village, Karjat

Artisan Entrepreneur Companies



Formation of Artisan Entrepreneur companies and linking their expertise with the market is one step towards empowering artisans. Lots of efforts are being put in to make these companies successful and lots need to be done in the areas of self-managing the administrative aspects of the companies, and addressing social concerns.

The artisan entrepreneur companies have helped artisans to form their own enterprises and in turn they have been instrumental in employing fellow artisans to implement work. In this financial year, more than 100 artisans have been involved and benefited from projects undertaken by the artisan entrepreneur companies.

Wood Grain

A Proprietorship company started by Mr. Shravan Bishnoi, specializes in preparing as well as installing wooden roof understructures, doors, windows etc. In the F.Y 15-16, wood grain has provided services to projects of Dr. Villas Sathey, FES-Anand apart from other works. Turnover of wood grain for the year is Rs.11,00,000/-

Span

A proprietorship company started by Mr. Magan R Bijlani, specializes in assembling and installing space frame roof understructures. In the financial year 2015-16, Span provided services of installing space frame understructures to Agrocell - Jammu IAY project. Spans turnover for the year is Rs.90,720/-

Layers

A rammed earth construction is a partnership company represented by Mr. Rakesh Vesta. Layers specialize in the construction of rammed earth walls. This year "Layers" has completed the construction of rammed earth walls for Janvikas and Budha vihar Sakarwadi. Layers turnover for the year is Rs.19,01,055/-

Mathachhaj

A Thatch Company, the women's collective specializing in thatch roof solutions has worked for two projects in the financial year 2015-16, prepared and Installed thatch roof panels in the Budha Vihar Sakarwadi and Recreation center, Karjat. Mathachhaj's turnover for the year 2015-16 is Rs.18,99,138/-

Lustre

Specialists in Finishes has been setup by two partners Babubhai Panchal and Hira Hamir Yadav. Both of them have been part of some prestigious projects of Hunnarshala in the past. Their first contract is of restoring with lime, is a 400 years old church in Goa named Penha de Franca.

"The highest education is that which does not merely give us information but makes our life in harmony with all existence."

Rabindranath Tagore



Karigarshala

Karigarshala was formed in 2011 for creating an education platform through development of hand skills in a specific trade with a focus on understanding life values, confidence building and capability of delivering work professionally for young boys and girls, school dropouts and child labors. The other objectives of Karigarshala are: -

Disseminate scientifically validated traditional knowledge among the younger generation of communities, so that the traditional knowledge and its practices are preserved within these communities instead of leading towards extinction. Create awareness within the rural society to encourage young students to pursue hand skills. Retrieve students who are exposed to exploitation as child laborers and those affected by mainstream education.

Since 2011, 97 students have studied in Karigarshala, 48 in carpentry and 49 in walling systems. Till now the students have come from Kutch, Madhya Pradesh and South Gujarat. Around 80% passed out students are working as carpenter and masons. The balance 20% students are either pursuing higher education or have discontinued. 25% students have become entrepreneurs.

The year 15-16 of Karigarshala started from mid June 2015 with 7 students in carpentry and 19 students in the walling system courses. Karigarshala restructured its curriculum by adding foundation courses on basics of electrical and plumbing trade. The students understand the theory and learn the practical aspect of both trades. A new format of learning was introduced where the students built a room from sub-structure to super-structure in different masonry units. These structures are then dismantled and rebuild by new batches joining the course.

After finishing the on-campus learning, the students worked on a live project to gain professional experience. Both the batches jointly built an extension of a school in Devpar, Nakhatrana. The walling system students were involved in UCR and CSEB masonry while the carpentry students are making floorboards, doors and windows. The students are also implementing the electrical and plumbing work. The hands-on training imparted to students gave confidence to the students to execute a project independently.



Kukeri School



Devpar

Kukeri School

Shantaba Vidyalay is a school that provides free education to the village children in Kukeri village of Navsari district of Gujarat. The school had plans to extend its facilities. Architect Ushma Sanghvi designed the extension of the school building with inputs from Kiran Vaghela.

The initial idea to implement the project was to build with all the locally available materials and train the local artisans in developing the technologies. But somehow this idea could not be implemented.

During the same period, Karigarshala was thinking of restructuring its curriculum by allocating the last three months of the one-year course for participation in live projects so that the students gain on-site-hands-on experience. Karigarshala proposed the idea of constructing the extension of the school building with the help of the students of walling system and carpentry courses. Architect Ushma Sanghvi and management of Shantaba School agreed to this proposal. The boys demonstrated their skills with technical guidance from the karigar unit. It was a great learning experience for the students of Karigarshala.

The masonry students worked with technologies like rammed earth, CSEB, adobe and ferro-cement while the carpentry students built the wooden understructures, doors and windows of the extension. The entire 4000 square feet of work was completed in the specified time period of 3 months with innovations in technologies.



Karjat



“Alone we can do so little, together we can do so much.”
Helen Keller

Community Empowerment

This is the core initiative that forms almost all of Hunnarshala's work. The master artisans and our building professionals work together to develop contemporary solutions using traditional materials and building knowledge to empower communities who have been affected with natural disasters like floods or earthquakes or have been displaced due to violence or other man-made circumstances. In the last few years, the work in the urban context has been expanded to the under-served communities living slums, using housing as a tool to empower these communities and bring them into the folds of mainstream governance and administration. Hunnarshala is also constantly collaborating with other agencies and the government to set examples of development in the rural context by studying and validating rural techniques and materials and help rural communities in using their own set of skills and knowledge for their own development.

The last year saw Hunnarshala expanding its outreach to a number of programs in both rural and urban context which saw many collaborations that led to setting up of development examples. The owner driven slum redevelopment in Bhuj got nominated as one the best practices in India by Ministry of Housing and Poverty Alleviation and work with vendors and migrants was also undertaken. The rehabilitation work in Nepal started after the catastrophic earthquake that wrecked Nepal in April 2015 and rehabilitation for riots affected families in Muzaffarnagar reached its final phase. Apart from these, rural housing study for Indira Awas Yojana was undertaken in Jharkhand.

Urban Initiatives



The initiative to work in the urban sphere started more than six years ago when Hunnarshala collaborated with other city NGOs in Bhuj to look at the issues of housing and services for urban poor. The initiative has now grown into a city level housing program seeking to provide housing and services to more than 13000 families living in the slums of Bhuj. Along this ambitious program realised with Bhuj Nagarpalika, slum dwellers and other NGOs, new possibilities emerged along the lines of deeper engagement within the city. The idea was to look at critical issues of urban life that includes public spaces, ecology, un-organised economies in the streets, and create collective solutions with the participation of the government and citizens. Usually, there is no common platform for people to work together, citizens blame the government and the government ends up reacting. Only when there is collaboration and collective thinking, solutions emerge. The urban initiative is about creating a space within our city, where each one, whether he/she is a slum dweller or government official, a food vendor or traffic policeman, a migrant labourer or Nagarpalika executive; is able contribute to the development of the city, in his/her capacity.

Owner Driven Slum Redevelopment Bhuj, Gujarat

Hunnarshala has been working for the redevelopment of urban slums of Bhuj since few years now. The idea of slum redevelopment in Bhuj in which each slum dweller gets access to housing and services, was conceived through an inclusive and people centric process. The first phase implementation of the redevelopment program aimed at redeveloping three slums; Bhimrao Nagar, Ramdev Nagar and GIDC, where 314 house owners were to build their houses in an owner driven started in 2015. The project is one of the few in the country to approach the slum redevelopment in an owner driven manner and it has been included in the list of best practice models released by the Ministry of Housing and Urban Poverty Alleviation (MHUPA). More than 200 house owners have build their houses till the slab level and many are in the finishing stage. The construction of all the houses is expected to finish by the end of 2016.

The redevelopment program has opened many opportunities to make a difference on multiple fronts, from the neighbourhood level in Bhuj to impacting the housing policy at the centre. The owner driven approach requires all the stakeholders of the project to participate, contribute and be the decision makers to their own capacities. From the conception stage, which was conceived with the participation of the women's Self Help Groups (SHGs) from the slums, to the implementation stage which started with technical training of masons and owners to handhold the project better; the project has resulted in capacity

building of all the stakeholders including the Bhuj Nagarpalika.

The shift in the identity of the house owners from slum dwellers was critical to the process. This happened in each phase of the project. The slum dwellers actively participated in the design process, learned about the nuances of the design, gave their concerns, opinions and suggestions on the design and planning of individual unit level and the settlement level. Before the construction phase began, technical trainings were conducted for the masons, house owners and supervisors to educate them about maintaining quality construction ensuring safety. The training also imparted knowledge on the nuances of earthquake safe construction. As the construction continued, the house owners organised themselves into groups that met weekly with the technical and the social teams to tackle problems that were coming up. Along this process, the slum dwellers were also educated and trained about setting up a Residents Welfare Association that will implement the infrastructure and maintain the newly redeveloped settlement.

Another proposal to redevelop five slums where almost 400 families reside, was also submitted to the Affordable Housing Mission. However, the slum housing policy at the centre has been revised to Pradhan Mantri Awas Yojana-Housing for All (PMAY-HFA) and the new proposals are being revised as per the new scheme.



A finished house occupied by the beneficiary

Vendors Formalisation and Traffic Management Bhuj, Gujarat

The initiation of housing for the slum dwellers in Bhuj brought forward many other challenges and opportunities to work in the urban context. The work with the vendors emerged from the need of holistically working with the urban poor. Vendors are essential service providers in the Indian cities. The services provided by them are affordable and create an economic equity for the citizens. Vendors also form a major chunk of informal economy of the city and most of them are inhabitants of slums.

Hunnarshala had initiated work for formalisation of road-side vendors in June 2015. The proposal comes under National Urban Livelihood Mission's scheme for street vendors. This included basic survey of vendors and activity mapping, allotment of space, provision of infrastructure and services. The proposal for the same has already been submitted to Bhuj Nagarpallika.

The scope of the intervention has, however, now been further expanded to incorporate management of traffic as it was realised that any proposal for vendors cannot exclude the adjacent traffic flow. Hence, a larger stretch of the street, which also includes a major junction, has now been taken for the study and proposal.

To further understand the social, political and economic structure of vending in the city, a study was jointly conducted with students of Tata Institute of Social Sciences (TISS). The students studying Urban Policy and Governance at TISS were supported by teams from Hunnarshala and Urban Setu in understanding the vending fabric of the Bhuj city. Within the period of 10 days, all the major vending zones of Bhuj cities were covered and the results were formulated in a report.



A child vendor in Bhuj



Desalsar Lake

Lakefront Development Desalsar Lake, Bhuj

In its effort to expand the scope of urban interventions, and strengthen partnerships with the governance and administration to create examples of participatory planning in the city, a proposal for the lakefront development of Desalsar Lake in Bhuj City. Desalsar is a lake in Bhuj that is located quite close to the older parts of the city. It has a considerable amount of solid waste and sewage intake from the surrounding land-use. Desalsar has historical and ecological importance but is currently losing its relevance due to careless activities in and around the lake.

Arid Communities and Technologies (ACT), another organisation based in Bhuj, has already submitted a proposal for interventions to improve the water quality and treat the watershed. Hunnarshala will provide additional support to ACT for land use organisation and transport management. The stakeholders which include the municipality, shop owners around the lake, local leaders and slum dwellers. The work has just been initiated and within next few months a workable proposal shall be developed.

Animal Hostels

A city is not only constituted by the people and buildings, but animals too. There is a need to rethink cities holistically so that our cities have space for everyone, and everyone is not operating in conflict but collaboration. In that direction, Hunnarshala joined hands with Sahjeevan, an organisation based in Bhuj to help them with the design and layout of the cattle sheds to be proposed under a Gujarat State government's scheme which is providing the funds. Overall there are four locations all around Bhuj city, each catering to 1000-1500 animals. The pilot project includes sheds for about 500 animals located on Mundra Road in the southern part of the city. The site for the sheds has been chosen such that it comes in the slum relocation of one of the cattle owner communities from Machhu Nagar.

Migrants Housing, Bhuj

Urban homeless are one of the major challenges faced by the cities today, as a result of in-migration. As per a study done and supported by Tata Institute of Social Sciences, Mumbai; Bhuj has a total population of about 1,800-2,000 homeless spread over the city in six major clusters. This population fluctuates as some go back to their native places during the cropping season. A housing scheme with rentable dwelling units is seen as an effective solution for these homeless. One of these clusters, RTO site, has been taken as the pilot project for the same.

The proposal for developing rental housing for homeless migrants at RTO site has been completed and submitted to the Bhuj Nagarpalika for approval. The proposal includes various typologies of rental housing like family shelter, accommodation for singles and shelter for people with special needs. The program comes under the National Urban Livelihoods Mission's (NULM) 'Shelter for Homeless' scheme. The shelter shall be operated and managed with the support of a local NGO. Talks are going on with Kutch Mahila Vikas Sangathan (KMVS) and the Sakhi Sangini Federation for the management of the shelter.

Slum Archiving

Slum archiving was conceived with the idea of understanding slum communities in the context of their relationship with the rest of the city. The term 'slum dwellers' often limits the representation to poor and needy people living in dirty shoddy quarters of the city. However, being a slum dweller is a part of the identity of the people of slums. Their cultures, traditions, languages, changing livelihoods and struggles make them who they are. And it is very important to understand and recognise this complex reality before we start looking for solutions to grapple with the deprivation faced by these people.



Vansfoda



Proposed migrant housing in Bhuj

To deepen the engagement and understanding with the slum communities which were being rehabilitated in the first phase of the slum rehabilitation, Bhimrao Nagar was archived. A small booklet and a short film on the community was produced. Similarly, Ramdev Nagar being rebuilt in the first phase, inhabited by the community of Devi Pujaks and Vansfoda, a community of bamboo weavers proposed for rehabilitation in the next phase, are being archived.

Disaster Response



Nuns working in Bhakhang, Nepal

Post Earthquake Reconstruction in Nepal

The reconstruction of a village, supported by American Jewish World Society (AJWS) in Bhakhang, inhabited by about 170 Tibetan nuns started in November 2015 in response to the catastrophic earthquake that wrecked Nepal in April 2015. The earthquake that measured 7.8 on the richter scale caused widespread destruction and resulted in more than 10000 deaths. The village, Bhakhang, situated on the Nepal-Tibet border was completely destroyed and almost all the houses fell, forcing about 200 nuns to live in an interim shelter in very difficult conditions. Since the village had no vehicular access, the nuns were having trouble in receiving the aid.

There was an urgent need to rehabilitate the nuns. The old houses that fell deployed poor masonry in mud mortar which was very susceptible to damage, and thus collapsed in the earthquake. The rehabilitation and redevelopment was to be conceived with all the challenges of the site. The remote location of the village with limited vehicular

access required a technique that would use the locally available materials. A technique was developed with Prof. K.S. Jagadish that uses the locally available stones laid in mud mortar and reinforced with galvanised wire mesh laid at every 2 feet in the masonry. The technique was subjected to a shock table test in NIRMA University, Ahmedabad to understand and study its performance in an earthquake. The test yielded satisfactory results.

The nuns are not only building their houses but their lives. The tragedy has not only wrecked cracks in the walls but also in their morale. Due to this, there were inhibitions from the nuns to build back in mud but the team worked hard to restore their confidence. The local masons are being trained in the technique who are now taking it forward in other regions. The nuns are also contributing labour to their own houses and the designs have been finalised with their participation. The materials especially stone is being recycled into the new houses.

When the construction started, the Nepal government still had not come up with the rural reconstruction policy. Bhakhang being one of the first places to start the reconstruction work, has impacted the rural rehabilitation policy in Nepal where they are now planning to implement the same technology in other rural areas as well.



The houses for nuns under construction



Trainings with the local masons

A house construction in Bassikalan



Post Riots Housing Shamli, Uttar Pradesh

The rehabilitation work with the Muzaffarnagar riots affected families entered its final phase. The rehabilitation work undertaken with the support of Joint Citizens Initiative (formed by Sanathkada, Vanagana, Sadbhavna Trust) is setting up an example for owner driven rehabilitation of Internally Displaced People (IDP). In Aryapuri, the basic construction and finishes work for all the houses has been completed. Sanitation and drainage solutions that would best fit in the present context, are being worked out with the community. Other infrastructure like paving of streets will also be implemented. At Kandhla, about a 100 houses are complete with basic construction and about 75 of them are in the finishes phases. The construction of 64 sanctioned toilets will be completed soon and the implementation of services will start. The retrofitting and improvement of the already constructed houses in Bassikalan is underway and about 27 houses have been retrofitted.

Hunnarshala is also studying, experimenting and validating the roofing technique of shallow masonry domes which is a very common technique of western Uttar Pradesh and Haryana. Nawab, a building artisan who is also a house owner in the rehabilitation program has been constructing there domes for over two decades now. Static loading tests were done with Prof. K.S. Jagadish, Prof. Yogananda and Laurent, an Architect based in Kolkata. Based on the results of the tests, some modifications were proposed to the shallow dome and another test was conducted after the modifications. The aim is to look at the technique as a substitute to the conventional R.C.C slabs as the shallow domes have the advantage of being more eco-friendly and have application in multi-storey buildings.



A finished house in Kairana

Rural Housing



Indira Awas Yojana, Jharkhand

Hunnarshala undertook a study of rural houses of the state of Jharkhand. The main aim of the study was to understand the traditional processes of house construction in rural settlements, and thus influence the implementation of Indira Awas Yojna (IAY). IAY is one of the largest schemes in the world that looks after providing houses to rural poor. The scheme allots a certain amount of money to the selected beneficiaries for house construction. The study was done in collaboration with two partner organisations, People In Centre from Ahmedabad and Dustudio from Auroville. The study was supported by United Nations Development Programme (UNDP), and was done for Ministry of Rural Development (MoRD). The three organisations are also carrying out a similar study for two other states, West Bengal and Chhattisgarh.

Two visits have been made to the state. The first visit was to study and document the prevalent traditional houses. Supported by the learning from the first visit, several improvements were designed as well as several already existing techniques proposed to be allowed under IAY. The second visit majorly aimed at discussions with various stakeholders on the proposed improvements. The stakeholders included the house owners, NGOs, government officials, academicians, architects etc. Currently the final report is being compiled which further incorporates the suggestions received in the second visit. The project will be complete with a state level stakeholders' workshop, where the final proposals will be explained discussed in detail.

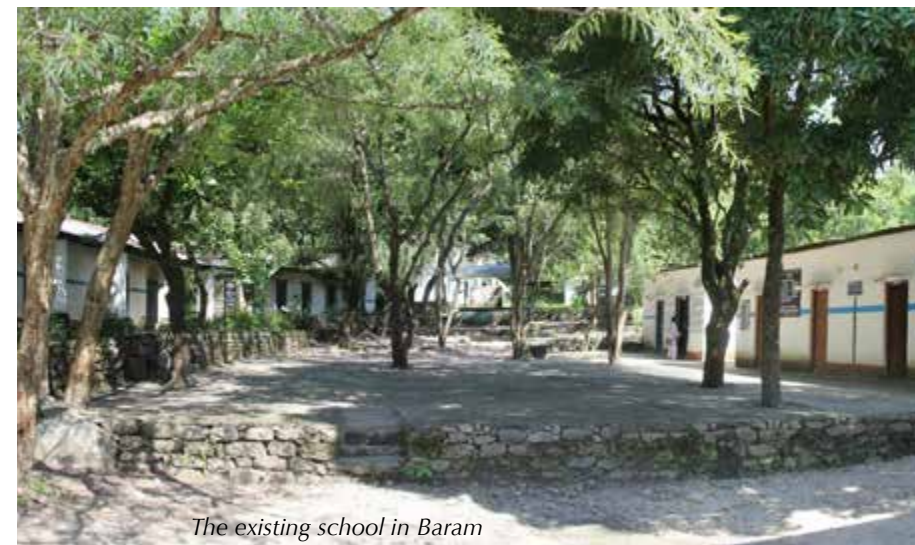


A traditional mud house in a Jharkhand



Women in a discussion

Institutional Projects



The existing school in Baram

GIC School, Pithoragarh, Uttarakhand

With the support of the Tata Relief Committee, Hunnarshala is designing and rebuilding a Government School in a village, Baram, Pithoragadh in Uttarakhand. Tata Relief Committee has been working in the region for few years with the schools and anganwadis to help build their capacities. The school to be rebuilt is catering to students from almost 10 villages in the region and has currently very few classrooms and other facilities. The MoU has been signed and the design work has already started. New technologies shall be explored with the local materials available on the site like stones and bamboo. Rammed earth and stabilised adobe will be used for walling and bamboo shall be explored for roofing. Few visits have already been made to the site to study the climate, geography and materials of the region.



Proposed school in Baram, Uttarakhand

Research & Dissemination



“Research is creating new knowledge”

The scientific validations of the traditional knowledge are being carried out through our research initiatives. The innovations, up gradations in technology being carried out in-house are validated considering required parameters. Subsequently, these research findings are tested and transferred to the artisan guild for implementation in projects wherever applicable.

Shallow Masonry Domes

The work with riots affected families in Muzzafarnagar lead to the discovery of the age-old tradition of building shallow domes with burnt bricks in the northern parts of India. Hunnarshala along with Mrinmayee, Bangalore documented the shallow domes of the region and started the process of scientifically validating the technique, as it can be a sustainable alternative to R.C.C roofs. Two tests were conducted in Hunnarshala campus to understand the behavior and strength of the dome by subjecting it to static loading. Nawab, an artisan from Muzzaffarnagar who has been making the shallow domes was invited to make domes for the research work. The data generated from the first test was analysed and subsequent alterations and changes were made to the dome before testing it the second time. This shallow dome built with Compressed Stabilised Earth Blocks (CSEB) took five times the live load stated for residential buildings and would now be tested for dynamic loading.



Shallow dome being constructed for testing

Mud Concrete Blocks

The construction waste generated amounts to 25% of the solid waste generated in India per annum. The disposal of this waste is a constant challenge as it causes pollution and environmental deterioration. In Bhuj, tons of debris was generated due to the devastating earthquake that caused destruction of thousands of houses. Debris walls were developed at that time to use the construction to increase the application and recycle the construction waste in more ways; mud concrete blocks were made and tested. These blocks developed as an alternative to other walling units like bricks and stones, have a strength of 70kg/cm^2 while the required strength of any building block for a load bearing structure is 35kg/cm^2 .



Mud blocks

Research Collaboration with MIT, Boston

This year the research collaboration between Hunnarshala Foundation and MIT Boston, USA was further strengthened by more research scholars taking forward the research work of testing various roofing options in prototypes constructed for the research. These tests are being conducted for suggesting appropriate roofing solutions for urban poor housing in Bhuj.

Training and workshop

Artisans Entrepreneur unit held workshops on earth technologies like rammed earth, adobe, etc. for various institutions like IES College, Pillai College, Navrachana Universty, MS University, Nirma University and CEPT University. Through these workshops, more than 200 architecture students were exposed to alternative building technologies. Two months carpentry training program was conducted for students from Shrishti School of Art, Bangalore. These students are pursuing Masters in interior designing. Mr.Kiran Vaghela designed the program and mentored the students. Mr. Vishanji Gajjar guided the students to understand the intricacies of carpentry work. The students designed and developed prototypes of various products with the help of Ozari Joinery.



Hands-on training program with college students



Article on slum redevelopment in Myliveable City

Publications

The work of Hunnarshala was featured in FuturArc, Myliveable City, and Architectural Digest. FuturArc published an article on the campus of Hunnarshala, while Myliveable City did a feature on the Slum Housing program in Bhuj. Architectural Digest published the recently completed Budha Vihar in Sakarwadi, which was a collaborative project with Architect Sameep Padora.

Financial Report 2015-16

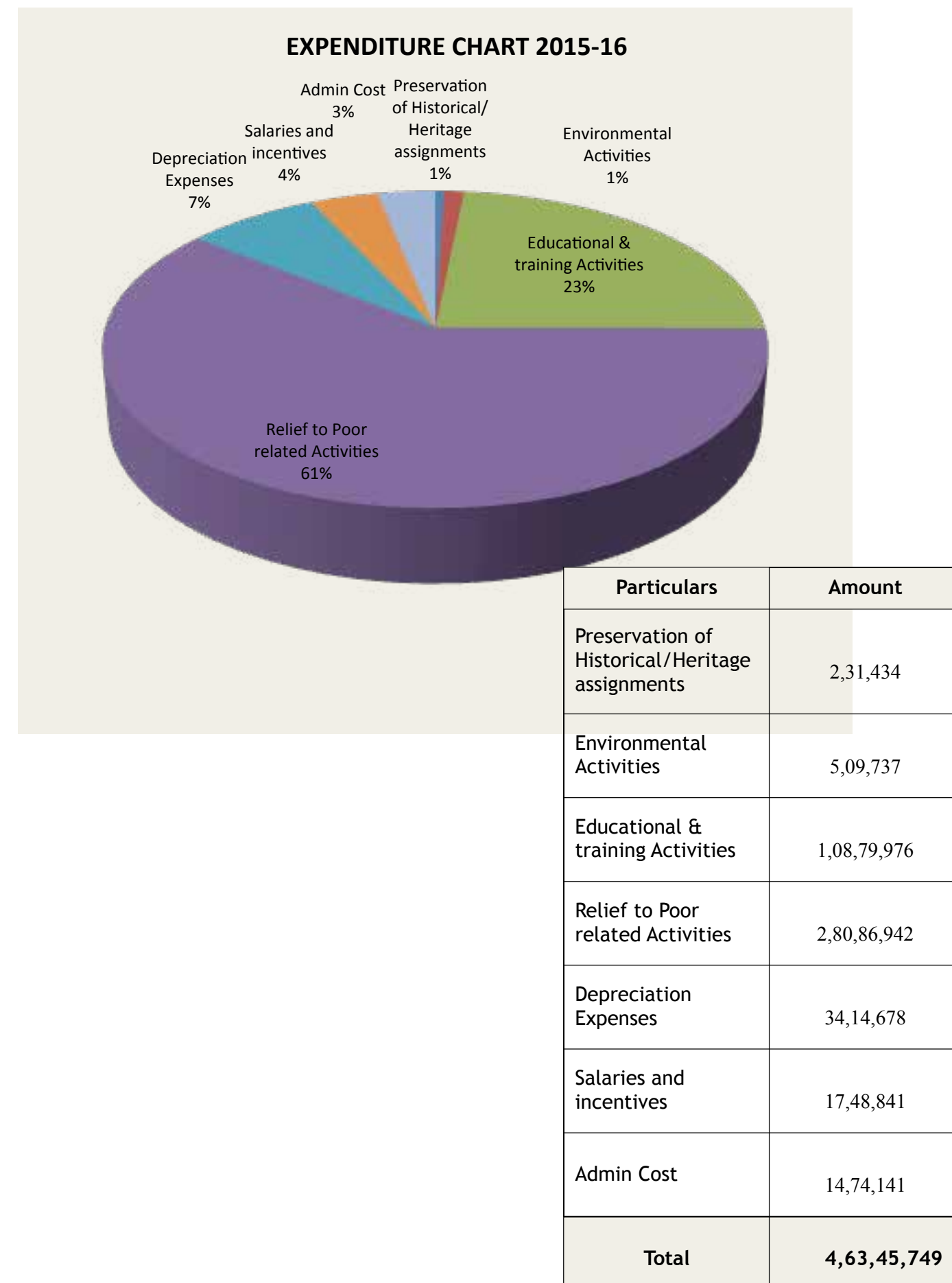
Income and Expenditure Statement

PARTICULARS	Note No.	For the year ended 31st March, 2016		For the year ended 31st March, 2015	
		Rs.	Rs.	Rs.	Rs.
I Revenue from operations	13	2,99,77,226		1,78,50,500	
II Other Income	14	97,52,168	3,97,29,394	97,05,824	2,75,56,324
III Total Revenue (I + II)					
IV Expenses					
Cost of Materials Consumed	15	19,16,520		11,42,631	
Employee Benefit Expenses	16	17,48,841		33,48,457	
Finance Costs	17	-		-	
Depreciation Expenses		34,14,678		41,33,322	
Expenditure on the Objects of the Organisation	18	3,77,91,569		2,78,75,271	
Other Expenses	19	14,74,141		35,43,433	
Total Expenses			4,63,45,749		4,00,43,114
V Surplus/(Deficit) before exceptional and extraordinary items and tax (III-IV)			(66,16,354)		(1,24,86,790)
XV Prior Period Expenses	1				3,65,170
XVI Surplus/(Deficit) for the period (XI + XV)			(66,16,354)		(1,28,51,960)

Balance Sheet

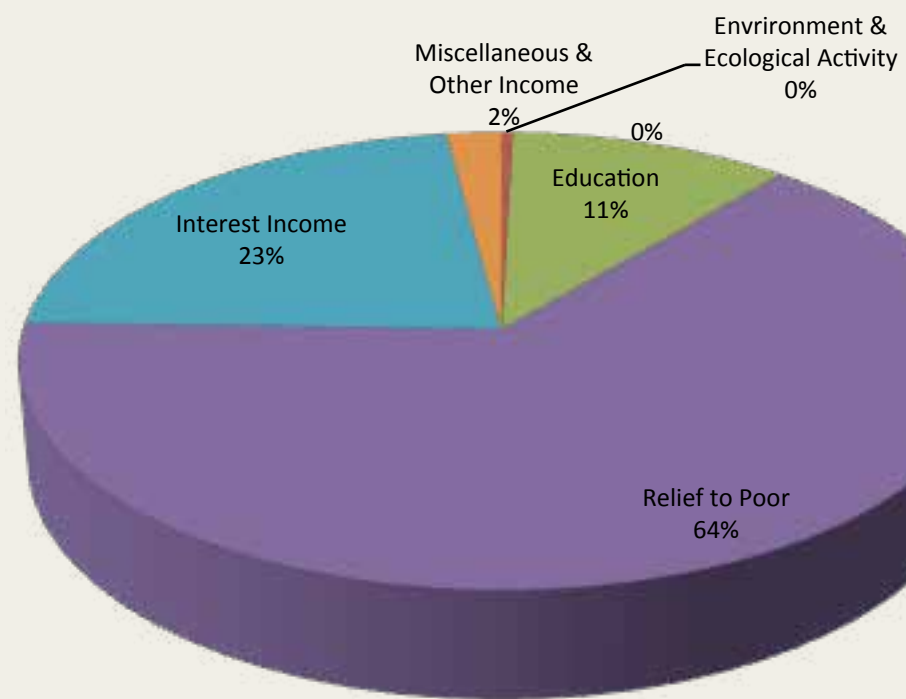
Hunnarshaala Foundation for Building Technology & Innovations					
BALANCE SHEET AS AT					
31st March 2016					
PARTICULARS	Note No.	As at 31-03-2016		As at 31-03-2015	
		Rs.	Rs.	Rs.	Rs.
I. EQUITY AND LIABILITIES					
1. Shareholders' Funds					
(a) Share Capital	2	1,01,000		1,01,000	
(b) Reserves and Surplus	3	13,71,19,658		14,37,36,012	
			13,72,20,658		14,38,37,012
2. Share Application Money pending allotment					
			-		-
3. Non - current Liabilities					
			-		-
4. Current Liabilities					
(a) Trade Payables	4	3,26,231		3,10,384	
(b) Other Current Liabilities	5	1,22,29,435		1,19,06,502	
			1,25,55,666		1,22,16,886
TOTAL			14,97,76,324		15,60,53,898
II ASSETS					
1. Non-current Assets					
(a) Fixed Assets					
(i) Tangible Assets	6	2,89,74,859		3,18,41,661	
(b) Non-current Investments	7	5,00,00,000		5,00,00,000	
			7,89,74,859		8,18,41,661
2. Current Assets					
(a) Inventories	8	1,22,718		1,75,404	
(b) Trade Receivables	9	24,59,191		14,78,500	
(c) Cash and Cash equivalents	10	3,24,86,786		4,11,52,356	
(d) Short - term Loans and Advances	11	58,15,927		81,73,356	
(e) Other Current Assets	12	2,99,16,843		2,32,32,621	
			7,08,01,465		7,42,12,237
3. Miscellaneous Expenditure to the extent not written off or adjusted					
			-		-
TOTAL			14,97,76,324		15,60,53,898

Expenditure Chart



Income Chart

INCOME CHART 2015-16



Particulars	Amount
Environments & Ecological Activity	1,70,742
Education	42,64,053
Relief to Poor	2,55,42,431
Interest Income	89,16,868
Miscellaneous & Other Income	8,35,300
Total	3,97,29,394

Team



Staff members and Karigarshala students at a gathering

Board of Directors

Neelkanth Chhaya, Chairman
 Sandeep Virmani, Executive Vice Chairman
 Mahavir Acharya, Managing Director
 Tejas Kotak, Executive Director
 Kiran Vaghela, Director
 Tushar Dayal, Director
 Sudhin Choksey, Director
 Prof. Jagadish Kaup., Director
 Ramesh Sanghvi, Director

Management Committee

Sandeep Virmani, Executive Chairman
 Mahavir Acharya, Managing Director
 Tejas Kotak, Executive Director
 Prajesh Jethwa, Business Manager
 Nilam Sompura, Administration Manager
 Chetna Varu, Accountant
 Atul Vyas, Artisan School Coordinator
 Mukesh Tank, Design Unit Head

Administration Division

Dhaval N Raval, Admin Assistant
 Rajesh S Gor, Admin Assistant
 Uravashi Anjaria, Admin Assistant
 Jamanaben Rathod, Office Assistant
 Sitaben Buchia, Office Assistant
 Alimamad Sama, Driver
 Meghji Bhuchia, Care Taker

Artisan School

Hiralal Suthar, Carpentry Instructor
 Pangu Singh, Walling Systems Instructor

Accounts Division

Kartik Mehta, CA, Consultant
 Brinda Khiera, Account

Community Empowerment Unit

Dhiraj Thacker, Project Assistant
 Dinesh Charan, Project Assistant
 Hiren Gohil, Project Assistant
 Karamshi L. Rangani, Project In Charge
 Khimji G. Chavda, Project Assistant
 Malaram Bishnoi, Project Assistant
 Ramesh Chauhan, Project Supervisor
 Rupesh Hurmade, Program Coordinator
 Hardika Dayalani, Project Coordinator
 Bhawna Jaimini, Project Assistant
 Aditya Singh, Project Coordinator
 Tapas Upadhyay, Project Assistant
 Prateek Zaveri, Project Coordinator

Artisan Empowerment Unit

Bharat Chauhan, Assistant Supervisor
 Jignesh Gor, Project In Charge
 Pradip Rangini, Project In Charge
 Raj Chauhan, Project Assistant
 Hemant Dhudhaiya, Project In Charge
 Milap Gor, Project Supervisor
 Vishanji Gajjar, Master Artisan
 Poonam K. Chavda, Store In Charge

Interns

Shruti Nikhar
 Roman Pradhan
 Bibilal Vijaydev
 Udit Shah
 Dishant Manik

