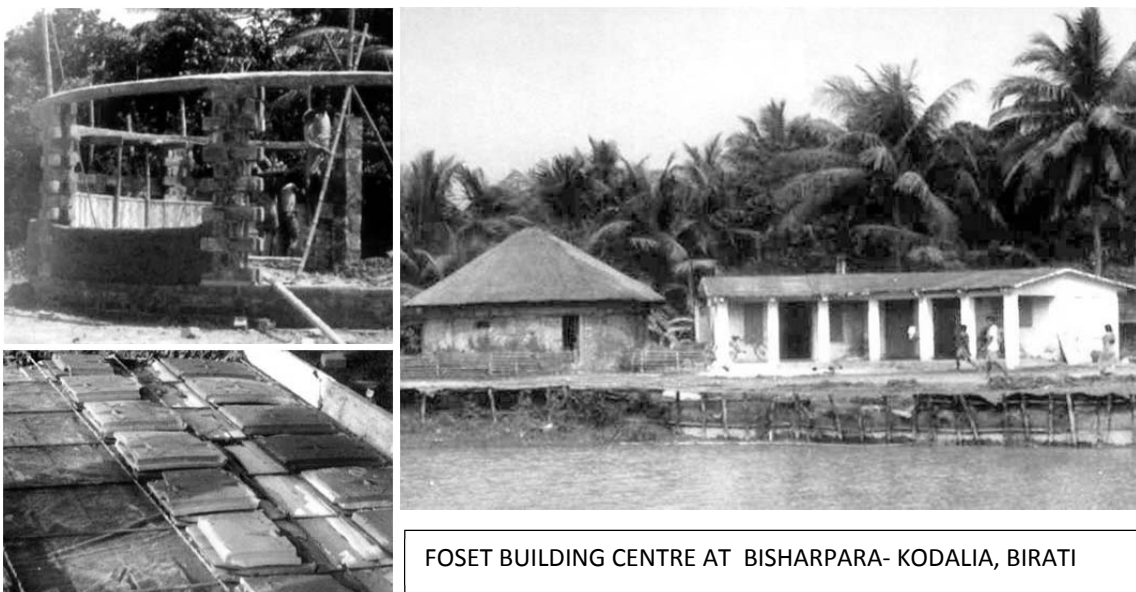


SEEKING APPROPRIATE ALTERNATIVE FOR SUSTAINABLE DEVELOPMENT

A case for RESPONSIBLE ARCHITECTURE

“Sustainable Development” – a notion that has become almost a cliché, What is really sustainable? From which perspective it is considered and how it can be translated – are the questions that the designers are seeking today. After thirty years of search we have arrived at an understanding of sustainability as a practice, which goes beyond cost optimisation, affordability, technological innovation, energy consciousness, environmental sensibility and cultural conservation. All these issues are reflected in the art of Building, the Process of Design and sensible architecture. It must be a responsible gesture on the part of the architects/Designers to consciously think and activate and induce the process of Sustainability. It is a holistic concept that we are embarking to figure out the right alternative for a specific use, site or context and client or its direct beneficiary. This is a process driven approach and therefore flexible, dynamic and adaptable. Through following cases we would be able to demonstrate this approach.

1) Birati- Bisharpara FOSET BUILDING CENTRE



This project was initiated to enable affordable housing in rural, semi rural areas as part of a pan indian movement of Building Centres or *Nirmith kendras*. Initially it was all CBRI non-conventional technology eg, pre cast slab-beam construction, concrete pcc blocks of an acceptable strength or Laurie Baker technology of rat trap bond, filler slabs etc. Inspired by this attitude Birati Building centre has managed to contextualise the agenda and explored further how to use local labour and material in an innovative way. Mud wall's composition was revised, brick faced mud walls are being introduced, efficient pcc blocks were made from the semi-burnt bricks from the surrounding brick fields with the help of local villagers. It generated a good response but we have failed to integrate it with mainstream construction practices and remained a limited effort.



2) Residence at IA Block , Plot no-22, Salt Lake , Kolkata



use parameters. Setbacks have been further rationalised to provide for additional space for flower garden-kitchen garden and green buffers, which is further augmented with the potted plants on roof- a holistic landscape element. Recycled windows have been procured and used without modifying. Innovative use of traditional bricks in new panel wall, rat trap variations ensured reduction of material; this was further enhanced with alternative use of fly ash in mortar and concrete. The proposed brick work is exposed on both side therefore eliminated plaster work to a great extent. Frames in internal doors have been eliminated. The service lines are exposed for ease of maintenance and reduction of redundancy –this system also helps in ease of up gradation. The building is painted with Lime wash in the interior and cement based paint on the exterior. The design also reflected courtyard typology for its climate responsiveness.

It has successfully sustained its inhabitants and evolved effectively for more than 34 years.

3) Tirthankar & Swapan’s House at village ‘*andharmanik*, Baduria , 24 Parganas(N).



RESIDENCE AT VILLAGE ‘*ANDHARMANIK*, BADURIA , 24 PARGANAS(N).

In this example of sustainable practice that goes beyond its physical aspects. Design decision allowed the land owner to get a house constructed with the help of his friend to be able to get shelters for

both. Architecture therefore needs to be responsible to optimise the structure system with predominantly using local materials. Traditional construction with arches supporting the walls becomes a strong design element. This system is also very cost effective by utilising the appropriate bricks for the construction.

4) *Swanirvar* Training Centre and Office at Baduria , 24 Parganas (north)



SWANIRVAR TRAINING CENTRE AND OFFICE AT BADURIA

A holistic planning and design process helped in realising a rural institute for rural development – sustainable agriculture, Women empowerment, microfinance, rural health and sanitation programme. Architecture was responsible for the developing the design programme, its execution with local material and labour only and assist in its overall management.

Right qualities of brick has been sourced from the surrounding brick fields, timber is sourced locally. Structural innovations are in place right from foundation - arched, isolated footings were mixed judiciously for optimising consumption of material. Walls are in brick



panel system or in rat trap bonds as per their structural requirement. Simple sliding mechanism of glass ensured cost effective climate responsive opening. Roofs are of filler slabs, or of Ferro cement.

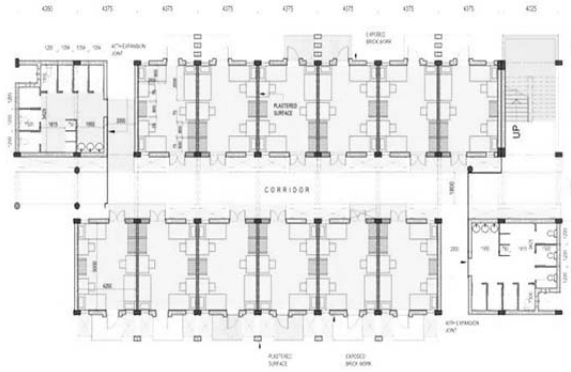
This process significantly reduce the cost of construction and material consumption. The circular toilet has proven to be very space efficient module, its detachment has also rationalised the services. Septic tank and its linked pits are used for *azola* cultivation (for nitrogen fixation in agriculture). This structure also evolved efficiently to match with the growth of the institute.

5) 2000 Capacity Boy's Hostel at IIT Kharagpur , West Bengal



BOY'S HOSTEL AT IIT KHARAGPUR , WEST BENGAL

This is absolutely a contemporary issue arising from rapid and intense densification programme of the premiere Institute of technology. It is therefore provides us an opportunity to create a large meaningful public building for a homogenous community of 2000 first year students. So the central issue of its design revolves around identification of an appropriate typology that fosters creation of shared spaces at various levels for complex interaction between the students from



different discipline, students and environment and social politics. The whole arrangement is modelled on imitating the social network of 'para' (social clusters in traditional area).

The predominant element therefore are the connections -horizontal and vertical along with the nodes. To make the circulation efficient it is doubly loaded yet well-lit through the light shafts and accessed to the rooms are through negotiated shared spaces.

The overall arrangement is that of connected courtyard typology inspired from traditional *havelis* – to make the building more climate, use and environment responsive. The building façade has been treated differently respecting their basic orientation. Because of the incremental nature of development and overall design rational it is cost optimised, energy efficient, user friendly building- something that a responsible architecture aspires for.

6) Maharaja Udyan Bati- Shalboni Retreat at Garh Salboni, Jhargram



SHALBONI RETREAT AT GARH SALBONI, JHARGRAM

This is case for a joint effort of a client (passionate, middle class cultured traditional Bengali family) and the designers- The Appropriate Alternative. It is an inherited *Bagan-Maharaja Uday bati* of sprawling 6 Bighas of land and there is paucity of fund- so one has to work out the project on limited budget. The more fundamental aspiration of the client is that it would provide for getaway for common middle class from the urban chaos of the city at an affordable price. Therefore it has to be built cheap without compromising the safety or comfort. The overall form is compact and small, so that one don't have to cut any tree and must be accommodated in the clear land without trees. This selection has led to a site with rocky strata – helping to rationalise the foundation cost. Local laterite stone was used to construct the base. External Brickwork is a combination of Full brick and half brick thick wall. The circulation and common area is rationalised by providing it in the centre while wings out at a skewed angle provide 4 sets of double bed rooms with attached toilets. Used mosaic tiles were recycled in a variety of unpredictable spontaneous patterns. Supporting beams are made of truss made out from normal reinforcement steel. Roofs have been made in slope and are of filler slabs with dense industrial thermocol as fillers. All these juggad rational of design has made it very cost effective, user friendly and context responsive. Its growing popularity is the testimony of Responsible architecture.

7) Santipur Public School –at Santipur, Nadia , West Bengal



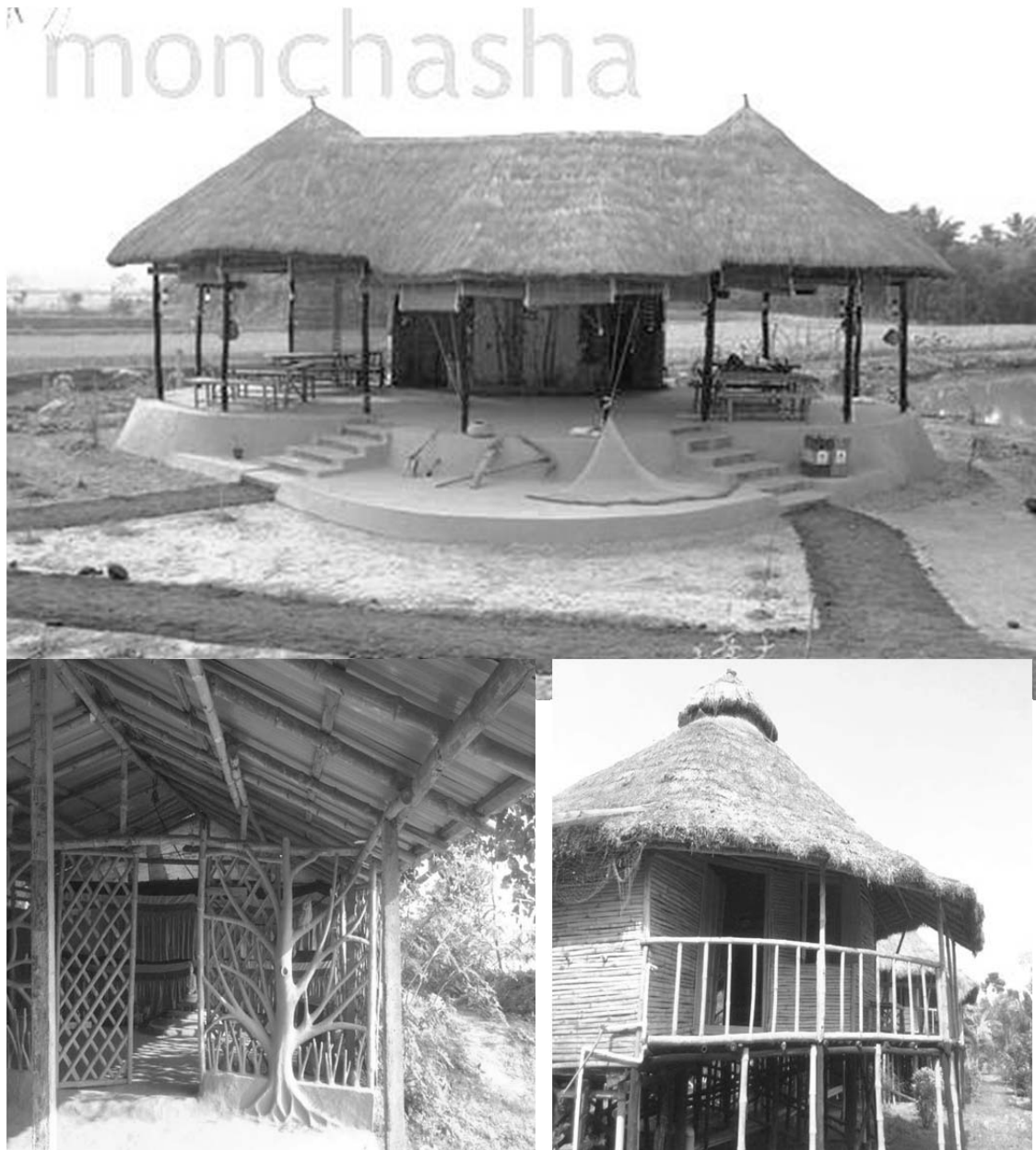


Nearly 100 kilometres from Kolkata on the north is Santipur Town an erstwhile important historic Bangali settlement. To ease the pressure on the heritage core of Santipur a bye pass has been proposed to connect it directly to Krishnanagar. It is on this bypass Santipur Public School shared a campus with existing PTI and B.Ed College. This has resulted in space constraint and one needed to adopt a curvilinear geometry for the school. This has resulted in search for suitable form for a school building. The site is 2.0 M down from the Road level and is quite prone to waterlogging. There is paucity of fund but being supported partially by a brick field owner we have ample supply of basic building material.

Due to excessive rain the site was completely waterlogged yet we have a tight time schedule to complete the basic infrastructure. So we have adopted traditional construction system of *Kari- Burgah with presized MS Joists as Kari and MS Tee s as burgah. They supported kudappa stones. 50 th cement concrete with nominal steel was poured above to stone slabs for a stable floor.* This process has eliminated the time consuming procedure of shuttering and avoided the water logged site condition. We have managed to complete the project within the accepted budget and in time.

This project here emphasised the basic premise of responsible architecture – the pragmatic choice and flexible design development exercise.

8) "MONCHASHA"- a community based rural tourism project at village "Paoshi", Kilinagar, Purba Medinipur



This project is a perfect demonstration of Responsible Architecture and their role in sustainable development.

It has started with the conception of the project. Modelled on the Endogenous Tourism Programme of UNDP- Gol initiative, it is a privately sponsored and supported endeavour for sustaining the orphanage "Antyoday Ashram". The hardware (the physical infrastructure and tourism product) for this project was provided by The Appropriate Alternative and the software (management skill, operation and

marketing, promotion) has been provided by Khorlo Tours Ltd. The beneficiaries are the local ashram and the villagers.

It is a very tight budgeted programme with very limited local resource. The passion to deliver an authentic rural Bengal ambience both tangible and intangible is the central design focus. We have managed to create a typology from Brahmaputra flood plains and adopted it in rural Bengal. Local vegetation, cuisine, rituals and habits ensured the sustainability of the project and eventually it became a popular tourist destination of Bengal with 100% Trip Advisor rating. The Ashram has gained its own momentum and they are now self-sustained.

9) Conservation of a Residential Typology in Traditional North Kolkata

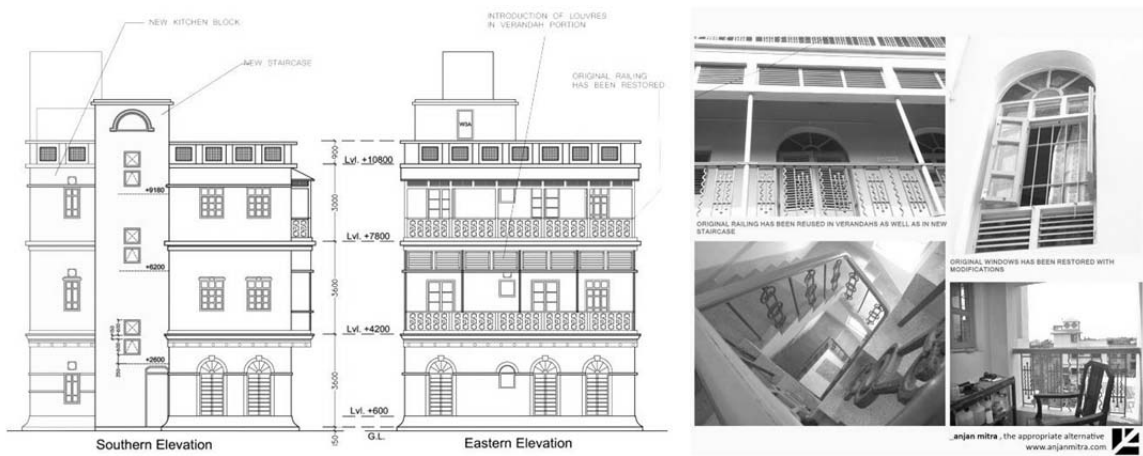


BEFORE & AFTER CONSERVATION OF THE RESIDENCE

Responsible Architecture can take in many forms arising out of its context. In this example conservation of a traditional typology holds the key. Maintaining a 150 year old building, a two hundred old deity is a daunting task for a retired person- (typical scenario

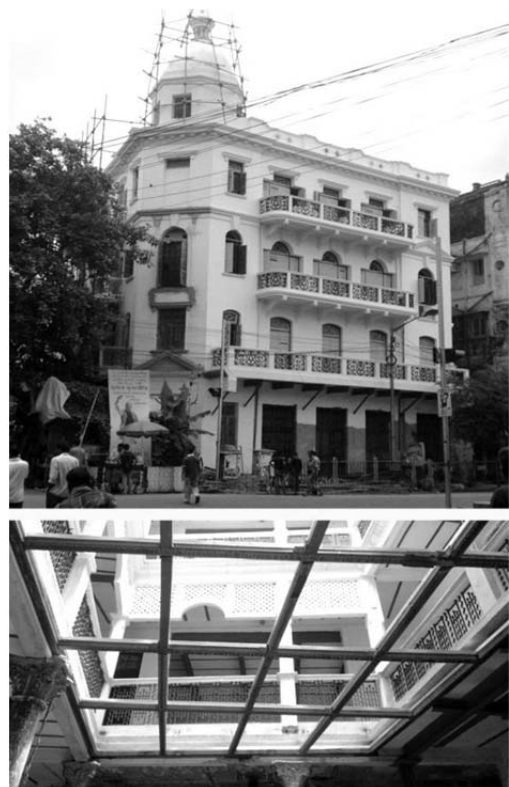
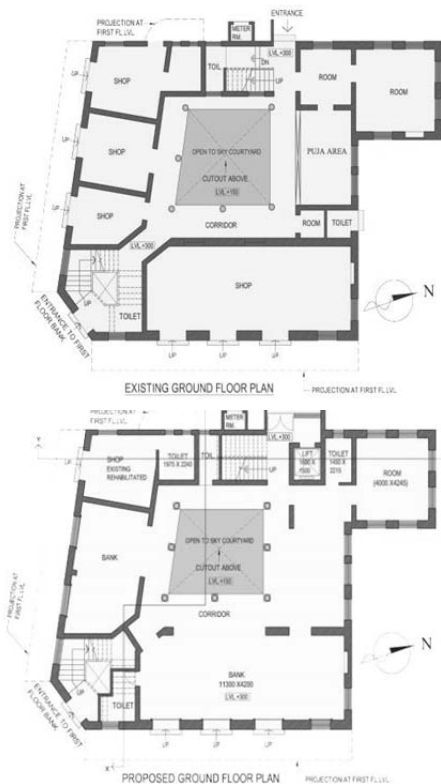


in Old heritage quarters of North Kolkata – Durjeepara). Promoter pressure is very high in these localities and faces forceful eviction. To have identified an alternative course of redevelopment by restructuring the old house and converting it into an apartment block with three individual flats in three floors recycling the old materials, retaining the original features as much as possible. The original owner has sold the ground and top floor apartments and created a sustenance fund for the future.

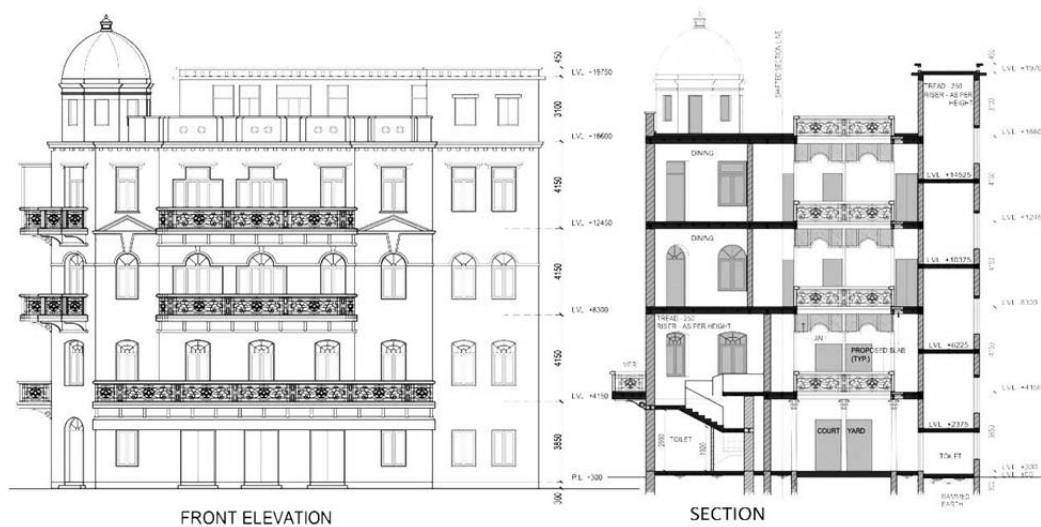


CONSERVATION OF A RESIDENTIAL TYPOLOGY IN NORTH KOLKATA

10) Bringing back a Heritage Building into mainstream development
- case –271 CR Avenue, Kolkata



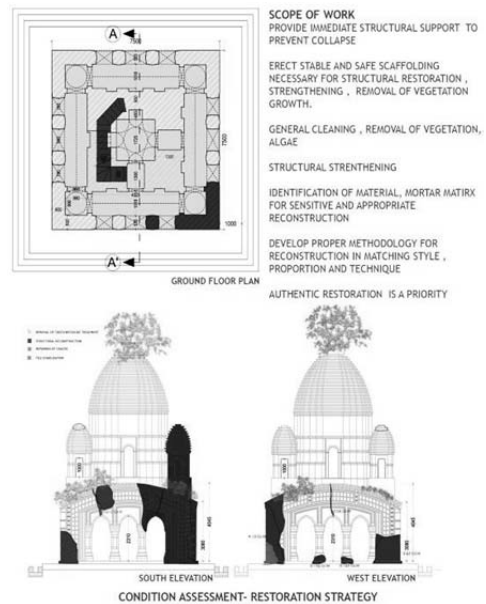
Central Avenue was the result of a planning intervention to ease accessibility and improve health parameter during 1920-30. New building typology for the Calcutta elite has emerged during this period creating a distinct streetscape. One such building is 271 CR Avenue – an impressive lofty 4 storied corner building emphasised with a cupola on top. The building is severely stressed, tenant occupied with virtually no maintenance. This building has been completely restored with increased serviceability and in original ambiance. The client has rented out the ground floor to YES bank and ensured healthy return on his investment. All the tenants at the ground floor has been retained and the upper floors is being used as his own office and residence. Through this process we have revitalised traditional crafts and knowledge, social networks preserved and brought back the pride and life of the building. Now it is actively used and looked after.



11) Restoration of Pancharatna Mandir at Garh Panchakot in Puruliya



Responsible Architecture draws its strength from the central idea of the project, its local issues, development potential, and dialogue with stake holders. Design process is inclusive of the local skills, materials, traditional wisdom, climate and environment. The project has been initiated by Dhara Panchyat Samity and funded by West Bengal State Heritage



Commission and routed through DM's office and approved by PWD. The Pancharatna Temple was almost in a state of collapse with major structural faults. We have embarked on its restoration programme with the intention of putting it back to an effective community use. The restoration has involved in procuring the matching bricks, reviving the traditional wisdom, upgraded it with matching modern concepts and technology and all has been done with local support both in logistics

and skill. On the whole we have been able to make restoration of heritage structure a trigger for restoring pride and hope in the local community. If it is maintained and looked after well, it would bring pilgrims, visitors back into this remote region – a source for livelihood and local economy.



All the projects highlighted that sustainable development is an outcome of responsible architectural practices that engages itself in the ideation, conceptualisation, utilisation of all local resources, making appropriate design choices, and pragmatic implementation programme and in its further evolution and maintenance.