

AGA KHAN DEVELOPMENT NETWORK

Humayun's Tomb- Nizamuddin Basti- Sunder Nursery urban renewal initiative

Progress Report



HUMAYUN'S TOMB
SUNDER NURSERY
NIZAMUDDIN BASTI

urban renewal initiative

A PUBLIC-PRIVATE PARTNERSHIP INITIATIVE OF ARCHAEOLOGICAL SURVEY OF INDIA
MUNICIPAL CORPORATION OF DELHI – CENTRAL PUBLIC WORKS DEPARTMENT
AGA KHAN FOUNDATION-AGA KHAN TRUST FOR CULTURE

Progress Report December 2008

Partner Agencies:



ARCHAEOLOGICAL SURVEY OF INDIA MUNICIPAL CORPORATION OF DELHI CENTRAL PUBLIC WORKS DEPARTMENT



AGA KHAN TRUST FOR CULTURE



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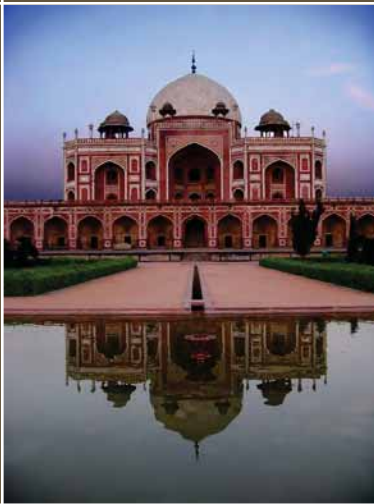


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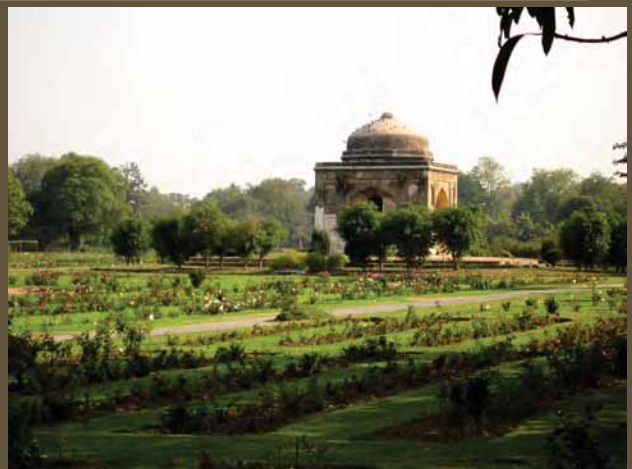
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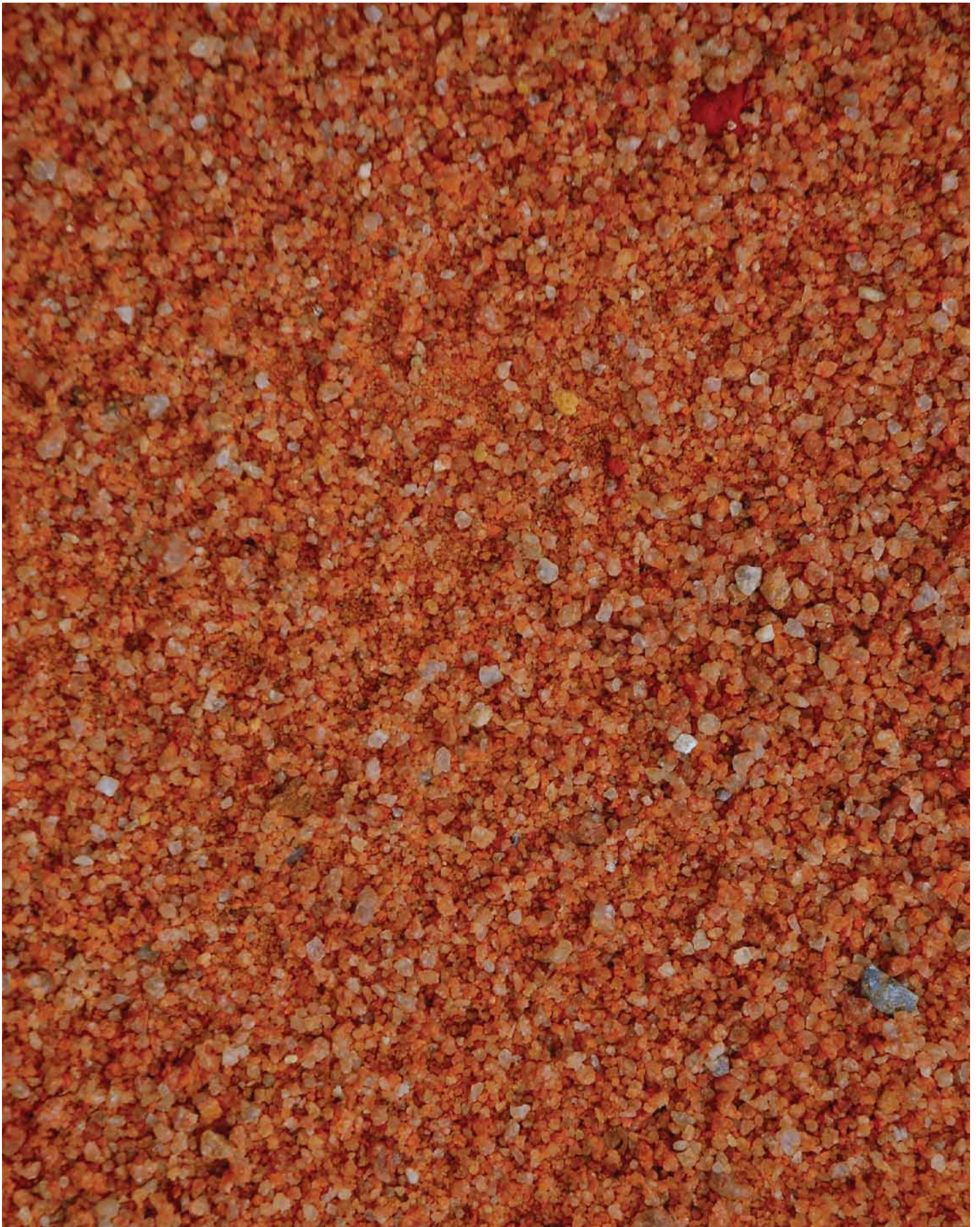
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INTRODUCTION





PROJECT BACKGROUND

The Humayun's Tomb – Nizamuddin Basti – Sunder Nursery area was chosen for this project on account of the possibility of building on the successfully completed Garden restoration, high number of significant buildings in the area, potential of the conservation initiative to be coupled with a socio-economic development programme that would benefit a resident population, the importance of a 'living culture', exemplary religious tolerance and easily accessible central location for the citizens of Delhi.

The MoU signed on 11 July 2007 amongst the five partner agencies - Archaeological Survey of India, Central Public Works Department, Municipal Corporation of Delhi, Aga Khan Foundation and the Aga Khan Trust for Culture – marked the official commencement of the project. The project would unify the three presently segregated zones of Humayun's Tomb – Nizamuddin Basti – Sunder Nursery into an urban conservation district of considerable breadth and significance for the city of Delhi.

The PPP project is being carried out under the guidance of a Project Committee and in complete transparency with respect to decision making process, project objectives and interaction with stakeholders. Four Project Committee meetings have been held to date and these have been interspersed with several hundred bilateral meetings where agencies concerned have taken decisions to ensure steady project progress. The Project Committee with representation of five agencies and the representatives of Nizamuddin Basti ensures greater managerial oversight and the potential to bring about required change on several fronts.

The broad objectives of the project at the onset can be grouped under three distinct headings; these also help define the mutually shared objectives, of the partner agencies, of carrying out a model project that would lead to conservation based development, improve quality of life for local communities, improve access and enhance cultural significance of this conservation area and provide additional attractions and facilities to Delhi's citizens and tourists to this unique heritage zone.

While minor works commenced in 2007, following the signature of the MoU in July 2007, the project activities have progressed significantly in 2008 following agreements reached in the Project Committee meeting held in April 2008.

(Left)

Project Site:

Hazrat Nizamuddin Basti- Humayun's Tomb Complex- Sunder Nursery

Hazrat Nizamuddin Basti

Social development initiatives planned in the Nizamuddin Basti area, comprising a resident population of approximately 20,000 and other beneficiaries, will offer a synergistic, community centred and collaborative approach to improve the nullah, develop public parks and strengthen urban basic services through interventions in three core areas of health, education and environmental sanitation.



Humayun's Tomb Complex

Building on the garden restoration of Humayun's Tomb, conservation works will now be carried out on the Mausoleum and other buildings within the Complex such as the monumental gateways, pavilions and tomb structures. The project also includes the integrated development of the surrounding open spaces and provision of visitor facilities and an interpretation centre.



Sunder Nursery

The 70-acre Sunder Nursery abuts the Humayun's Tomb Complex and stands on the Mughal Grand Trunk Road. It has been a significant Sufi graveyard and within the nursery stand nine Mughal period tombs. It is proposed to enhance nursery functions, create a significant arboretum showcasing Delhi's flora, carry out conservation work on the monuments to enhance the cultural significance, create new attractions and provide visitor facilities.



HAZRAT NIZAMUDDIN BASTI

Following sustained dialogue with the local community, works in Hazrat Nizamuddin Basti commenced with an exhaustive socio-economic survey carried out at approximately 500 households. All works have been preceded with much interaction and the Basti has been the focus of much activity in 2008. Amongst principal works carried out here are:



education

- The MCD School is undergoing a major renovation to improve the learning environment by incorporating Building as a Learning Aid (BaLA) components.
- Teacher Training programme is ongoing.
- Bridge classes are being conducted.
- Several workshops with students, teachers and parents have been carried out.
- A computer education centre, with training to be carried out by NIIT is being set up.
- Additional land for a green space for the school is being sought.

health

The MCD polyclinic has been provided with a Pathology lab. Consultant doctors and lab technician have been placed here. A referral system has been established.



cultural revival

A training programme with the Quwwals is being established. A cultural mapping exercise for the entire project area has been carried out by the Youth from the Basti.



livelihood generation



An embroidery training centre has been established. Guide Training programme has commenced.

conservation

- *Hazrat Nizamuddin's Baoli*
- *Atgah Khan's Tomb*
- *Chaunsath Khambha*
- *Mirza Ghalib's Tomb*



- Following over four months of tests and studies conservation works have commenced on the Baoli, which suffered partial collapse in August 2008.
- Measured drawings for Atgah Khan's tomb have been completed.
- Landscape proposal to connect Chaunsath Khambha, Ghalib's tomb have been finalised and implementation for this will commence in January 2009.



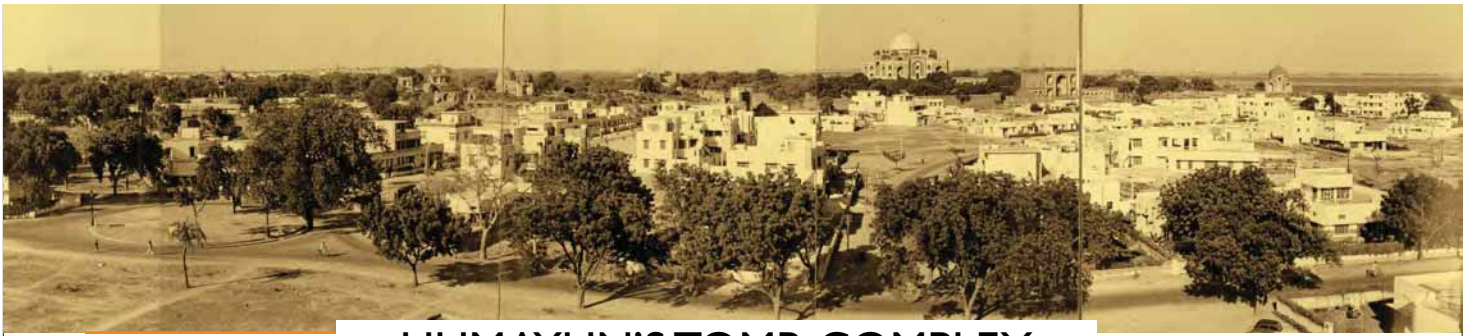
open space development

- Over 200 truckloads of rubble and rubbish have been removed from the Nullah adjoining Nizamuddin Basti.
- Nizamuddin Basti parks are presently under the care and maintenance of the DDA; several meetings seeking partnership to enhance the landscape of these parks have been held.

sanitation

- A public toilets near the Dargah entrance, not in use for several years, has been demolished and is being rebuilt as a two storeyed structure with double the original capacity.
- Garbage collection system has been established.
- Over 50 toilets in individual houses have been connected to the sewerage system.
- Over 100 m of sewer line, to the west of the Baoli is being replaced as this was found to be leaking and water penetrating into the Baoli.





HUMAYUN'S TOMB COMPLEX

The Humayun's Tomb, precursor to the Taj Mahal was the first of the grand dynastic mausoleums to be built by the Mughals. Following the approval of the Conservation Plan in March 2008, conservation works commenced at the roof level and with the preparation of stone required. A significant training programme comprising training in the use of lime mortar, stone craftsmanship, 3D high definition survey, use of AutoCAD and making of ceramic tiles has been carried out. The following works were carried out this year:



humayun's tomb

- Preparation of a Conservation Plan comprising archival research, measured drawings, condition description, conservation proposals.
- Structural analysis of the building
- Electrical engineering studies for the design of an appropriate lightening conductor
- Condition analysis of the upper dome and finial.
- Removal of 1.5 million kilos of concrete (25-40 cm thickness) from the roof of the dome. Another 10-20 cm remains to be removed.
- Preparation of sandstone door frames for the 67 lower cells.
- Petrological analysis of sandstones used in the tomb.
- Stone replacement below eastern canopies on roof.

west gateway



- Conservation works completed on the northern portion of the ground floor.
- Sandstone lattice screens for the ground floor prepared; including four screens for doorways which were walled up in recent years and six screens for arches over doorways.

- Large northern well desilted.
- Conservation works are now ongoing on the well, where significant deterioration and structural cracks were discovered following desilting.



north pavilion

north-east pavilion



- Measured drawings and conditional analysis for this structure has been completed.

conservation trainings

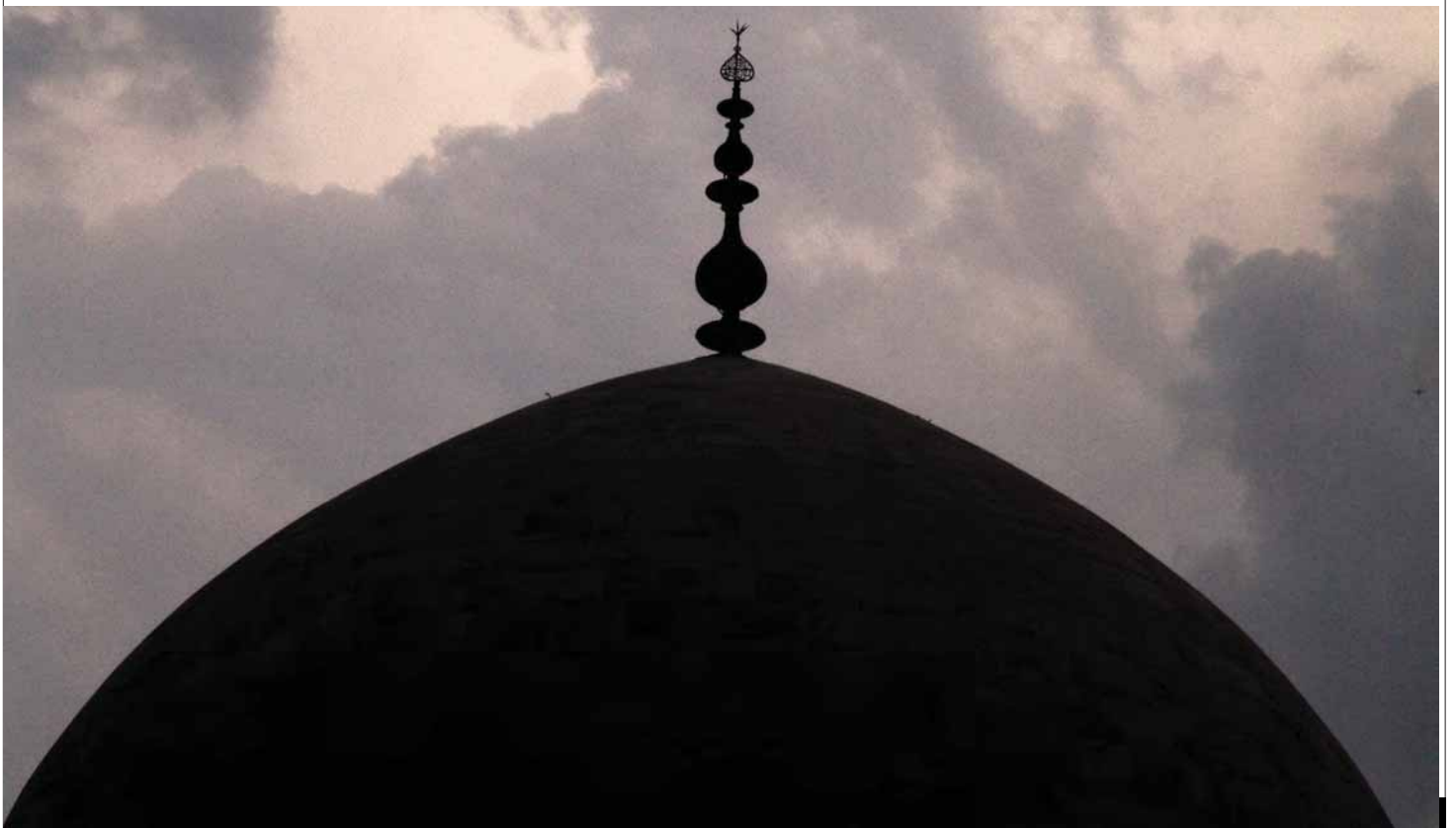


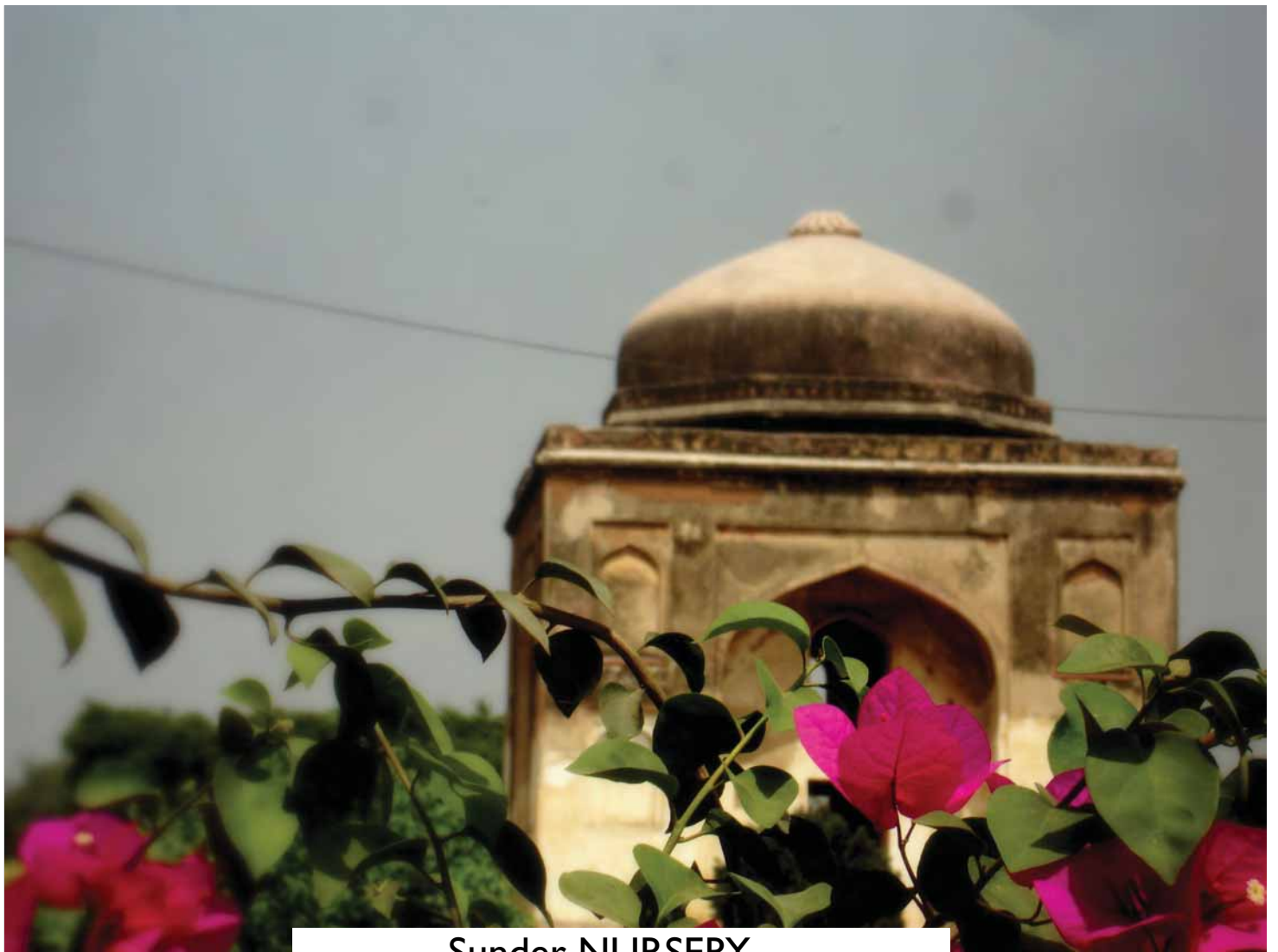
- Three lime training workshops of one week duration have been carried out. 20 officers of the ASI from all parts of the country attended these workshops.
- A 10 day AutoCAD workshop carried out by Autodesk has been completed for 20 Surveyors and Archaeologists of the ASI.
- A 3D High definition Survey training programme is ongoing; this is being conducted by Leica Geo systems and 11 ASI officers are being trained.

- Detailed Landscape scheme to integrate the green space in the ownership of Northern Railways and Archaeological Survey of India has been prepared.
- Conservation of the Nila Gumbad arcade partially completed.
- Approvals from Northern Railways are awaited to commence landscape works.



nila gumbad



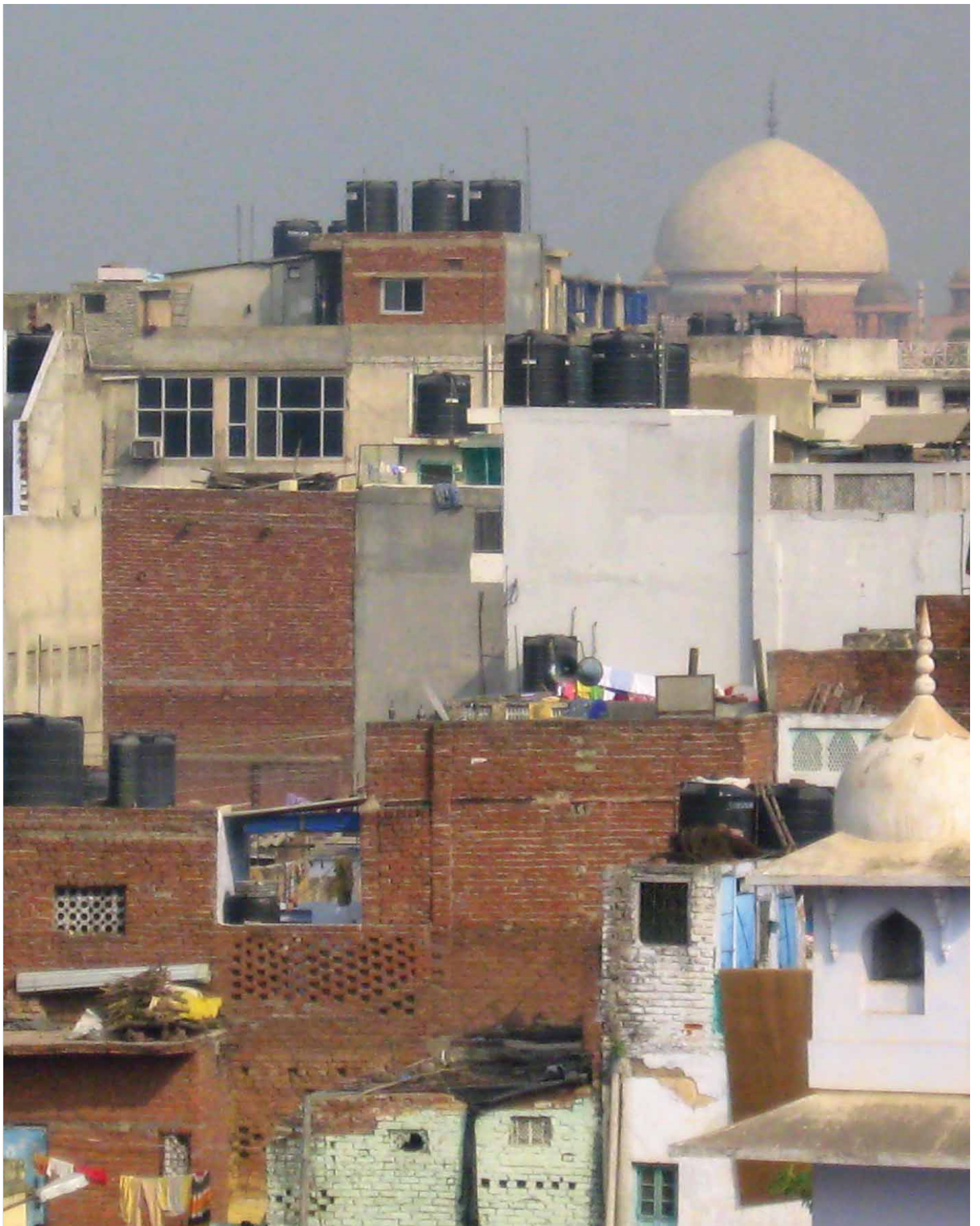


Sunder NURSERY

The nursery owned and maintained by the CPWD is proposed to be upgraded to a principal nursery for Delhi with significant ecological and archaeological assets showcased for the public. In 2008 the following works have been carried out here:

- Finalisation of Master plan for the Sunder Nursery (Categorised District Park in the Delhi Master Plan 2021).
- Conservation of five monuments nearing completion.
 - Mughal Pavilion
 - Two Grave Platforms
 - Arched Wall Mosque
 - Sunderwala Mahal
- One historic well discovered and de-silted.
- Nursery Steel Frame structure being erected.
- 14 Acres of Nursery beds to the north of the nursery being established, this includes manual moving of over 5000 cum of earth.
- Ground Penetrating Radar survey carried out by IIT Kanpur.
- Peripheral road, over 3 km long, under construction.
- Detailed tree survey completed, includes over 1500 existing trees in Sunder Nursery.
- Nursery established for new species to be introduced at Sunder Nursery.

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HAZRAT NIZAMUDDIN BASTI



SOCIO-ECONOMIC SURVEY

TASK:

Compilation of baseline information on Basti Hazrat Nizamuddin

PURPOSE:

To establish a baseline and benchmarking against key social and quality of life indicators.

ACTION TAKEN:

- In 2007, steps were undertaken to consult with experts to:
 - (i) help initiate a socio-economic Baseline Survey of the people living in the Nizamuddin Basti for establishing relevant benchmarks;
 - (ii) provide detailed instructions for the analysis and selection of key variables and;
 - (iii) provide a report setting out findings and recommendations.
- As a part of the project development phase, a status review was undertaken to collate existing information pertaining to the macro framework within which the project is placed, demographic profile and status on access to basic services such as education, health and environmental sanitation. This information was compiled as a part of the project planning phase with an aim to support finalization of proposed interventions for social initiatives.
- A socio-economic survey was completed in 2008 and entailed the following tasks:
 - Execution of the socio-economic survey including data scrutiny and coding
 - Designing of the questionnaire, pre-testing & finalization- completed in June, 2008. Sampling framework finalized.
 - Training guidelines formulated and training of a team of 20 members completed (9th-19th July 2008).
 - Socio Economic Survey (490 households) completed (20th July 2008 till 31st August 2008).
 - All filled in questionnaires coded and scrutinized by an in house team.
 - A data entry module has been designed using PHP (Personal Home Page) as front-end development language and MY SQL as a back end database. Range and filter checks have been put in the software. The entered data has been converted into a CSV file for further analysis in SPSS.
 - Development and finalisation of the data analysis plan and data analysis
 - The AKDN Quality of Life assessments in other countries were referred to for standardisation of benchmark indicators. Also, planning needs for the project formed the criteria for identifying output tables. Any applicable state/urban norms have been considered while analysing the data.

NEXT STAGE:

Finalise the report summarising the findings of the socio economic survey.

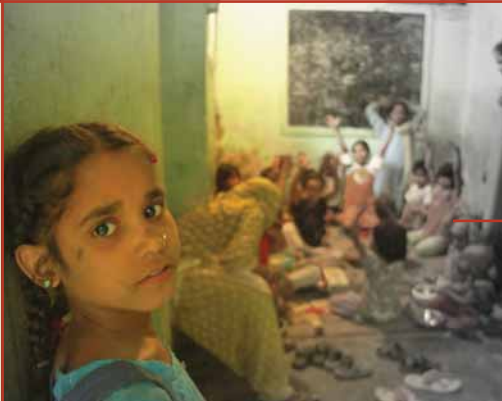




A socio economic survey was undertaken by a team of 12 investigators under the supervision of experienced researchers following a four day training organised for the team. The training covered aspects such as:

- (i) understanding the of project components;
- (ii) briefing on the questionnaire;
- (iii) communication skills and
- (iv) ethics of maintaining confidentiality.

EDUCATION PROGRAMME



NEEDS ASSESSMENTS AND BASELINE STUDY

TASK:

To complete necessary needs assessments and baselines for project planning

PURPOSE:

To identify needs and explore feasible options for project implementation

ACTION TAKEN:

- **Assessment and Feasibility Study for Early Childhood Care and Development (ECCD):** This study was completed in the 7 anganwadi centres to identify and prioritize areas of intervention.
- **Curriculum Enhancement and Teaching Learning Processes:** Inputs for improved access and quality of education have been identified through various activities:
- **Pedagogical inputs to implementation of Building as Learning Aid (BaLA)**
 - BaLA is an innovative way of creating conducive self learning situations for children and helping teachers adapt and optimize the use of already existing resources. BaLA is being implemented in the first Municipal Corporation of Delhi (MCD) School located in the Basti.
 - Pedagogical inputs for BaLA were finalized with consulting pedagogues through a series of workshops with school staff and students.
 - BaLA elements have been identified for each class, corridors, doors, staircases/window grills, common areas and open spaces in the school.
 - These elements reinforce concepts of language, science and mathematics and also provide for spaces for interaction amongst students, teachers and with parents and community.
- **Performing Arts in Education:** Performing arts, a new aspect included in NCF, 2005 is being implemented in the MCD School. A baseline on child wise assessment was completed.
- A continuous assessment, in collaboration with school teachers, of each participating child is being maintained to assess the impact of intervention over a period of time.

Education Initiatives are co-funded by Sir Ratan Tata Trust

Needs assessments were completed for initiating activities for ECCD and school improvement initiatives.



NEXT STAGE:

Findings from the assessments have been consolidated to develop a yearly plan of activities as well as benchmark key impact indicators for various education interventions.



EARLY CHILDHOOD CARE AND DEVELOPMENT

TASK

- Preparatory activities and securing formal collaboration with the Integrated Child Development Scheme (ICDS)
- Improved functioning of pre-school and existing seven Anganwadi centres (AWCs)
- Establishment of community managed Early childhood care and development (ECCD) centres to cater to the unmet needs.

PURPOSE

Ensure holistic development of children, facilitate smooth transition from ECCE to formal education system.

ACTION TAKEN:

- Completed feasibility study covering 7 AWCs:

Key findings were :

- 250 children in 0-6 age are not served by AWCs
- Limited space in the centres-only 25% of those enrolled are able to use the services
- Pre-school education activities are absent
- Most parents are engaged in daily wage activities
- No follow up with children leaving the centre
- Key areas for improvement have been identified.
- Completed designs for setting up model ECCE centre at MCD School. The ground floor plan of the MCD School (with nursery class) provides for soft area, play area, creative area and meal area for children. Provisioning in the classroom includes creative corner for undertaking make believe activities with children; book corner to provide for a print rich environment; writable surfaces for children and teachers and other learning elements such as number lines, calendar, clock, colour wheels, tracing tiles etc.
- Efforts are underway to secure formal collaboration with the ICDS.

The aanganwadi centres function from premises with average area of 6'x8'. These centres are unable to accommodate all children and currently cater to only to their nutritional needs. Interventions for holistic development of children are absent.



NEXT STAGE:

- (i) To secure formal collaboration with the ICDS to initiate implementation;
- (ii) to identify available space in the community to start a community based ECCD centre.

SCHOOL IMPROVEMENT INITIATIVES

TASK:

- Physical Improvement and upgrading in the MCD School to incorporate BaLA elements and improve infrastructure.
- Implement school improvement initiatives
- Implement home–community based interventions

PURPOSE

Ensure access, improved efficiency and quality of school education

ACTION TAKEN:

- **Physical Improvement and upgrading in the MCD School:**
 - Civil works have been initiated to significantly enhance the learning environment in the school premises and are nearing completion on one floor. Works are scheduled to be completed in the summer vacations.
 - Improved furniture for the school is being planned.
 - Implement school improvement initiatives:
- **Curricular and pedagogic inputs:** These have been provided for implementation of Building as Learning Aid (BaLA).
 - Workshops have been initiated with the school staff on the effective usage of BaLA elements in the classroom.
- **Professional Development of school staff:** Several activities have been initiated with school teachers, including:
 - Developing a daily time table, monthly plans
 - Identifying required technical and resource support
 - Introducing daily assembly in the school
 - Full time staff has been placed at the school to work on education initiatives with teachers, parents and students.
- **Performing Arts:** Theatre and Photography workshop was held in June 2008. The key objectives of the workshop were to orient and sensitize students to the changes occurring in their school.
- **Implement home-based community interventions:**
 - Routine home based contacts are being made with parents.

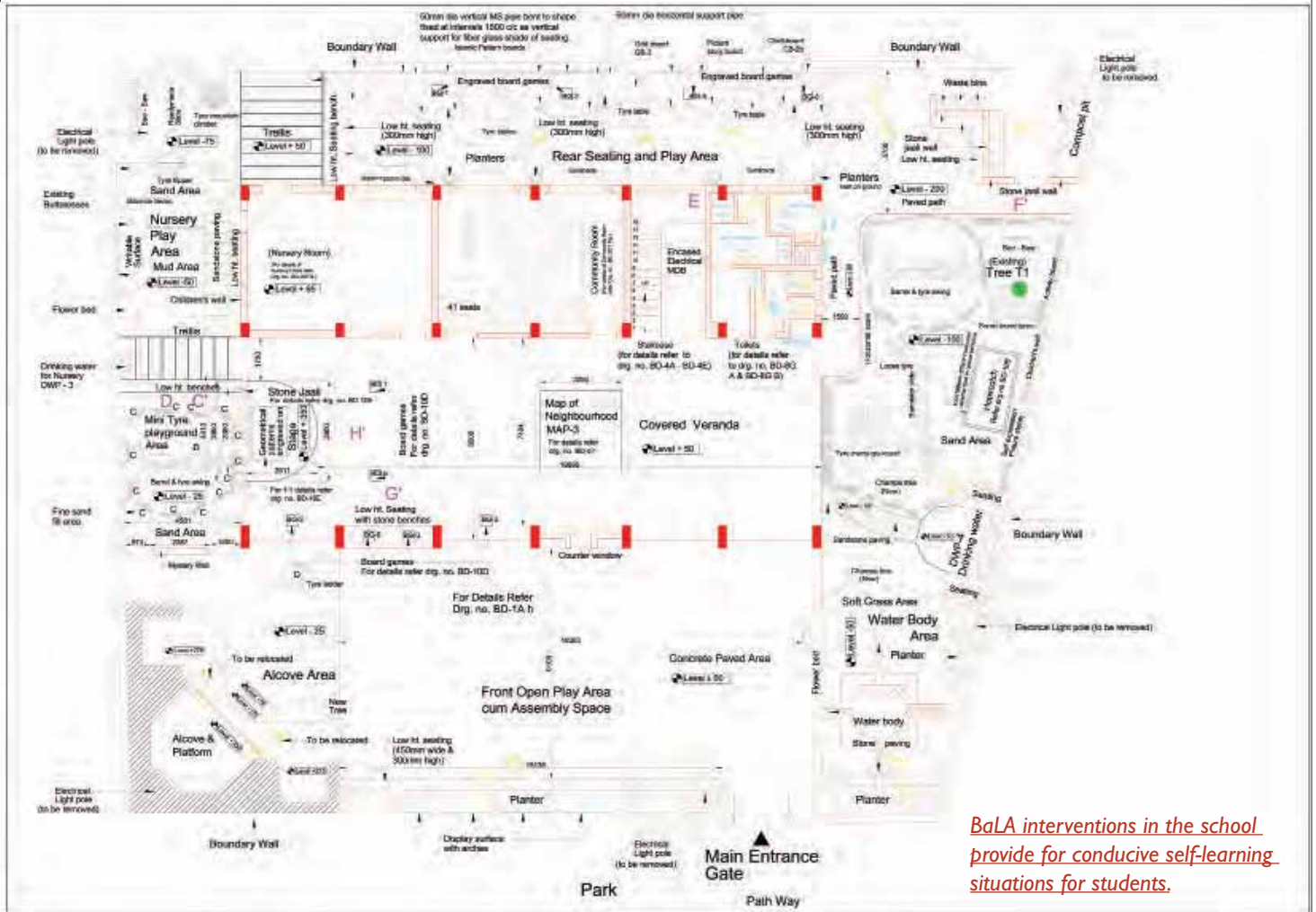
NEXT STAGE:

- Complete works within the school premises by June 2009.
- Complete assessments (intervention based) pertaining to establishing baselines on learner abilities and professional development needs of school staff
- Develop a plan for professional development for school staff to cover two key areas:
 - (i) orientation and utilisation of BaLA inputs and
 - (ii) curricular and pedagogic inputs based on monthly plans of school teachers.
- Implement school health programme
- Initiate activities related to Information Communication Technology (ICT) in education.

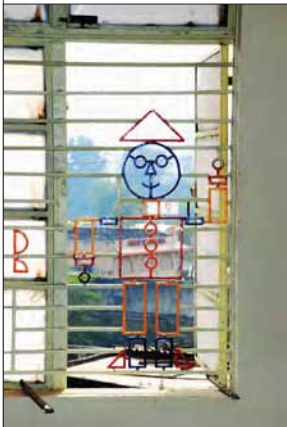
Arts in Education interventions are being implemented to help children stretch their faculties with respect to expression, communication and multi-dimensional thinking.



BaLA ELEMENTS INCORPORATED IN THE MCD SCHOOL



BaLA interventions in the school provide for conducive self-learning situations for students.



BaLA Elements being integrated in the school



Education Programme

CIVIL WORKS IN THE SCHOOL

Classrooms



Classrooms:

Activity corners and storage spaces have been provided in the classrooms and common spaces with an aim to build skills of management, negotiation and cooperation amongst children.

Classrooms



(Facing Page) Sewer Line:

To ensure secure access to the school at all times, the sewer line outside the school was re-laid to avoid water-logging during monsoon months.

Education Programme

CIVIL WORKS IN THE SCHOOL

Corridors



Corridors:

Learning elements in the classrooms and common areas have been provided for self-expression and developing a sense of autonomy amongst children.

Toilets:

All toilet blocks have been renovated and include provision of separate toilet blocks for girls and teachers.

Toilets



Sewer Line outside school



BRIDGE COURSES FOR OUT- OF- SCHOOL CHILDREN

TASK:

Undertake preparatory activities for initiating bridge courses, remedial classes and addressing education needs of children with special needs.

PURPOSE

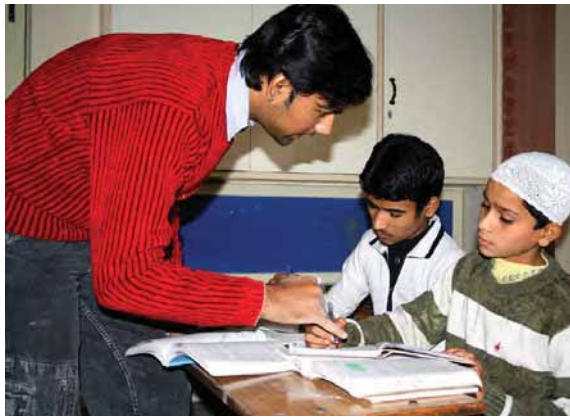
Ensure access, improved efficiency and quality of education

ACTION TAKEN:

- Completed listing of out of school children and students enrolled in classes 8 to 10 and in need of subject enrichment classes.
- Initiated subject enrichment classes for students of class 10th.
- Identified following areas for strengthening citizenship action
 - Inculcating social leadership skills and ability to influence public opinion and
 - Citizenship action to ensure sense of belongingness and ownership amongst community for common spaces.

NEXT STAGE:

Initiate subject enrichment classes and bridge courses for out of school children and those enrolled in classes 8th to 10th.



Subject enrichment classes being held for out of school children in English and Mathematics at the MCD School.

COMPUTER LEARNING CENTRE

TASK:

To set up a needs based computer education courses for youth

PURPOSE:

To enhance skills amongst unemployed youth to meet with livelihood challenges and equip them with new skills for sustainable livelihood options.

ACTION TAKEN:

- Discussions were held with National Institute for Information Technology (NIIT) in September 2008 for the possibility of setting up a Computer Learning Centre in the Basti following a demand from the youth in the Basti.
- A visit was made by the NIIT team to the Basti and discussions were held with the youth to assess the capacities and requirements in context of the Basti.
- Following a series of discussions with NIIT, modalities are being worked out to initiate this activity on a pilot basis starting February, 2009.
- Preparatory activities related to ascertaining the course content (based on profile of students), batch size and number of batches per day, subsidy to be provided (nominal fee covering the cost of course material may be charged by NIIT to the students), setting up of the centre will be completed by January 2009.
- Efforts will be made to train educated youth in the Basti for supporting this initiative.

NEXT STAGE:

- Organise a series of meetings with youth to start this initiative in 2009.
- Set up the Computer Learning Centre.

Initial meetings with the youth have been undertaken to understand their education background, skills and aspiration levels prior to introducing need-based computer course.



HEALTH INITIATIVES



TASK:

- Undertake assessment of the Health Facilities accessed by Basti population.
- Benchmark key indicators related to maternal & child health.

PURPOSE

To plan for improving access to health facilities.

ACTION TAKEN:

- An assessment was conducted in March 2008 during which a total of 274 interviews were conducted with the patients using the nearest available health facilities.
- For general health ailments, the health facilities covered included the Government Health Centre (MCD Polyclinic) (Basti Nizamuddin)-48% exist interviews, Maternal & Children Welfare Centre (MCW) and Polyclinic (33 % sample) and private practitioners including MBBS doctors and Registered Medical Practicioners (20 % sample). For antenatal and post natal care, a total of 61 beneficiaries were covered at the Maternal & Children Welfare Centre Centre, Bhogal.
- For covering child immunization, exit interviews were carried out amongst 54 children who attended the immunization clinic at the MCW centre Bhogal, or in the Basti.
- The indicators and tools for benchmarking indicators on Maternal and Child Health have been finalised. The proposed benchmarking entails an intense and elaborate survey with the target group being pregnant women and mothers with children in the age group of 0-24 months.

An in-depth assessment of services provided at the MCD polyclinic and MCD Health Centre at Bhogal was completed, prior to initiating health interventions.



NEXT STAGE:

Undertake the survey to establish status against maternal and child health indicators.



Health Initiatives

MCD POLYCLINIC UP-GRADATION

TASK:

Upgrade services at the Government Health Centre (MCD Polyclinic):

- Pathology Laboratory set up.
- OPD for Gynaecology services established
- Existing eye and ENT facilities upgraded
- Patient records and monitoring system established

PURPOSE

To strengthen the service provision at the MCD run polyclinic located inside the Nizamuddin Basti by establishing a pathology laboratory and providing essential equipments to the ENT and Eye specialists.

ACTION TAKEN:

Pathology Laboratory:

- The pathology laboratory was set up, in August 2008, after consultations with the MCD, Prince Aly Khan Hospital (PAKH) and Aga Khan Health Service, India.
- The laboratory became functional in August 2008; installation of key equipments and provisioning for chemicals and reagents is complete.
- A consulting pathologist, laboratory technician and a laboratory assistant have been placed here.
- 21 routine tests are being conducted.

Gynae Services:

- 1300 tests have been conducted since August 2008.
- OPD for Gynaecology services established
- Based on consultations with gynaecologists, consultants from All India Institute of Medical Sciences (AIIMS), and MCD, necessary instruments for the Gynaecologist have been provided.
- A visiting gynaecologist (once a week) and an Auxiliary Nurse Midwife (ANM) has been placed at the MCD Polyclinic since August 20th, 2008.
- Clinical treatment and diagnostic services (Pap smear test) are being provided.
- 262 patients were tested and treated since September 2008.
- A strong need for establishing referral linkages is felt to enhance the quality of services and a review of the functioning of the Polyclinic is planned for December 2008 to identify specific needs.

Upgraded Eye and ENT equipments:

- The MCD polyclinic is visited by eye and ENT specialists and based on discussions with the visiting specialists, additional eye and ENT equipments have been provided.

Patient Monitoring System:

- Routine meetings have been undertaken with the MCD Officials (Health Inspectors, Medical Officer) to update them on project progress and key areas of support for sustaining services.

Besides setting up of a Pathology Laboratory, Gynae services and upgraded Eye and ENT equipments have been provided at the MCD Polyclinic at the basti.



NEXT STAGE:

- Conduct discussions & interviews with doctors and para-medical staffs to assess the functioning of the Polyclinic.
- Prepare an annual health intervention plan in collaboration with the MCD.
- Establish a health committee to oversee functioning of the MCD polyclinic.
- A concept note on computerisation of patient records and monitoring system has been developed. Efforts are underway to review systems already in use in the MCD hospitals.



STRENGTHENING OUTREACH ACTIVITIES

TASK:

- Capacity building of community workers and select community health volunteers for community outreach activities from the MCD Polyclinic.
- Develop and implement an information, education and communication (IEC) strategy for health and hygiene promotion and control spread of communicable diseases.

PURPOSE

To strengthen the community outreach activities by generating awareness on preventive health and establish referral linkages for ensuring better health care services.

ACTION TAKEN:

- A team of community facilitators was identified at the inception of the project following a series of consultative meetings with the residing population.
- The community meetings organised covered generic, theme specific aspects of the project.
- Various capacity building activities for the facilitators were undertaken and these included building their capacities of participatory rural appraisal methods, undertaking surveys, enhancing communication skills and on the job training through engagement in activities related to upgrading services at the MCD polyclinic, school activities and home based contacts.
- With the setting up and operationalisation of the MCD Polyclinic, the first specialised training of 4 days has been completed covering aspects such as general health ailments, maternal & child health, communicable diseases like malaria and dengue, nutrition, hygiene, etc.
- The training was followed by exposure visit to VP Singh Camp, where health interventions are being implemented by Deepalaya (an NGO).
- In all 20 trainees participated in the training and included community workers, community members, and school teachers. During the course of the training, a team of 4 core community health volunteers has been identified. This team will be functioning from the MCD Polyclinic from December 2008 onwards.

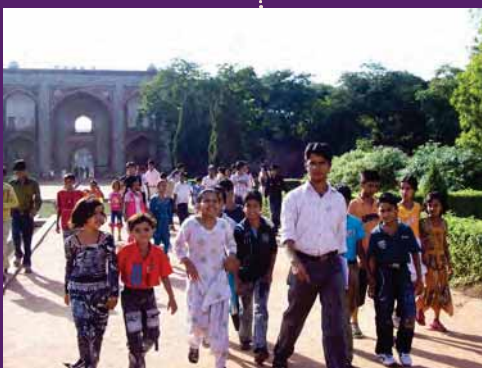
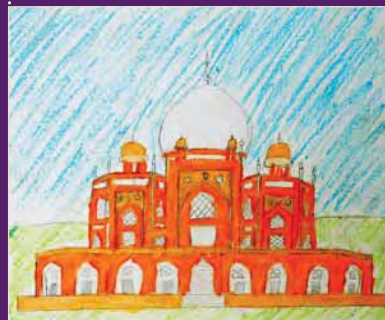
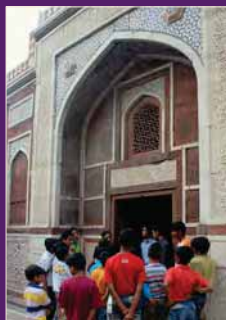
NEXT STAGE:

- Develop a capacity building schedule for community health volunteers.
- Develop and implement an information, education and communications strategy.

Capacity-building initiatives including trainings and exposure visits to other community out-reach programmes were conducted for community workers.



CULTURAL REVIVAL...



CULTURAL MAPPING BY YOUTH FROM THE BASTI

TASK:

Documenting heritage assets in the Nizamuddin Basti, Sunder Nursery, Humayun's Tomb and adjoining areas.

PURPOSE:

- The cultural mapping of built and intangible heritage in the Nizamuddin basti is being undertaken to create a resource for monitoring the state of heritage as well as for developing urban design guidelines, building regulations, management plans, income generation and heritage education activities for children and youth.
- To train a group of heritage volunteers from the basti who would help develop the heritage education and awareness programmes.

ACTION TAKEN:

- A group of youth from the basti were trained to carry out the inventory based largely on interviews and archival research.
- The inventory has covered around 50 individual sites.
- In addition, a photo documentation of the major festivals organised in the basti is being undertaken.
- The festivals of the Urs (of Hazrat Nizamuddin Auliya, Amir Khusro), Id, Shab-i-Raat, Diwali, Dussehra have been photo documented. Festival routes through the basti have been mapped.

NEXT STAGE:

- Digitization of the inventory
- Development of tourist and pilgrim literature based on the mapping
- Development of heritage trails, content for signage, walks and awareness programmes
- Development of heritage education literature and aids

Hazrat Nizamuddin Basti



Hazrat Nizamuddin Basti has a great wealth of tangible and intangible heritage in the form of historical monuments, festivals and performing arts traditions, which have been mapped during the course of the programme by young people from the basti.

CULTURAL AWARENESS PROGRAMME

TASK:

Awareness programmes with children and youth from the basti

PURPOSE:

Generating awareness on the basti's heritage among the youth and children to promote a better understanding of the heritage assets amongst residents – the principal stakeholders in the programme.

ACTION TAKEN:

- Two presentations organised at the MCD school by the team of local heritage volunteers to share the results of the cultural mapping exercise.
- Based on the interaction, a walk was organised at Humayun's Tomb to highlight the conservation work being undertaken there as part of the project.
- The walk was also an opportunity to explain the earlier garden restoration and dispel rumours regarding the project.
- Awareness programmes are also being organised with children from the basti (age group 9-14).
- A walk to Humayun's tomb was organised for the children which was led by the team of heritage volunteers.
- A painting competition was then held at Humayun's Tomb which was well received by both the children and parents.
- Following demands from the community, a second walk and competition were organised in the basti on the theme of the area's built heritage.
- A walk was conducted by the team to Atgah Khan's Tomb and the Chaunsath Khamba.
- The walk elicited much local interest and several requests from parents have been received to include their children in these activities following which a second day of the heritage walk and painting competition was organised in the basti for a second group of children.
- The outreach for the programme is currently at about 50 children with another 25 children evincing interest in participating.

NEXT STAGE:

- Formation of a heritage club/group with the young children and organizing monthly activities with them.
- It is now proposed to organise the children according to their areas of residence in the basti and organise other similar events.

Heritage awareness walks and painting competitions have been organized for the children from Hazrat Nizamuddin Basti.



TASK:

Training youth for the tourist guide programme

PURPOSE

The tourist guides training programme is being developed as an income generation programme for the youth in the basti to enable economic benefits from increased tourist numbers at the Humayun's tomb accruing to the residents of the basti

ACTION TAKEN:

- The process of identification of a group of 25 youth from the basti has commenced from which a smaller group of about 10 youth will be shortlisted for the guides training.
- Prior to the training, foundation courses will be conducted to improve communication as well as spoken English.

NEXT STAGE:

Preparations for the first communication workshop are underway.

A tourist guide training programme for local youth is ongoing.

Specialized guides for the Humayun's Tomb - Sunder Nursery will also help enhance visitor experience.



DOCUMENTATION AND REVIVAL OF QAWWALI MUSIC

TASK:

Documentation of the present state of Qawwali music practiced by the musicians associated with the Dargah Hazrat Nizamuddin.

PURPOSE

To understand the present state of Qawwali music and the problems facing the practitioners of this art. The information collated in this phase (ending in December 2008) will be used to develop an action plan which will also address the feasibility of establishing a music centre.

ACTION TAKEN:

- A documentation of the present state of Qawwali music is being undertaken. Interviews have been held with proponents of the various gharanas associated with the Dargah to understand the problems faced by them in promoting this art.
- Senior artists have been identified who could be the trainers for the music centre.
- A FGD was also held with the group of 40 qawwals to discuss the programme on the 30th September, 2008.
- Two issues raised by the group concerned the poor economic base for most of the families and the lack of adequate support and facilities for their art.
- Requests have been made to the MCD to allow use of the Barat Ghar for conducting a training programme for the youth in Qawwali music.

The Sufi music performed by the families of qawwals is the most significant intangible heritage of the area. Discussions with the qawwals have been initiated to understand how this music can be revived and contribute to the overall cultural revival of the area.



NEXT STAGE:

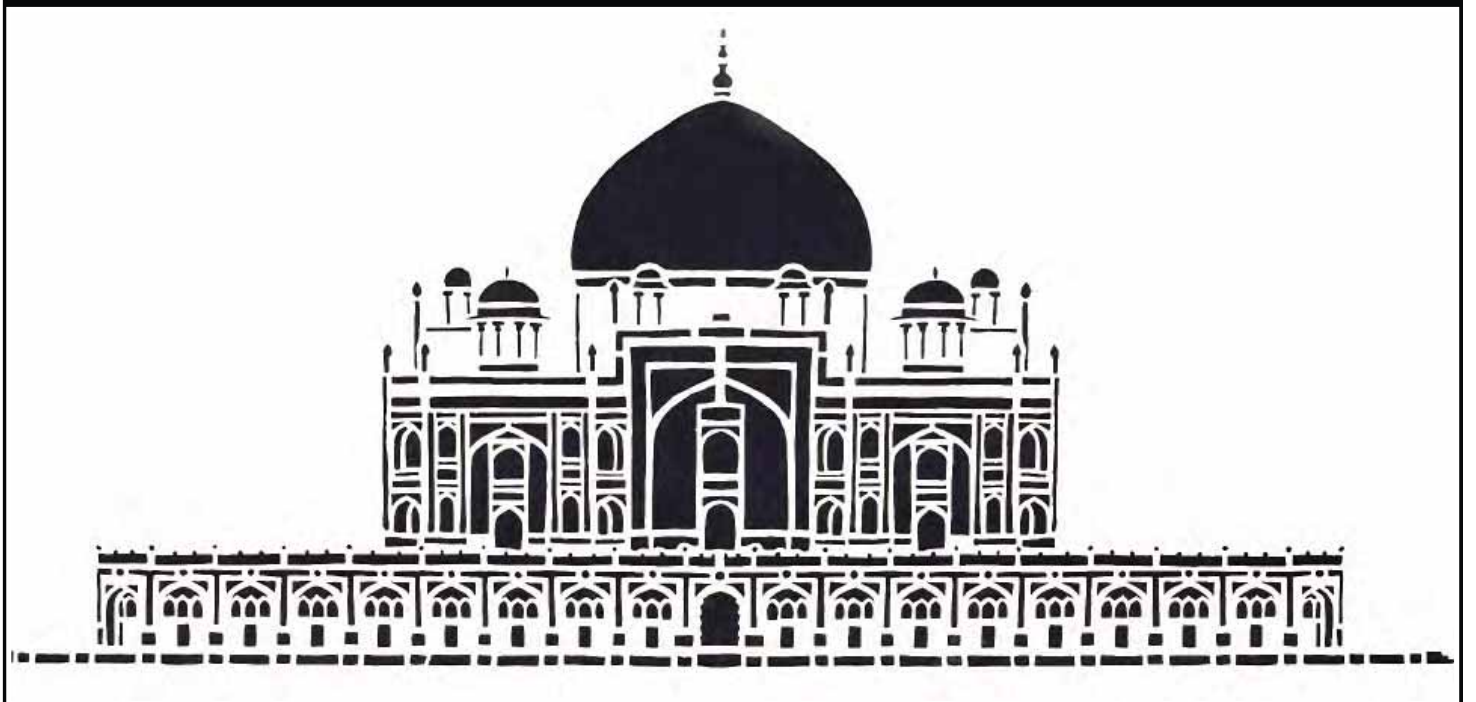
- Completing the documentation programme and developed the action plan for the next 2 years in consultation with the qawwals
- Initiating a pilot training programme to assess the feasibility of a music centre.







Skill Enhancement



VOCATIONAL EDUCATION AND LINKAGES TO LIVELIHOOD

TASK:

- Needs assessment to identify demand driven vocational skills.
- Develop courses for demand based vocations.
- Needs based vocational and technical educational courses for youth.
- Integrated education of life skills, citizenship education, health and environmental science.

PURPOSE:

To enhance skills amongst unemployed youth to meet with livelihood challenges and equip them with new skills for sustainable livelihood options.

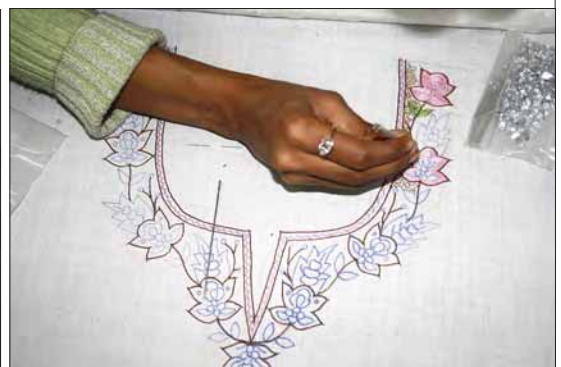
ACTION TAKEN:

- The community meetings and discussions undertaken to ascertain community needs for a vocational training programme were documented.
- Training in tailoring and embroidery vocational training programmes commenced in May 2008. A total strength of 60 girls are being trained at present.

NEXT STAGE:

- Exploring possibilities of collaboration for accreditation of the course.
- Formation of SHGs/Groups and orientation on bank linkages of the groups.
- Initiate a needs assessment and market study (labour market intelligence) with an objective of identifying demand driven vocational trades.

Based on a series of discussions with the adolescents and women, a tailoring and embroidery centre was set up in July 2008. The Centre has an enrolment of 60 residents from the basti, primarily adolescents.



SANJHI TRAINING

TASK:

- Training young women from the basti in the art of *sanjhi* (paper cutting).

PURPOSE

To create linkages between the residents of the Hzt Nizamuddin basti with the historic monuments in the area. The training forms part of a larger income generation programme being developed to generate economic benefits through linkages with heritage sites in the area.

ACTION TAKEN:

- A training workshop was organised at the South Gate of the Humayun's Tomb to impart training on the art of *sanjhi*. Motifs were drawn from the decorative elements in the Humayun's Tomb and surrounding areas and included jali designs. A trainer from Mathura was identified to lead the training programme which was conducted over a period of 10 days. On completion of the training, regular practice sessions are being held for 2 hours every day at the MCD school.

NEXT STAGE:

- Identify a designer to work with the group to develop a range of products
- Upgrade skills through regular training programmes and increase the number of trainees
- Hold a preliminary exhibition and sale of products created
- Develop market linkages at a later stage for the group and help them to form a Self-Help Group (SHG).

Women from Hazrat Nizamuddin Basti learning the *Sanjhi* craft from master craftsmen at Humayun's Tomb. Market linkages will be established to ensure products produced over time can be sold commercially.



URBAN RENEWAL



TASK:

To study and analyse the urban setting and spatial relationships of the Basti

PURPOSE:

- To plan phased upgrading and street improvements in the basti.
- To aid in the preparation of a Local Area Plan in consultation with the local community.

ACTION TAKEN:

- A spatial analysis of the basti was carried out in order to understand the urban morphology and growth of the basti. Amongst other things, the basti was studied for:
 - Landuse
 - Transportation
 - Open spaces
 - Activity spaces
 - Historic structures and monuments
- The study also mapped out traditional routes within the basti and community spaces used during the Urs festival.
- Commercial establishments, informal markets and other traditional markets have also been mapped out in the basti.

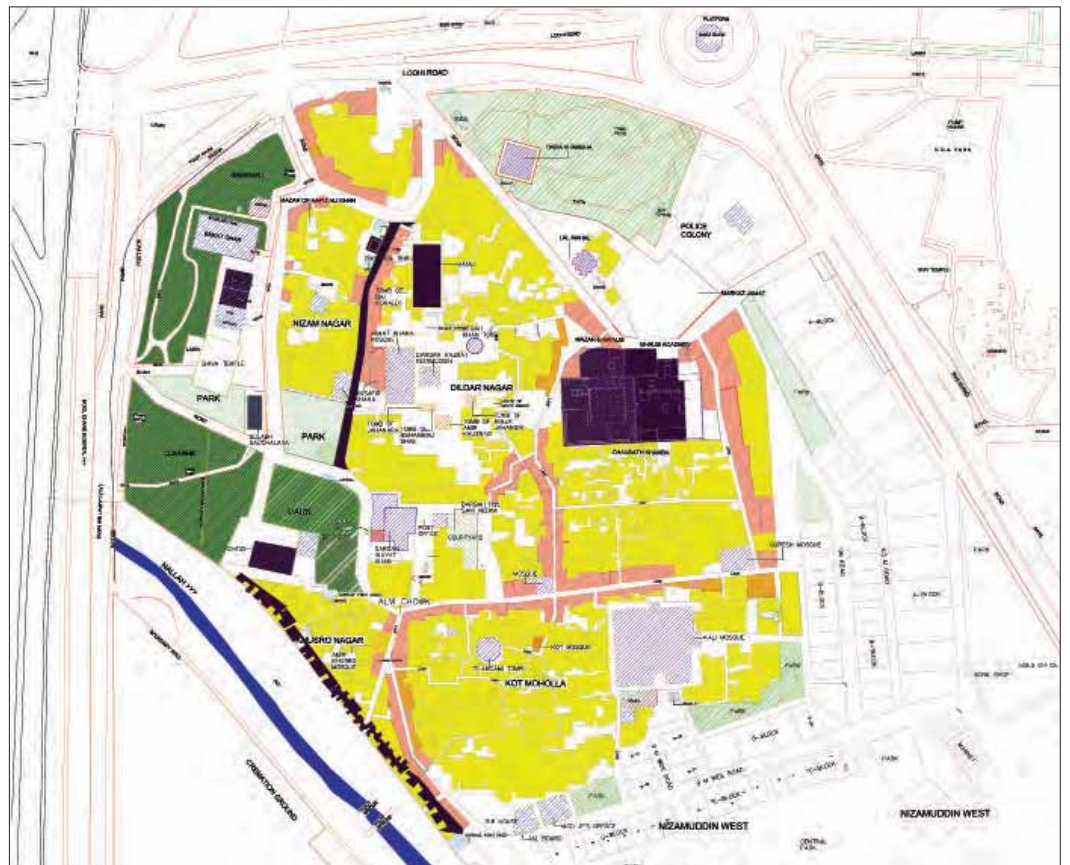
NEXT STAGE:

- The studies will be detailed out to develop detailed street upgrading plans for selected streets in the Basti.
- Carry out detailed spatial surveys of selected areas in the Basti.

Legend:

- Residential
- Commercial
- Water body
- Green space
- Heritage structures

Landuse map of Hazrat Nizamuddin basti



TASK:

To develop and implement urban renewal and reform initiatives in the project area

PURPOSE:

To improve the overall urban environment of the project area and to enhance its cultural and social identity.

ACTION TAKEN:

- **Review of the Zonal Plan**
 - The draft zonal plan of Zone D which includes the project site of Nizamuddin Basti, Sunder Nursery and the Humayun's Tomb is being reviewed. Discussions have been held with senior urban advisors and senior government officials.
- **The Draft Zonal Plan recommends:**
 - Recognition of the World Heritage Site of Humayun's tomb Complex in the Zonal Plan
 - Development of Area Development plans for Urban villages (Nizamuddin Basti) in the Zone
 - Development of heritage walk routes and related ancillary facilities that help link up the three sites of Humayun's Tomb, Nizamuddin Basti and Sunder Nursery.

NEXT STAGE:

- To finalise recommendations for the Draft Zonal Development Plan.



(Top) Photograph of the Baoli taken in 1960

(Bottom) 18 families presently reside on the Baoli arcade

RELOCATION OF THE FAMILIES FROM THE BAOLI AREA

TASK:

Assist families with support needed to ensure a satisfactory relocation resulting from partial collapse of the Nizamuddin Baoli.

PURPOSE

To ensure families, presently occupying the Baoli, portions of which have collapsed, get adequate compensation and are provided all necessary support.

ACTION TAKEN:

- Following partial collapse of the Hazrat Nizamuddin Baoli, notices for demolition were issued to 17 families living on the structure by the ASI.
- Discussions were held with group of families for a relocation plan. Simultaneously, meetings have also been held with the local councillor and the MCD for appropriate relocation of these families.
- Since September 2008 a series of consultations have been held with the affected families with respect to their relocation
- The households have expressed their willingness to any relocation site that does not affect their existing livelihood patterns following which discussions have been held with the Municipal Corporation of Delhi and the LG's office for appropriate relocation of these families.
- In addition the National Minorities Commission who had expressed their concern over the well being of these families has also been apprised about the ongoing efforts.
- Government relocation sites such as Madanpur Khadar (15kms away) and Savda Ghewra (40 Kms away) have been visited and the MCD has been requested to provide residential plots o the affected families as per the current relocation policy of Delhi.
- In addition a relocation strategy has also been developed outlining the additional support that may be provided to the families by the Aga Khan Development Network once land has been allocated by the government in order to hand-hold them through the transition period which will include housing, skill upgrading and health support.

NEXT STAGE:

- Follow up with MCD, DDA for alternate plots for families to be re-located.
- Meetings to be held with the affected families to finalise the relocation package.



The existing non-functional toilets needed to be demolished and new construction could commence following negotiations with neighboring residents to allow removal and rebuilding of walls built over the toilets block

CONSTRUCTION OF COMMUNITY TOILETS

TASK:

To construct and manage community toilets at the Nizamuddin Basti

PURPOSE:

To improve access to sanitation services for the residents of the basti

ACTION TAKEN:

Finalisation of Community Toilet Layout:

- Discussions with the community
 - The design and layout were discussed and finalised with the community with the help of an architectural model in August 2008. The community was informed about the advantages of the new design where the capacity of the toilet will increase and better light, ventilation and security will be ensured.
 - Some of the concerns raised by the community were related to privacy and security of the toilet for women, maintenance and upkeep of the toilet and unlawful behaviour of the caretakers and sweepers.
- Developing detailed designs
 - Changes were made to the layouts in order to address the concerns of the community which were mainly focussed on segregation of male and female users.
 - Following community approvals detailed construction drawings were prepared to include structural, electrical and plumbing details.

Community Consultations for Construction Activity

- Prior to commencing construction work all the residents living in the vicinity of the toilet were individually informed. Houses on the three sides of the toilet shared a common wall with the toilet and some of their drainage opened out into the toilet itself.
- Discussions were held with individual householders and a system of supporting their walls was worked out in consultation with the project engineers and the residents.
- Before demolition of the old toilet walls, additional supporting walls were built for the adjacent houses.

Construction of toilets

- The construction work of the toilet started by mid September under the supervision of the project engineer and concerned community representatives.
- Discussions have been initiated with the MCD on the operation and management of the same.
- Along with the reconstruction of the toilet, adjoining walls of neighbours were either reinforced or built as per need.
- The foundations and the ground floor exterior brick has been completed.

NEXT STAGE:

- To complete the construction of the first toilet
- To strengthen a community group for the operation and management of the toilet.
- To commence works on the second toilet located in the vicinity of the MCD School.

RELAYING OF 100m SEWER LINE

TASK:

To relay the sewer line from the Baoli Gate of the Dargah up till the park facing MCD School

PURPOSE

To prevent sewage leaking into the Baoli

ACTION TAKEN:

- During tests of water in the historic Baoli, the Coliform Level was found to be extremely polluted. 570 colonies were found in 100ml of Baoli water
- It was determined that the Sewer line was leaking and thus also exerting enormous hydraulic pressure on the Baoli walls.
- In view of the proposed road construction, MCD was requested that the sewer line be re-laid.
- 100 m of sewer line is being presently relaid by the MCD contractor.

- Existing sewer lines were leaking causing settlement in adjoining houses and the Baoli.
- Over 100m of sewer line was removed and re-laid at a depth of 2.5m from ground level in a pain-staking process.



NEXT STAGE:

- It may be necessary to relay a similar length of sewer line to the east of the Baoli.



SOLID WASTE MANAGEMENT

TASK:

Solid Waste Management

PURPOSE

To improve waste disposal systems in the basti

ACTION TAKEN:

- **Discussions with MCD Sweepers**
 - A consultation was held with the MCD sanitary workers on to engage with them on issues of solid waste management and related health issues.
 - The sweepers voiced their problems with regard to work and health
 - Some of the issues that came up were
 - Shortage of Equipment
 - No space for the workers to store their equipment leading to theft
 - No space or the group to use as a meeting/ lunch room
 - Prevalence of respiratory disorders, skin and eye infections and other age related problems of blood pressure, diabetes etc
 - Based on this discussion a special session was held with them on specific health issues with a doctor of community health from AIIMS, Dr Sanjeev Gupta
 - The sweepers were provided with information on skin diseases such as scabies, heat rashes etc, eye infections and general health issues.
- **Door to door waste collection**
 - A door to door waste collection has been initiated in 25 families in Khusro Nagar. The families have agreed to pay Rs 20 per month to the waste collector. Residents and community facilitators are both assisting in mobilising more families to participate in the program in order to reduce dumping of waste at the Nallah.
 - Simpler payment systems that also encourage tenants to participate in the program has also been worked out where the tenants may pay only Rs 10 to be part of the program.

NEXT STAGE:

- To scale up the door to door waste collection in Khusro Nagar.
- To generate awareness among residents on effective waste management.



REDEVELOPMENT OF NALLAH

TASK:

To improve the landscape and redevelop the space around the nallah along the basti

PURPOSE:

To improve the quality of open spaces in the basti .

ACTION TAKEN:

Assessment Studies

- The monsoon studies were completed on the Nallah and the Shriram Institute have submitted a report on the same.
- Some of the key findings of the study were:
 - The water in the Nallah rises by a maximum of half a meter during peak monsoon
 - The volume of water increased three times from the pre- monsoon values
 - The quality of water proved to be better as the excess rain water diluted the pollutant levels in the water
- A photographic documentation of the Nallah was also carried out on and post high rainfall days.
- A brief meeting was carried out with the landscape architect and his queries have been discussed with the Shriram institute. Some of the points highlighted by the landscape architect were:
- Even though volume of water is significant, the corresponding change in the width and depth of the channel do not reflect the same
- In order to design for maximum flow, past records of volumes may need to check with the Government.

Discussions with Environmental Experts

- In addition to the Shriram institute discussions have also been held with environmentalists/ environmental engineers who have been engaged in various environmental and urban drainage projects
- Some of the main outcomes of the discussions were :
 - The land around the Nallah acts as a flood plain and its principle role is to accommodate the large volume of water during the monsoon.
 - Therefore it may not be possible to identify land that will remain dry throughout the year along the Nallah, however the same land can be put to recreational use during the dry months
 - This land can also be used to plant many fruit and flowering trees that not only help in beautification but also help in holding the soil together and cleansing the wastewater before it reaches the river

Community Mobilisation

- A list of all the households living along the Nallah was prepared. There are a total of 40 families that live facing the Nallah. The area is locally known as Nallah Panch Peeran. Several community meetings have been held with this group of families
- Most of the families living in this area complained of the foul smell and garbage along the Nallah. They felt that many of the sewerage lines laid down at the Nallah were leaking. Also the garbage thrown at the Nallah by residents also added to the problem.

Nallah clearance

- Drain pipe connections have been provided to 50% of the homes facing the Nallah so that the waste water can be directly channelized into the sewerage network.
- Over 160 truckloads of rubble and rubbish have been removed from the Nallah.
- 12 families living along the Nallah collected a total of Rs 250 as contribution in clearing up a portion of the Nallah so that the waste water collecting in a pool near the houses can be drained away.
- Excess construction waste, rubble and garbage has also been removed from the Nallah.
- A survey on access to sanitation facilities was carried out in Nizam Nagar and Khusro Nagar.



NEXT STAGE:

- Clearance of the Nallah.
- Simple activities in the cleared up space with the community and children to generate interest in the area.
- Identification of plants for the Nallah.
- Landscape design finalisation.
- Children's activities at parks.



Over 100 toilets have been connected to the sewer system and 160 truckloads of garbage and rubble removed from the Nallah in preparation of a landscape scheme.

LANDSCAPING THE PARKS IN THE BASTI

TASK:

Landscaping parks in the Basti for community use

PURPOSE:

To improve the environment of the Basti and provide the local residents a much needed, usable green space

ACTION TAKEN:

- Discussions have been held with the MCD for redevelopment of open parks in the basti. At present most of the open spaces are managed by the DDA and requests for their transfer to MCD have been made by the Commissioner, MCD.
- Preliminary discussions have been held with the community on the specific uses of the parks however, development works can commence only after all permissions have been granted by the various government agencies.

The parks are in a poor state of maintenance and requests to DDA to allow implementation of a landscape scheme are pending.



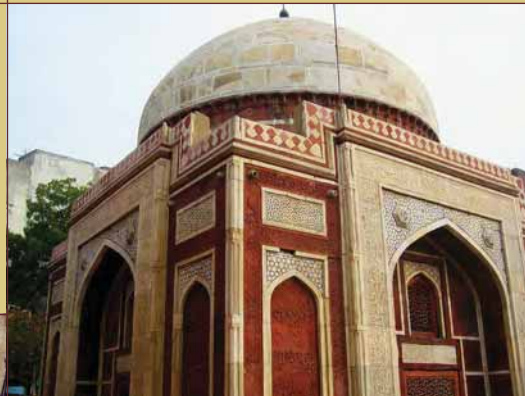
NEXT STAGE:

- To get approval to implement a sensitive landscape scheme here.
- To identify potential uses for the parks in consultation with the community.

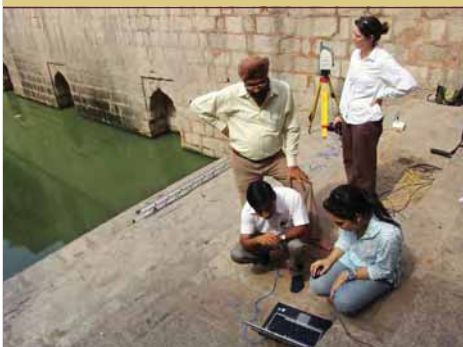


CONSERVATION

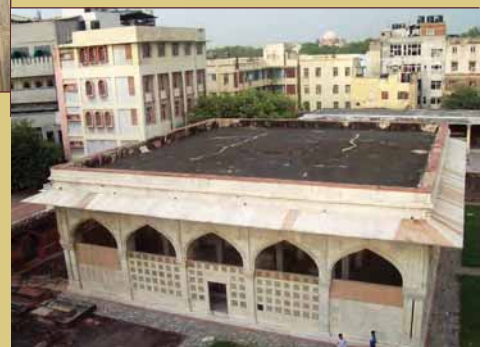
Atgah Khan's Tomb



Hazrat Nizamuddin's Baoli

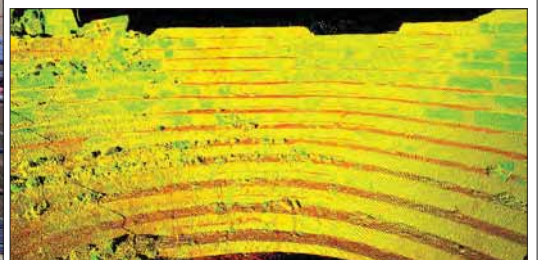


Chaunsath Khambha





Portions of the 13th century stepped-well, considered sacred, collapsed in July 2008. Following detailed studies, 3-D High Definition Survey, Ground Penetrating Radar Survey (GPRS) and structural analysis, conservation works have now commenced.



TASK:

Reconstruction of the collapsed wall of the baoli and conservation of the remaining part to avoid any future decay

PURPOSE:

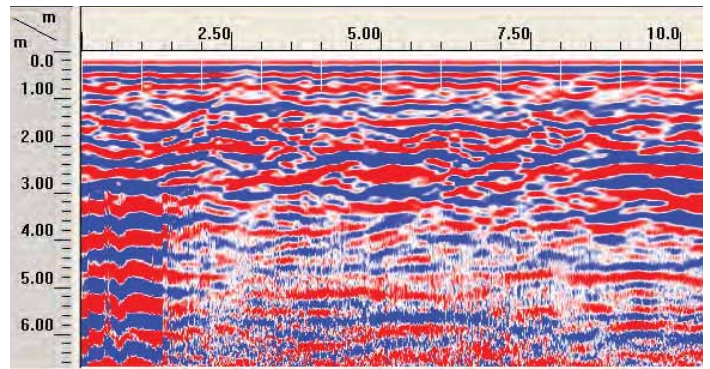
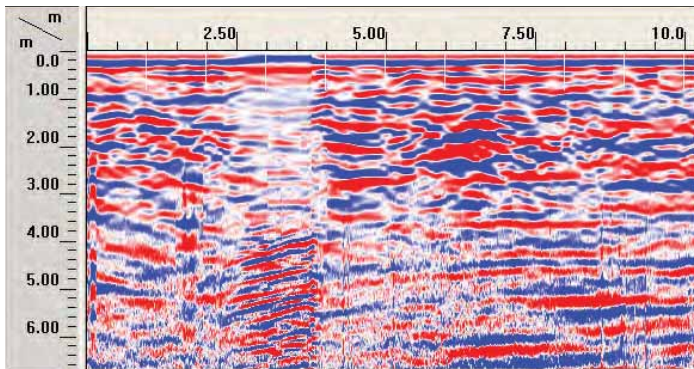
- Conservation of this extremely significant monument of National importance.
- Safety of adjoining structures, pilgrims to the Dargah.

ACTION TAKEN:

- Several community meetings held with local stakeholders to plan conservation works which will bring in significant inconvenience for movement to the Dargah for a 3-4 month period.
- Conservation works on the partially collapsed structure are further complicated by the high density of new structures that are built all around the Baoli and by the steady inflow of pilgrims; over 400 of who walk over the collapsed portion every hour.
- Since the partial collapse in August 2008 the following works have been undertaken:
 - Draining out the water from Baoli as a continuous process
 - Structural investigations and recommendations for the structure
 - 3D High Definition Survey of the monument
 - Constant monitoring by fixing over 200 glass tell-tale on the wall surfaces to monitor any movement.
 - Geo-technical investigations of the baoli to understand the original construction details and to analyse the actual condition of strata behind the wall. Results are expected by mid-December 2008.
 - Structural supports on the corridor above the collapsed wall to provide minimum safety for pilgrims who continue to use this route.
 - Diverting the drain bring water from abulution water into the baoli by building a sump
 - Rebuilding alternate accommodation for the house that stands immediately above the collapsed portion as this would require to be dismantled to carry out any conservation works below.

NEXT STAGE:

- Dismantle remaining portions of the house standing over the collapsed portion as the alternate house is nearing completion.
- Stop movement of Pilgrims from the corridor along the Baoli.
- It has been established that the lower level of Baoli walls were covered with a thick layer of chemical epoxy in 2002-3; this has led to considerable buckling of the walls as a result of hydraulic pressure. It is proposed to carefully remove this epoxy layer.
- Reconstruct the missing portion of collapsed masonry
- Define a systematic conservation programme when the results of the Geo-technical studies become available.
- Providing structural supports near the collapsed wall before reconstruction of the wall
- Raking and repointing of the wall using appropriate lime mortar.
- Fixing stone lattice screens on the arches of the corridor along the Baoli.



TASK:

- Impact Echo test
- Ground Penetration Radar Survey
- Chemical analysis of the mortars
- Geotechnical Investigations

PURPOSE:

- To determine the original constructional details, thickness of the wall and back filling.
- To locate the cavities, flaws etc. in the random rubble masonry
- Analysis of the condition of the surrounding soil
- To determine the main cause of failure and to identify future threats.

ACTION TAKEN:

- Impact Echo test carried out at 1800 points on three walls on a grid pattern
- GPRS done on the top of the wall carried out traverses different frequencies on the top of the masonry wall and slightly away from it
- Mortar samples are collected from the site for chemical analysis to identify the original composition of lime mortar
- Boring carried out at two locations up to a depth of 23 m to collect the soil samples for the tests
- The field data is under analysis process by the experts.

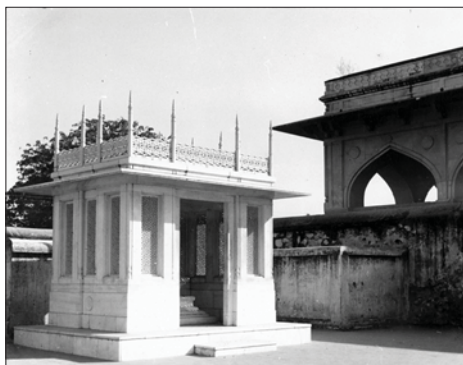
NEXT STAGE:

- Data will be analysed to identify the original filling material and construction details
- Appropriate conservation strategy would be written out and discussed prior to implementation

The GPRS study helped reveal the voids behind the stone walls which helped in planning the conservation works.



Proposed Street Elevation



(Left to Right)
Archival and Preset-day photograph of
Mirza Ghalib's Tomb, situated in the basti

CHAUNSATH KHAMBHA- MIRZA GHALIB'S TOMB- Conservation & Landscaping

TASK:

- Carry out urgently needed conservation works on the Chaunsath Khambha
- Implement a sensitively designed landscape scheme integrating the three presently segregated zones of Chaunsath Khambha, Urs Mahal courtyard and Mirza Ghalib's Tomb.

PURPOSE:

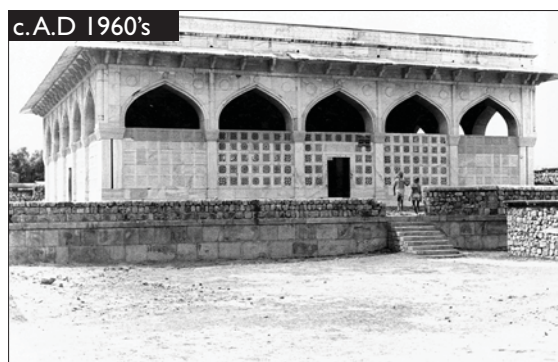
- The three above mentioned spaces together form the largest open space in the Nizamuddin Basti. The Urs Mahal courtyard is used for the Urs related to the dargah of Hazrat Nizamuddin Auliya and Amir Khusro.
- Landscape works are aimed at enhancing the cultural significance and the historic architectural character of the spaces and the principal entry street into the Nizamuddin Basti.

ACTION TAKEN:

- Archival research has been completed.
- The Landscape scheme has been prepared and shared with the Archaeological Survey of India and the stakeholders in the Basti.
- The necessary metal work and the stone procurement (Red sandstone, white marble and dholpur stone) has already been completed.

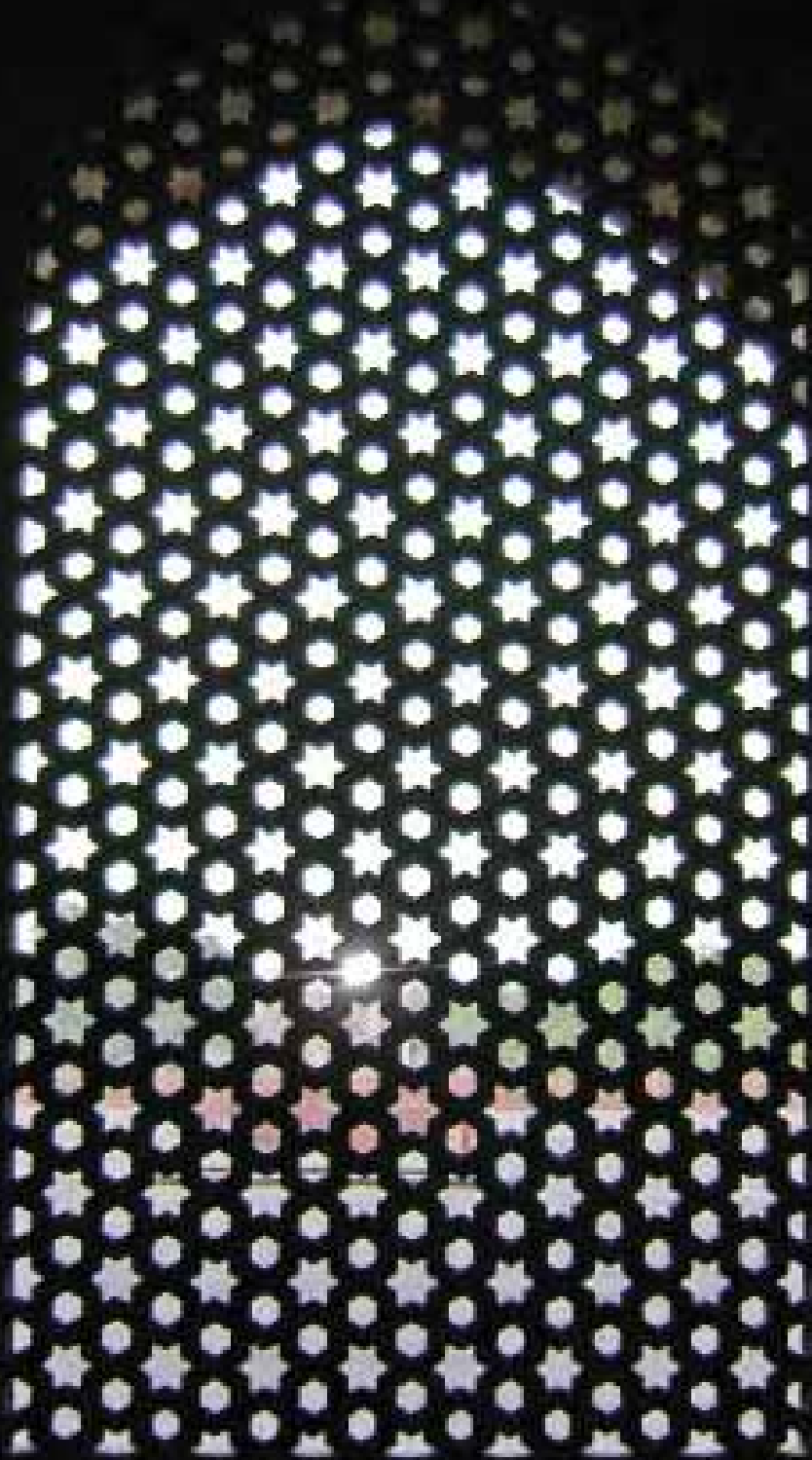
NEXT STAGE:

- As a first step it is proposed to landscape the entrance courtyard of Chaunsath Khambha.
- Landscaping Mirza Ghalib's tomb enclosure will be carried out on completion of the above works.
- The wall, built in the 1980's, dividing the Chaunsath Khambha from its entrance courtyard will be demolished and replaced with a metal grille fence inspired by jaali motifs from Chaunsath Khambha.



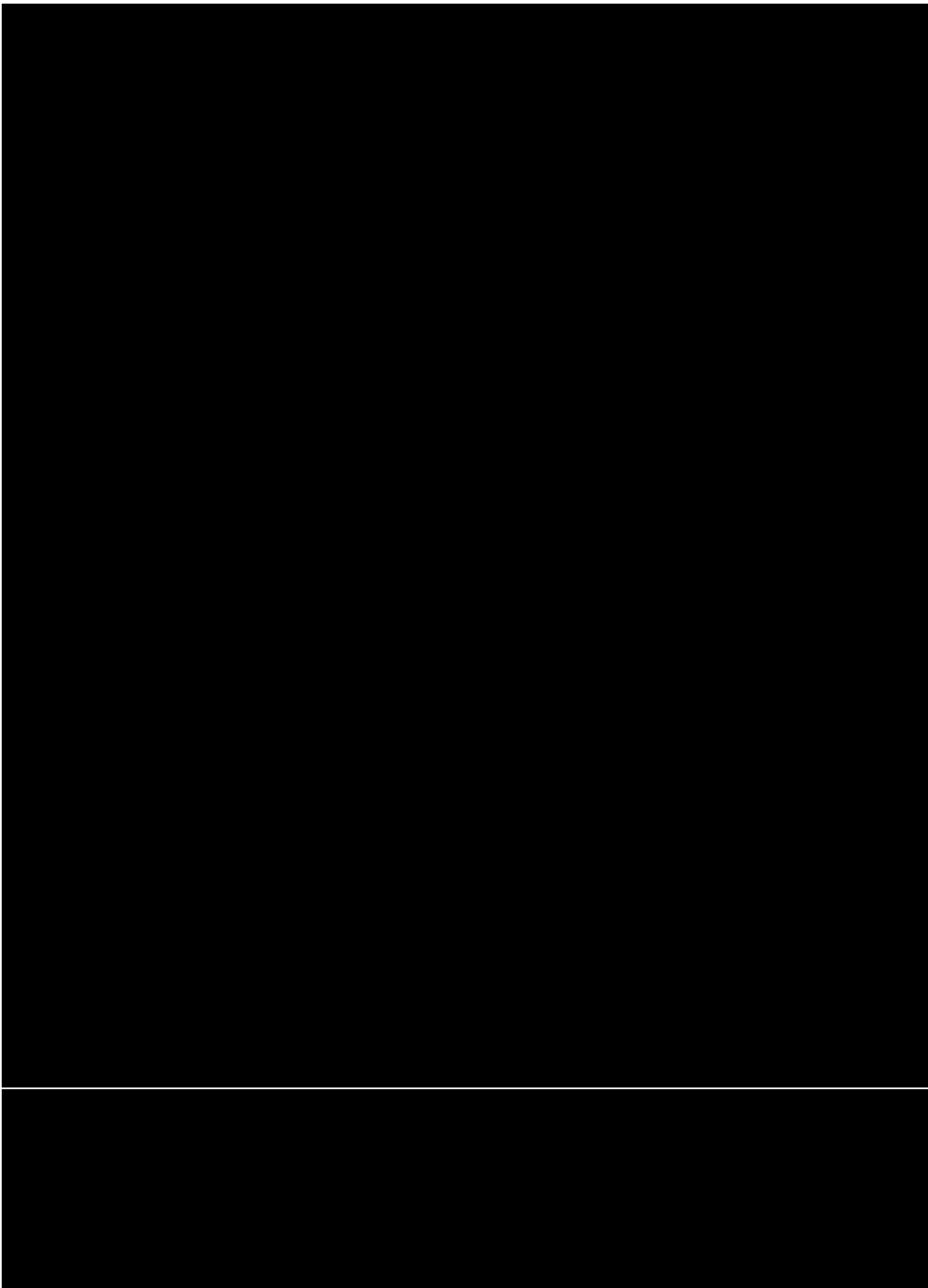
The Chaunsath Khambha forecourt and Ghalib's Tomb courtyard will be sensitively landscaped and inter-linked. The wall separating the monument from its fore-court is to be demolished and replaced with a metal fence, the design of which is inspired from the motifs on the monument.





HUMAYUN'S TOMB COMPLEX







HUMAYUN'S TOMB
DOCUMENTATION

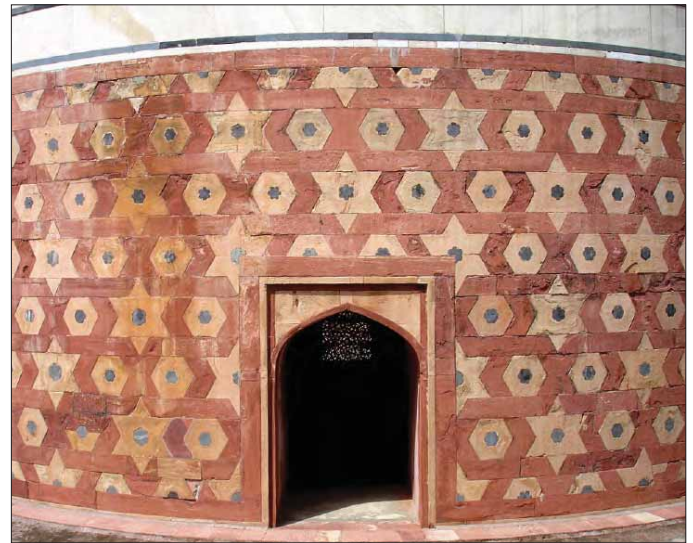
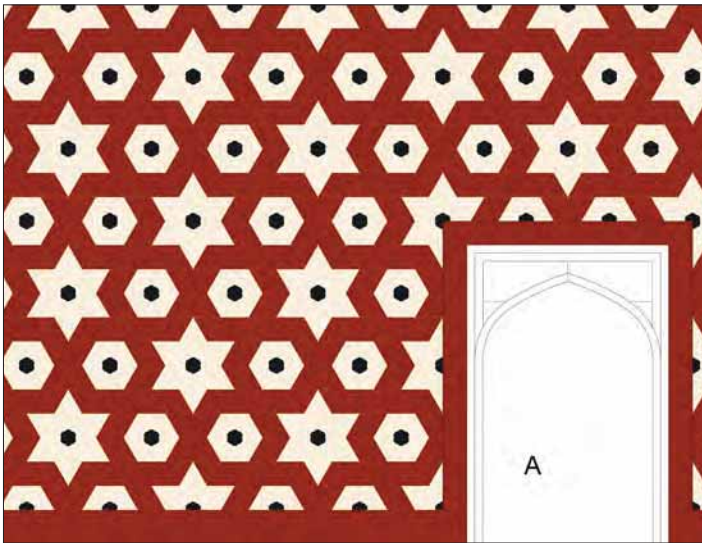
The North Pavilion



The South Gateway



The West Gate

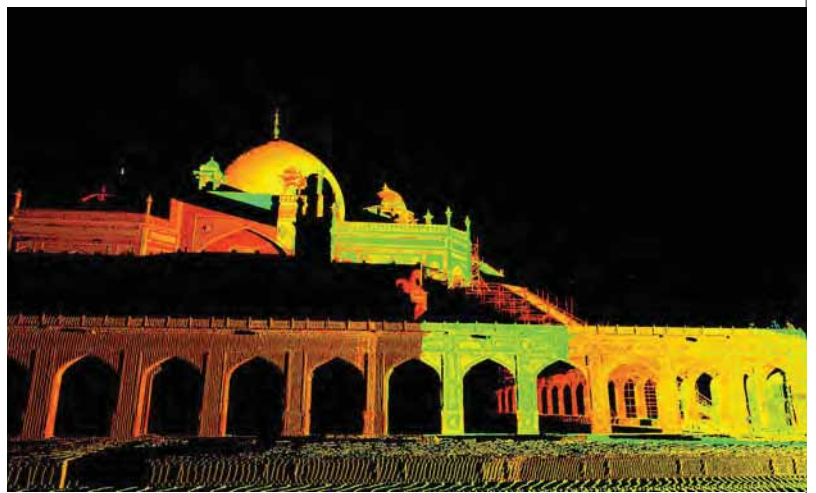


(Left) Architectural drawing of the part Surface Elevation of the neck of the dome of the Humayun's Tomb showing the decorative geometrical pattern created using sand stone.

(Right) Neck of the dome where stone conservation work is in progress.

(Bottom Left) Introduction to 3-D Laser scanning in progress

(Bottom Right) Laser Scanned image of Humayun's Tomb



TASK:

- Architectural documentation
- 3D Laser Scanning
- Video documentation of ongoing conservation process in several areas.

PURPOSE:

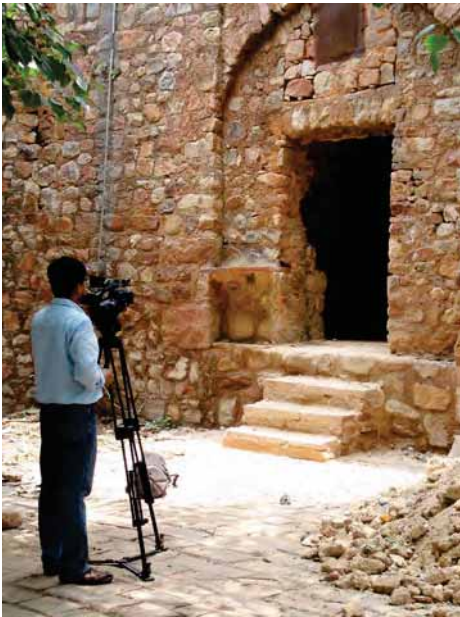
- Collation of archival drawings/images, preparation of measured drawings and condition assessment of the Mausoleum, North Pavilion, West Gate, Garden Enclosure Wall, North East Pavilion, East Pavilion, South Gateway is being carried out as part of the conservation process to understand previously carried out work, present condition of the building and to define the conservation strategy.
- To document the process of the various activities, project's transition and impact which will be shared with the stakeholders and partner agencies.

ACTION TAKEN:

- For the first time in India, the Mausoleum has been documented using 3-D Laser Scanning equipment and the documentation process is to be used to carry out a training workshop in order to help extend use of this technology to other ASI sites.
- Measured Drawings have been prepared for the Main Mausoleum, North Pavilion and attached well and Eastern Pavilion .
- Condition assessment of the above mentioned buildings in ongoing; that for the terrace level of Humayun's Tomb, Lower level of West gateway and northern pavilion has been completed.
- Detailed documentation of structural failure at the ceiling of the ground level chambers is completed.
- Condition assessment of the neck of the dome to assess the quantity of stone required for conservation works has been completed.
- The documentation of the existing tile work on Humayun's Tomb has been the focus of a detailed study, now completed.
- Video-documenting the various ongoing activities are carried out.

NEXT STAGE:

- Detailed documentation of building elements and condition assessment to continue as a precursor to actual conservation works
- Measured Drawings of Eastern Pavilion, North-East pavilion, Barber's Tomb yet to be undertaken
- The Humayun's Tomb complex, monuments in the Sunder Nursery and Hazrat Nizamuddin basti will be documented using the 3-D Laser Scanner.



TASK:

- Documentation of ongoing/proposed conservation works.
- Using traditional drawing and photography techniques.

PURPOSE:

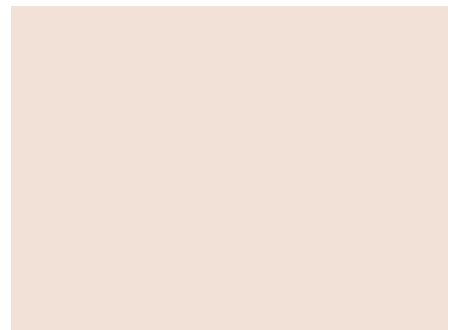
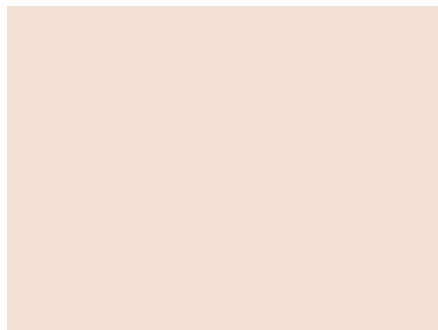
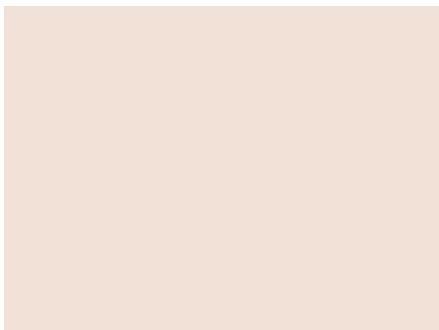
All ongoing works are to be carefully and systematically documented in keeping with conservation guidelines and as a record for future reference.

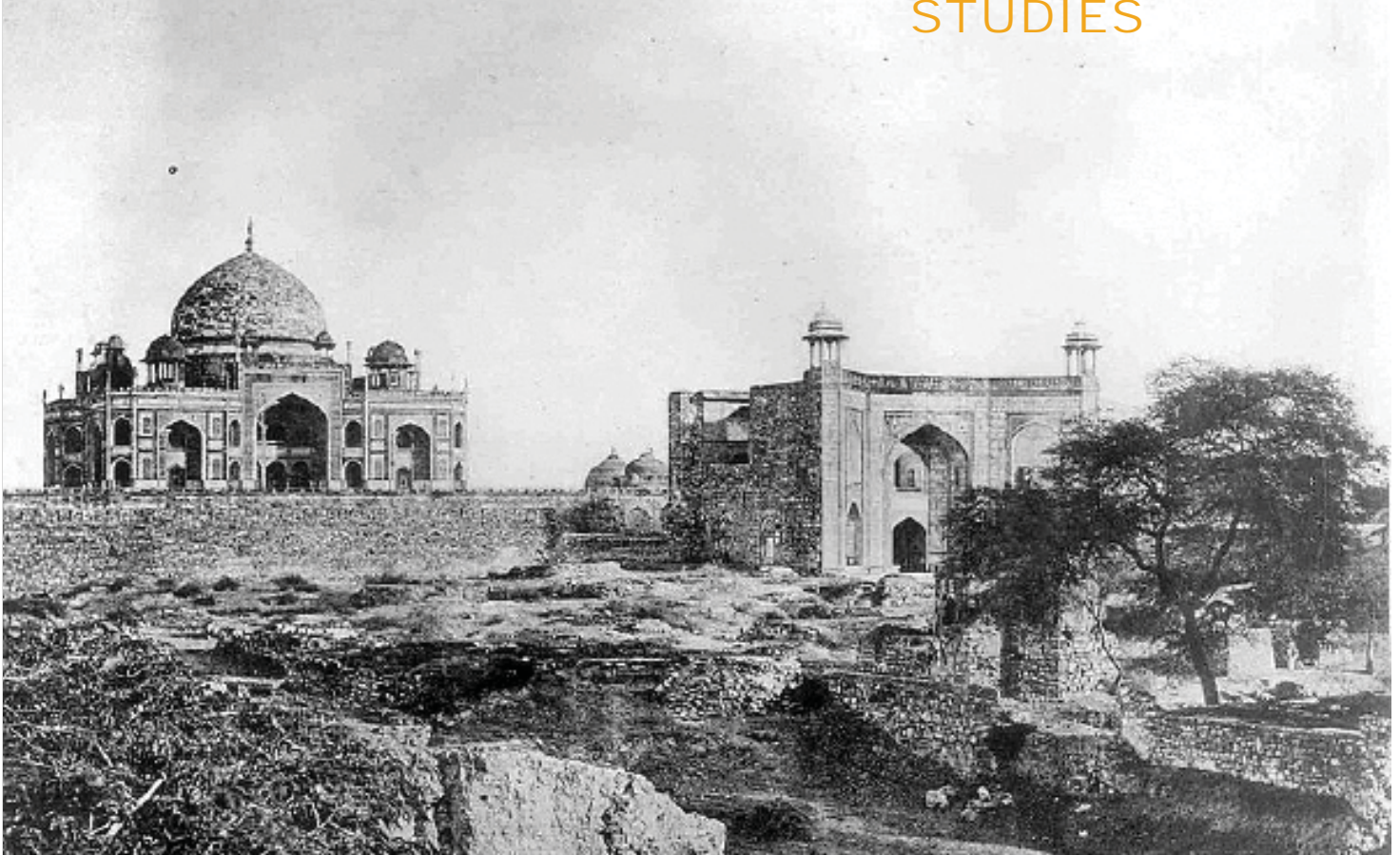
ACTION TAKEN:

- Conservation actions such as stone replacement are being marked on drawings.
- For all ongoing works digital photography, video documentation is being carried out.
- Quarterly progress reports will document all works carried out.
- Copies of Digital archive will be shared with the ASI on an annual basis.

NEXT STAGE:

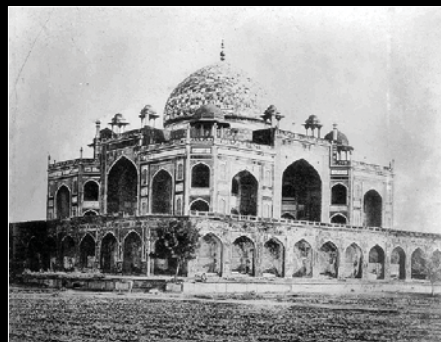
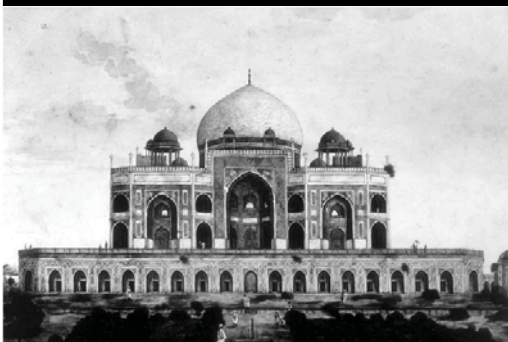
Photographic documentation is continued to be carried out on a daily basis.





Imbued with a message from the past, the historic monuments remain to the present day as living witnesses of their age-old traditions. People are becoming more and more conscious of the unity of human values and regard ancient monuments as a common heritage. The common responsibility to safeguard them for future generations is recognized. It is our duty to hand them on in the full richness of their authenticity.

- Venice Charter 1964



TASK:

- To collate archival photograph from different source as Archaeological Survey of India – photo archives, the American Institute of Indian Studies, Delhi ASI library at Safdarjung's Tomb, the National Archives of India (cartography and reference section), and India International Centre Library.
- Preparation of timeline of Humayun's Tomb based on the Archaeological Survey of India annual reports from the period 1903 – 2000.
- Collation of the information from conservation notes and correspondence of the Archaeological Survey of India.

PURPOSE:

The primary aim of the archival research was to understand the transformations that have occurred at the site over the past 2 centuries. In addition, particular attention was drawn to documenting areas of loss.

ACTION TAKEN:

- Data was collated from the annual reports and memoirs of the Archaeological Survey of India sourced from the ASI library, American Institute of Indian Studies, National Archives as well as correspondence of the ASI to create a timeline of conservation works carried out at site
- Photo archives of the Archaeological Survey of India and online resources such as the web site of the British library and the Victoria and Albert museum were sourced for archival images of the complex.

NEXT STAGE:

- The data collated through the archival research will be transferred to an integrated platform using GIS along with other project data to analyze and visualize the information.



(Left) Lower Plinth of Humayun's Tomb having cement concrete.

(Right) Archival photograph showing Quartzite stone flooring



TASK

- Understand the existing structural stability of the building.
- Define the most appropriate conservation strategy
- Understand the cause of structural failure, damage or loss of fabric in order to cure the 'cause'.

PURPOSE

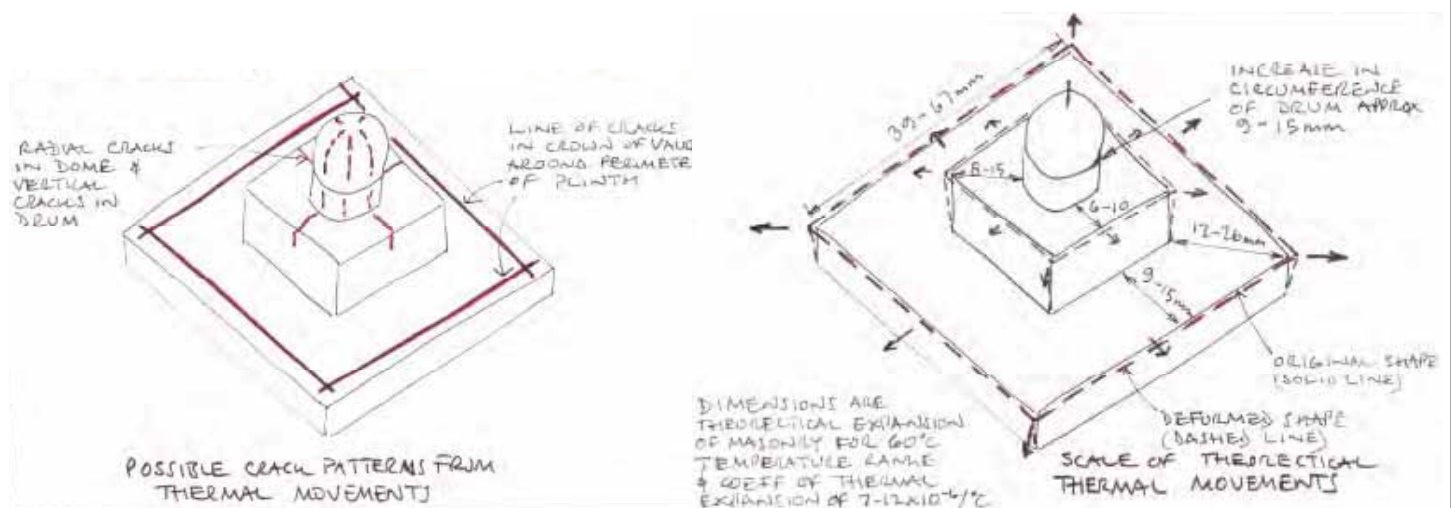
- Scientifically study the various building elements including defects caused by 19th-20th century repair works and to develop a structural strategy based on established conservation practice of understanding the existing structure and the potential structural issues.
- To deal with the key issues with a scientific understanding of the structural forces in order to ensure long term viability of the repairs. Outline levels of supervision required during conservation works.

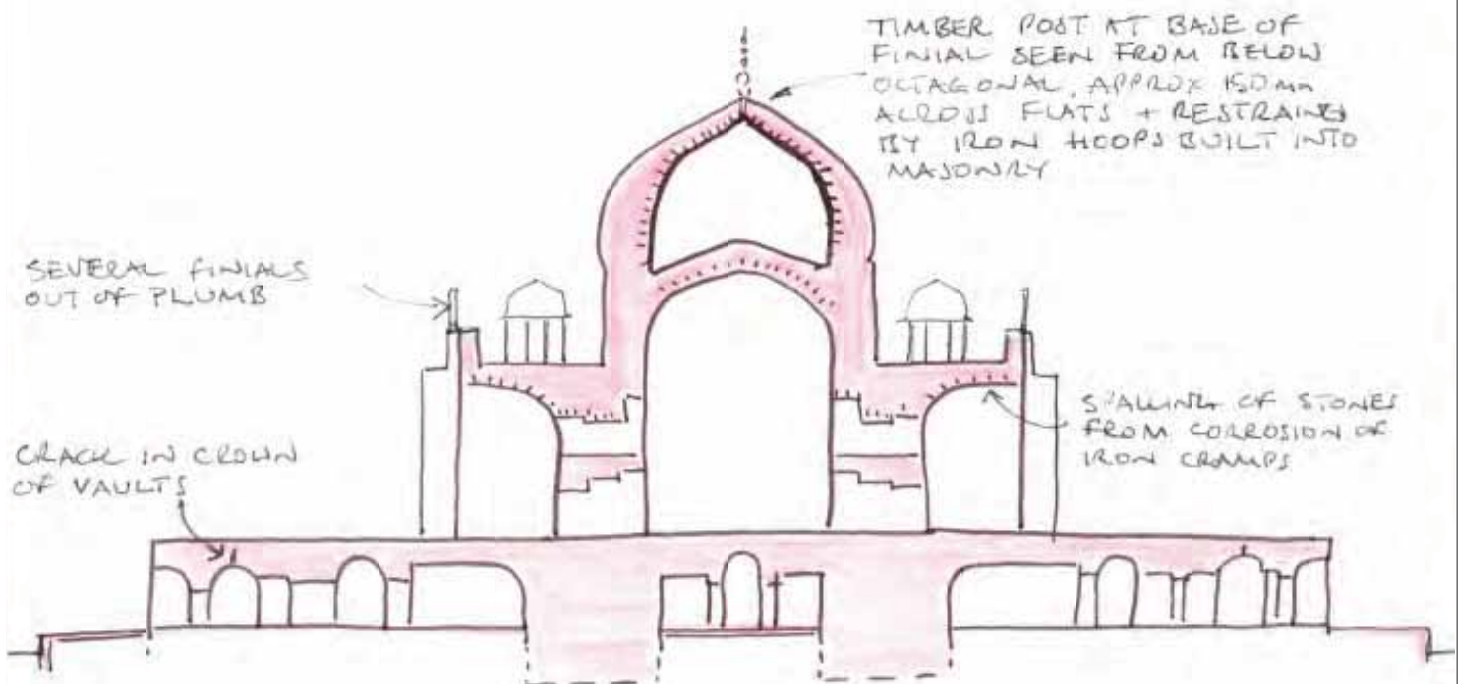
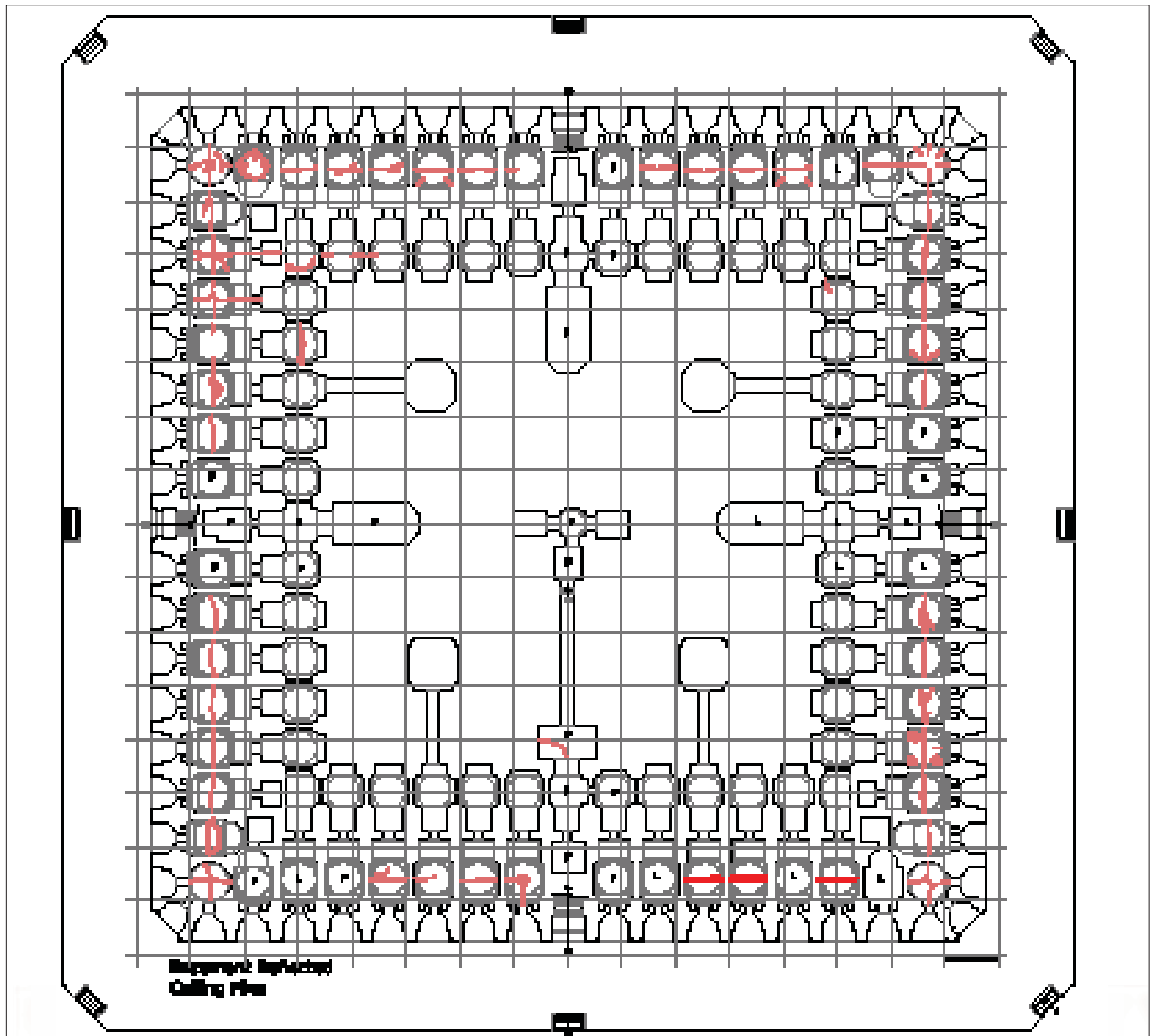
ACTION TAKEN

- Mr. Stuart Tappin of Stand Consulting, a UK based firm carried out a Structural assessment during two visits in May and August 2008. This assessment was carried out in consultation with ASI officers and focussed on:
 - Terrace levels, where over 750,000 kilos of excess concrete has been laid in the second half of the 20th century.
 - Cracks to the ground level Chamber Vaults
 - Corrosion of iron clamps and resultant stone damage.
 - Inner surface of outer dome.

NEXT STAGE

Implementation of Conservation works in keeping Structural Assessment





PETROLOGICAL STUDY



TASK:

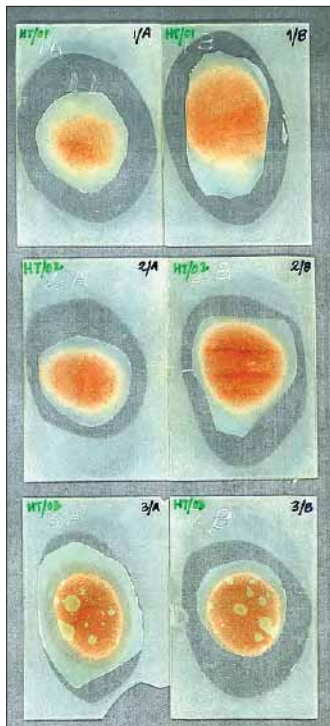
a. Petrological analysis of sandstone used at Humayun's Tomb.

1. Classification of sandstone used in Humayun's Tomb
2. Detailed analysis- mineral composition, characteristics, colour, texture, composition etc using thin sections and samples of each kind of stone.

b. Identifying possible resource quarries and collecting samples for all types of required stones:

1. Short listing of samples using colour palettes and visual inspection.
2. Detailed analysis as done for Humayun's Tomb- mineral composition, characteristics, colour and texture composition etc as required

c. Analysis of the physical property of all the sample stones by studying the relative hardness.



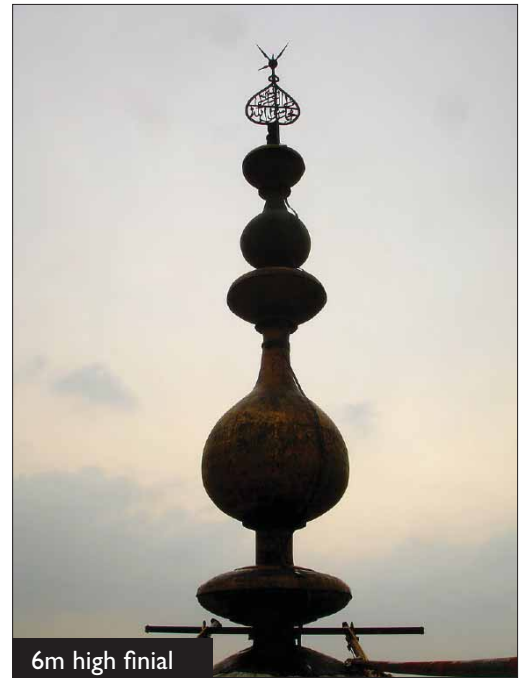
PURPOSE

- To establish the correlation between the sand stone samples collected from different quarry and the Monument Sandstone on the basis of colour and texture, which will direct the ensure use of matching sandstone for the conservation work.

(Left) Microscopic analysis of sandstone



LIGHTENING CONDUCTOR



17 aluminium strips are presently installed in a rather intrusive and damaging manner. These will be replaced with a single system using copper cables.



(Left) 20cm tall advanced air-terminal to be installed at the finial of the dome instead of using conventional air terminals.

TASK:

- To install the advance lightning terminal system, which is more effective and less intrusive, covers 79m (as per product specification of single air terminal) instead of conventional Franklin style lightning rod system presently installed at 17 places of Humayun's tomb terrace.
- Removal of existing lightning conductor system from the 17 different places of the monument façade including 17 strips and over 1000 clamps, fixed using corrosive iron nails, from the facing of Humayun's Tomb.

PURPOSE:

- Use of latest technology to provide.
 - Advanced security against lightening
 - Minimize aesthetic damage from multiple lightening conductors/strips
 - Minimize irreversible damage caused by thousands of iron nails dug into the stone surfaces

ACTION TAKEN:

- A study on identifying appropriate lightning conductors for the site has been conducted by an external Electrical consultant and specification prepared for the conductor to be installed on site.
- Scaffolding was erected to analyze the structural condition of the finial on top of the dome where the new lightning terminal will be installed.
- Visual/aesthetic effects of installing the terminal have been studied with possible terminals and means to minimise visual disturbance from the principal visitor entry have been worked out.

NEXT STAGE:

- On completion of Lime Concrete removal and laying on the roof the lightning conductor will be installed in 2008.
- On installation of new system the existing 17 lightning conductors and strips shall be removed.

Sandstone samples from 50 quarries were collected



Almost 15% of sandstone on the neck of the dome is to be replaced



ACTION TAKEN:

- For the petrological study of thin sections, stone samples were collected from over 50 quarries in Bansi Paharpur, Karoli, Dhaulpur region etc.
- Twenty-three thin Section Slides have been prepared for the microscopic examination.
- The photomicrograph has taken from thin section slides prepared from stone sample collected from different region and the Humayun's tomb to understand:
 - Identification of the Type of ferruginous matrix in the Sandstones
 - Modal calculation of Quartz, Magnetite, Ilmenite, zircon and any other trace of minerals present and its tentative percentage.
 - Identification of the Rate of serpentinization of ferruginous material in sandstones.
- A preliminary set of quarries has identified through the photomicrograph analysis of the thin section of the stone sample

NEXT STAGE:

- Final selection of a set of quarries to order the sand stone to replace damaged irreparable stones from Humayun's tomb.

WEST GATEWAY

Before Conservation



After Conservation





August 2008

PLASTERWORK IN THE WEST GATEWAY



TASK:

Removal of cement plaster and replacement with lime plaster of 10 cm thickness in four layers.

PURPOSE:

- Restore the original finish of the lower cells of the west gateway.
- Retard the decay in masonry that sets in with the use of cement mortar

ACTION TAKEN:

- The ground floor in the north wing has been restored.
- All works were carried out from the outer area in order to cause no disturbance to visitors.
- The thick layer of cement plaster work has been removed.
- Required repairs to underlying masonry were carried out prior to plaster work with lime mortar.
- Three layers of lime mortar have now been applied. with a final finished layer of lime punning.
- The flooring has been replaced with red sandstone flooring using the traditional lime mortar with appropriate slopes and pattern.

NEXT STAGE:

- The final layer of almost pure lime mortar needs to be applied; works have to commence on the southern section which is presently used by the ASI as a publication store.
- Southern wing of the West gate, presently being used by the ASI, will be restored.

West Gate Conservation

RESTORATION OF THE SANDSTONE LATTICE SCREEN

Aluminium template of the jalli is created



Carving of the traced jalli pattern



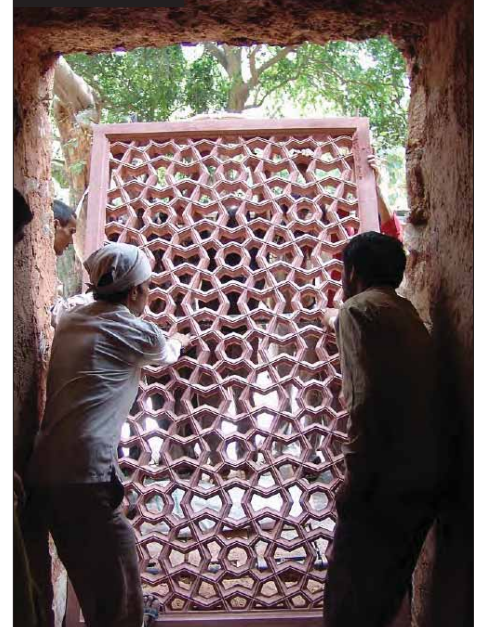
Jalli being carved on stone



Completion of jalli



Fixing of jalli



RESTORATION OF LATTICE SCREEN



TASK:

Restoration of sandstone lattice screens of original design in openings blocked with masonry

PURPOSE:

- Restore the original character of the gateway.
- Allow improved use of the space by enhanced ventilation.

ACTION TAKEN:

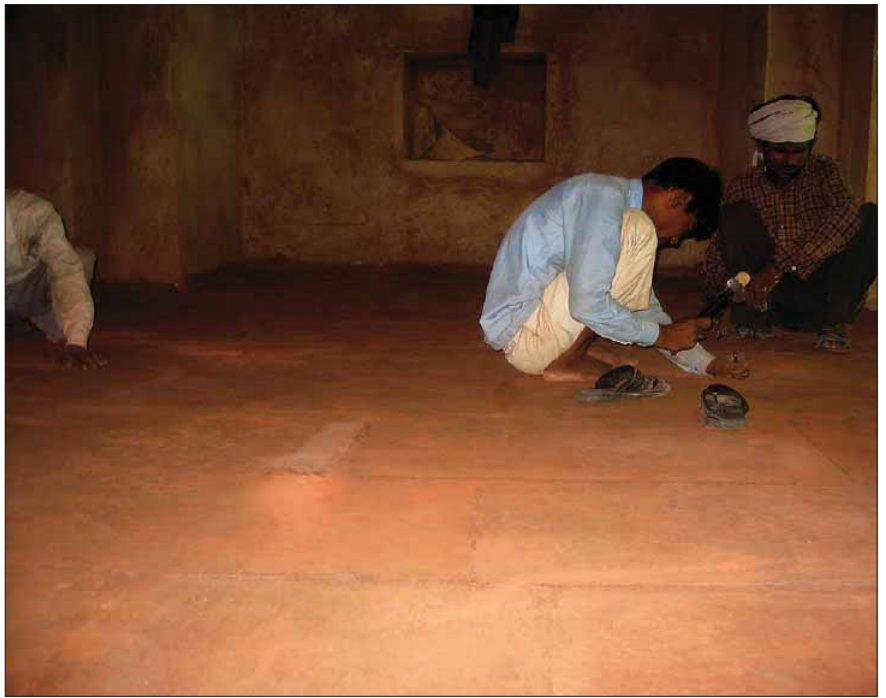
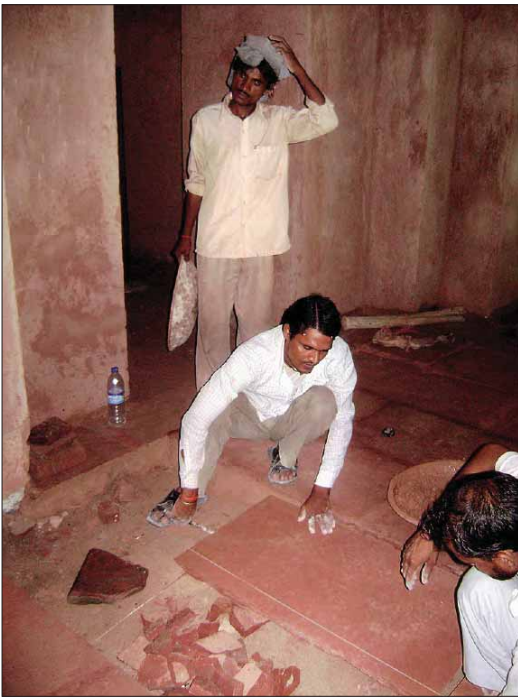
- The pattern of the sandstone lattice screens was traced from existing screens in both the west gateway and from screens of the same design from Humayun's Tomb.
- The screens were drawn up on a 1:1 scale and a formwork was prepared to enable craftsmen to copy the design.
- Two sizes of screens were required; four numbers of size 2.15m X 1.28m and six arched screens of sizes .93m X 1.28m
- The new sandstone screens were hand carved using traditional tools by master craftsman and have been installed in the northern portion.

NEXT STAGE:

The southern section repairs will be carried out in 2009.

(Opposite page) Various stages of construction and installation of Jaalis at the West Gate

FLOORING IN THE WEST GATEWAY



TASK:

Removal of cement flooring and replacement with sandstone flooring to restore original detail and allow easy movement of visitors.

PURPOSE:

- Restore the architectural character of the gateway and allow easy and comfortable movement of visitors in the area

ACTION TAKEN:

- Existing cement floor was dismantled
- Chisel dressed Sand stone flooring has been completed in the northern section.

NEXT STAGE:

- Similar repairs are to be carried out in the southern section.

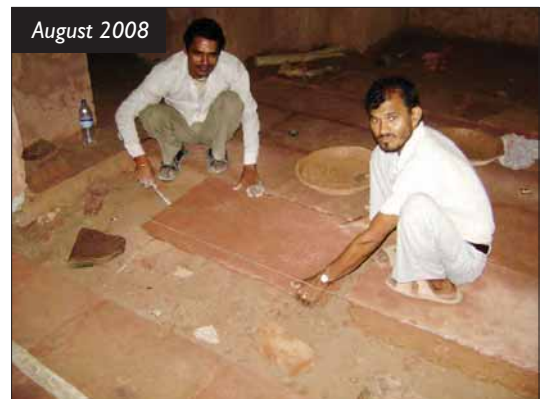
June 2008



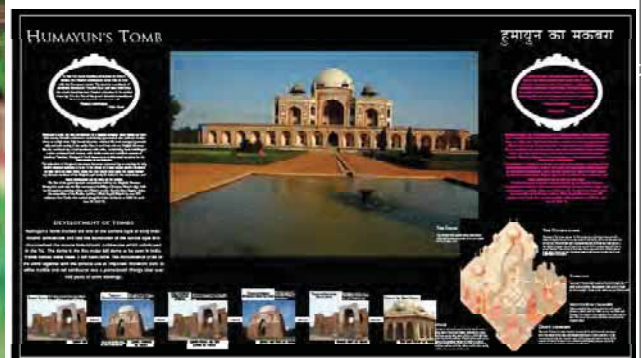
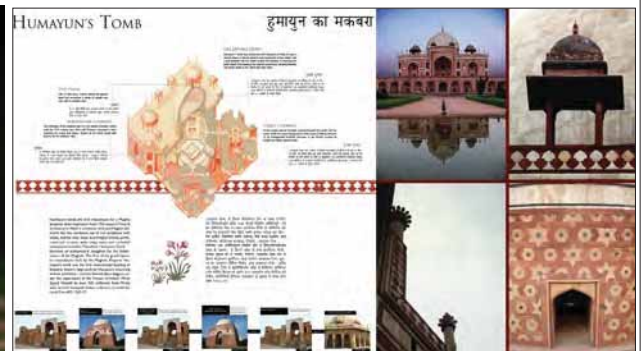
July 2008



August 2008



SITE EXHIBIT IN THE WEST GATEWAY



TASK:

Installing a site exhibit and site model.

PURPOSE:

- In order to enhance visitor experience provide additional information on the Humayun's Tomb Complex, Mughal dynasty, ongoing project and an enhanced publication room. environmental improvements along the nallah for the development of an ecological park.

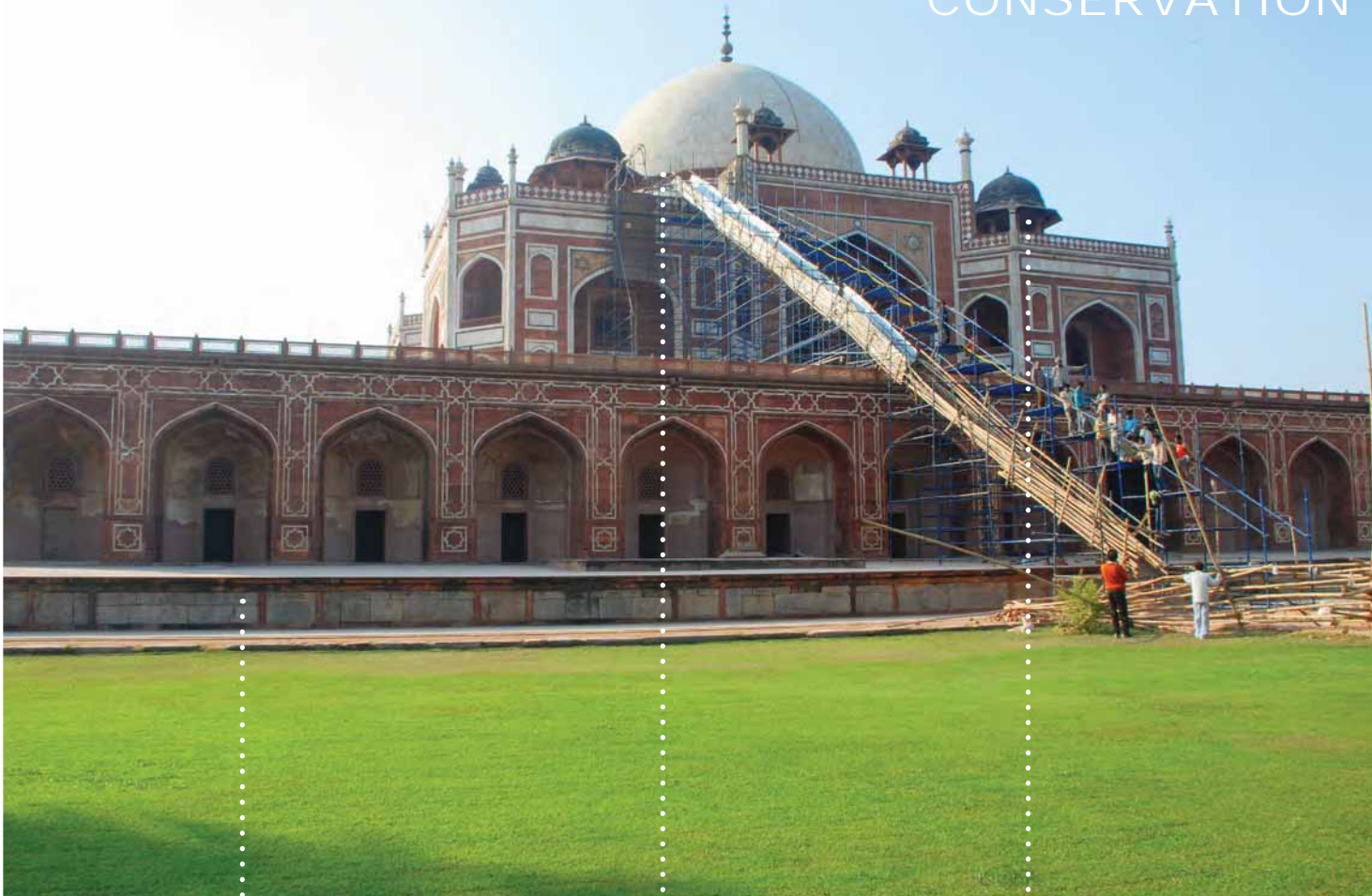
ACTION TAKEN:

- The Site Exhibit contents have been discussed and finalised
- The Site model has been prepared and is ready for installation.

NEXT STAGE:

- The exhibit panels are being designed
- The illumination of the site exhibit to enhance the architectural character while ensuring no damage to the historic fabric.

HUMAYUN'S TOMB
CONSERVATION



TERRACE FLOORING



Before conservation

Original floor's level is 30cm below the present level



During conservation



TASK:

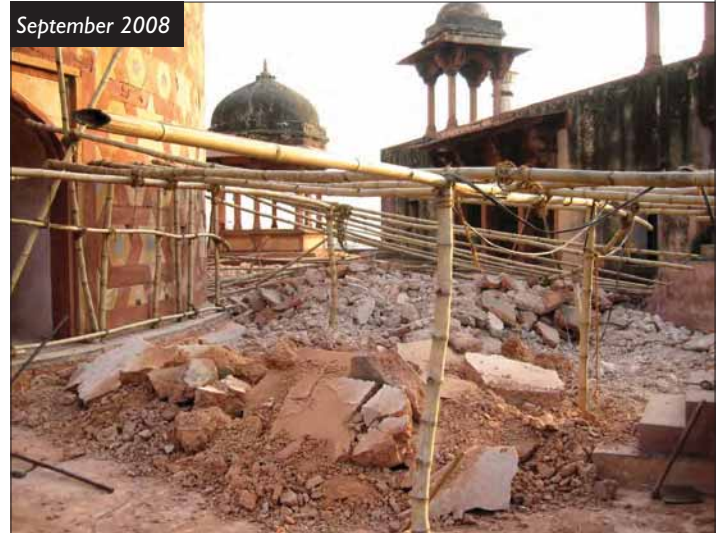
- Removal of extra lime concrete- approximately 40cm deep.
- Restore the roof finishes as per the original level.
- Replacement of irreparable deteriorated red sandstone pattern from the neck of dome
- Replacement of irreparable deteriorated red sand stone slab from the pavilions of the terrace.

PURPOSE:

- To reduce the additional load over the roof by removing non original layers
- Replacement of irreparable deteriorated stones from the identified location to prevent the further decay of structural, architectural, decorative element of the mausoleum.
- Ensure drainage of rain water to stop further deterioration in the structure due to water seepage.

ACTION TAKEN:

- Preparatory works undertaken prior to commencement of conservation works on the main roof of the mausoleum
- Terrace level has taken at 1m interval to understand the existing uneven slope generate due to laying of non original finishes at several time.
- Core sampling till 50cm has been done in three different locations on the terrace level to understand the thickness of non original layers all over the terrace.
- At south west chattri on the terrace one inspection trench of a size 60cm x 100cm has prepared under supervision of conservation architects and structural engineers to identify the thickness of the non original finishes and the condition of the surface of original lime concrete flooring.
- 850000 kilos or 500 cum of concrete has already been removed. Of this 350 cum was cement concrete of 1820 Kg/cum density and 150 cum of lime concrete at 1520 kg/cum density.
- Mechanical hoists and other equipments have been procured to transfer debris from the terrace to the ground without damaging the historic structure.
- Deteriorated stone slabs have been identified on the pavilions of the terrace and stone slabs have been sourced.
- Using lightweight material like bamboo and coconut fibre rope, the entire roof has covered at a maximum height 8ft near the neck of the dome and 4ft (below parapet) at parapet without creating visual barrier from the ground level.
- At the junction of any bamboo posts and façade a protective layer has placed to minimise the friction between the post and façade.
- The water proof sheets has brought up as per specification and laid over the bamboo scaffolding without creating any visual obstruction for the visitors at ground level.



NEXT STAGE:

- Removal of non original layers of lime concrete over the roof will commence
- Existing water spouts will be cleaned and new water spouts will be installed at every water outlet point.
- Removal of concrete followed the following steps:
 - Simple tenches were cut in the roof at four locations.
 - Specialized blades were used to cut 20 cm depth on a 1m grid.
 - A 15cm wide groove was made using especially imported Hilti 500- which was chosen because it causes low level of vibrations.
 - Roof slab of desired thickness was removed using hard tools.
 - Ramp installed to drop excess concrete to ground level at night time.
 - Concrete removed by rickshaws to outside the garden enclosure.



(Top) Over a million kilos of concrete laid since the 1920's has been removed from the roof.

(Bottom) Mr. Mounir Bouchenaki (Director General, ICCROM), Mr. Janhwij Sharma (Director, Conservation), Dr. K K Mohammad (Supdt. Archaeologist, Delhi Circle) from ASI inspecting the ongoing works of concrete removal



I want to express my congratulations to the Archaeological Survey of India and the Aga Khan Trust for Culture colleagues for the impressive works of conservation they are undertaking. I hope that ICCROM will be joining these efforts. Congratulations!

- Mounir Bouchenaki,
Director- General, ICCROM
August 2008



INNER DOME



(Left) Inner dome of Humayun's Tomb
(Top Left and Right) Conservation works being carried out inside the dome with consultation from officials from ASI

TASK:

Lime Plaster work at the inner surface of the dome.

PURPOSE:

To create a protection layer at inner surface.

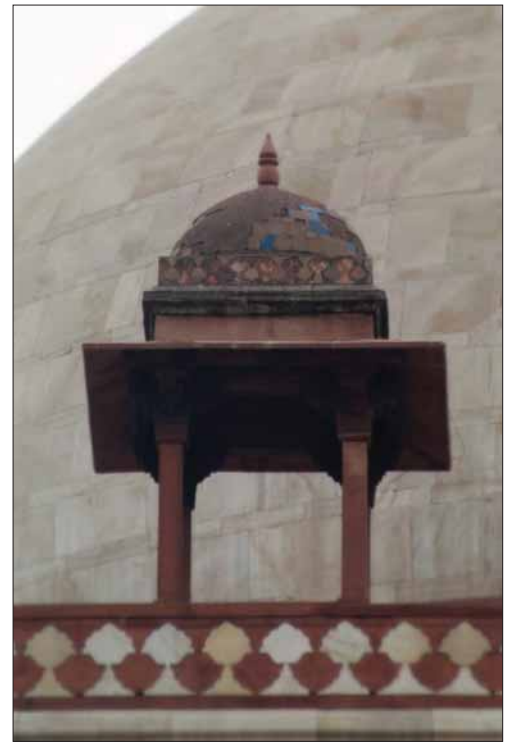
ACTION TAKEN:

- The scaffolding has put up to reach the upper portion of the inner surface.
- The research work carried out to understand the condition of the interior surface masonry of the dome.
- Quantification has completed for the required conservation work at the inner surface of the dome.
- The condition of the wooden core of the finial has examined by experts.

NEXT STAGE:

- Implementation of Plaster work and consolidation of masonry wherever necessary.

RESTORATION OF TILEWORK



TASK

To restore ceramic tiles as per original design, materials and colour on the canopies of Humayun's Tomb

PURPOSE

- To restore a distinct element in the architectural design intention of Humayun's Tomb.
- To understand the traditional techniques of mughal tile making process and revive the craft to possibly generate employment in the neighbouring Nizamuddin Basti.

ACTION TAKEN:

- Documentation and condition assessment of the existing tile work on the canopies of Humayun's tomb.
- Scientific analysis, at Barcelona University and Oxford University, of the tile sample to understand and identify the material composition, colour, techniques of production of the Mughal tile work
- The mortar sample to hold the glazed tiles has examined at Sri Ram Institute of Industrial Research, New Delhi.

NEXT STAGE:

- Experimental month long workshop with artisans from Jaipur and Khurja – two tile making centres – to commence in September
- International workshop to present results planned in April 2009.

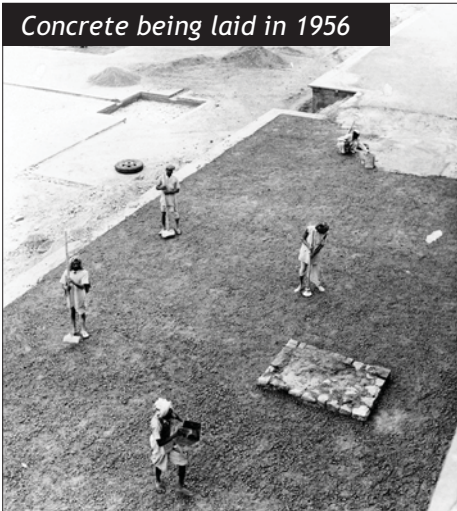
Original tilework on the canopies



RESTORATION OF LOWER PLINTH



Concrete being laid in 1956



TASK:

- The removal of the present concrete flooring, first laid in the 1960's.
- Lifting of underlying quartzite stone blocks and replacing missing portions with matching stone.

PURPOSE:

- Restoration of the original character of this plinth which is a significant interface between the mausoleum and the garden.

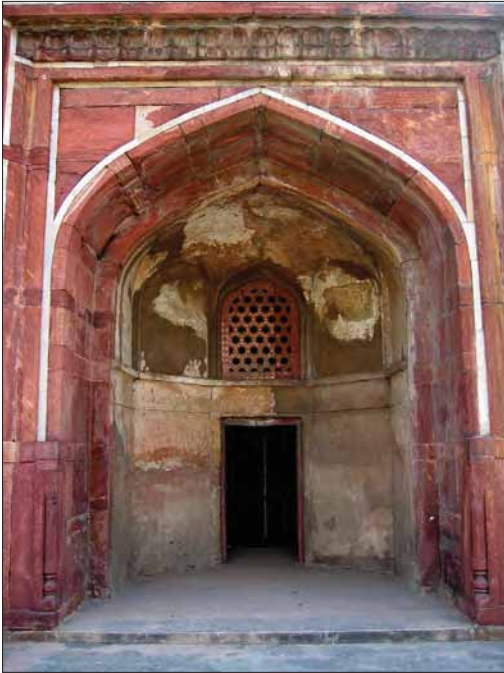
ACTION TAKEN:

- Archival research has revealed photographic and traveller records describing the quartzite stone flooring
- On the basis of archival photographs quantity of quartzite stone required has been established.
- With a ban on quarrying in the Delhi region and the non-availability of matching stone elsewhere, required quantities of stone have been procured from secondary sources.
- Cleaning and dressing of the procured quartzite stones in ongoing.

NEXT STAGE:

- Removal of non-original lime concrete.
- Documentation of all existing quartzite stone
- Lifting of stone to original level; some stones weigh over 1000 kilos and an area of 10,000 sqm. needs to be lifted normally.

RESTORATION OF DOOR FRAMES



The wooden doors to the lower cells were used as firewood when Humayun's Tomb was used as a refugee camp in 1947. The sandstone door frames are now being restored in advance of re-installing the wooden doors.

TASK:

- Removal of existing iron doors.
- Removal of existing iron angle door frame.
- Prepare of sand stone door frame for 68 openings as per evidence available in a few places.
- Designing and making of the wooden door for 68 entrance openings maintaining the ambience of the façade of the mausoleum.

PURPOSE:

- To remove modern materials used for doorways that disfigure the architectural character of the World Heritage Site; replace with wooden doors in traditional design to maintain the visual integrity of this level.

ACTION TAKEN:

- The design of the sandstone door-frame has been finalised and required stone ordered.
- Quantification of the total stone and wood work has been prepared.

NEXT STAGE:

- Creation and erection of all door frames by the craftsman.
- Wooden doors will be prepared as per the approved design.
- The removal work of iron doors and the iron frame work from all openings

DE-SILTING OF NORTH WELL



TASK:

To de-silt the principal historic well and carry out required conservation works.

PURPOSE:

The north well was historically the principal well for the Humayun's Tomb gardens supplying water to the garden and the north fountain. Periodic conservation and desilting works are required.

ACTION TAKEN:

- The water was continuously pumped out to reach the base of the well.
- On the removal of accumulated debris the base of the walls were discovered to have been caved in with several structural cracks discovered.
- The iron girders supporting the pumps were found to be almost completely deteriorated
- The wooden base at the foundation level of the well had similarly deteriorated.
- The deteriorated wooden base have been replaced; the iron girders similarly replaced. The manual lifting of the old girders and the setting of the heavy new girders was very challenging.
- Underpinning the masonry at the base has been foundations have been completed.
- Structural cracks in the masonry have been carefully stitched.

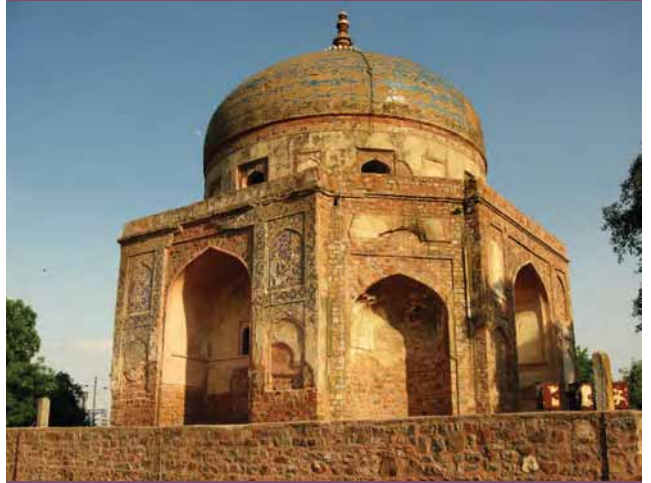
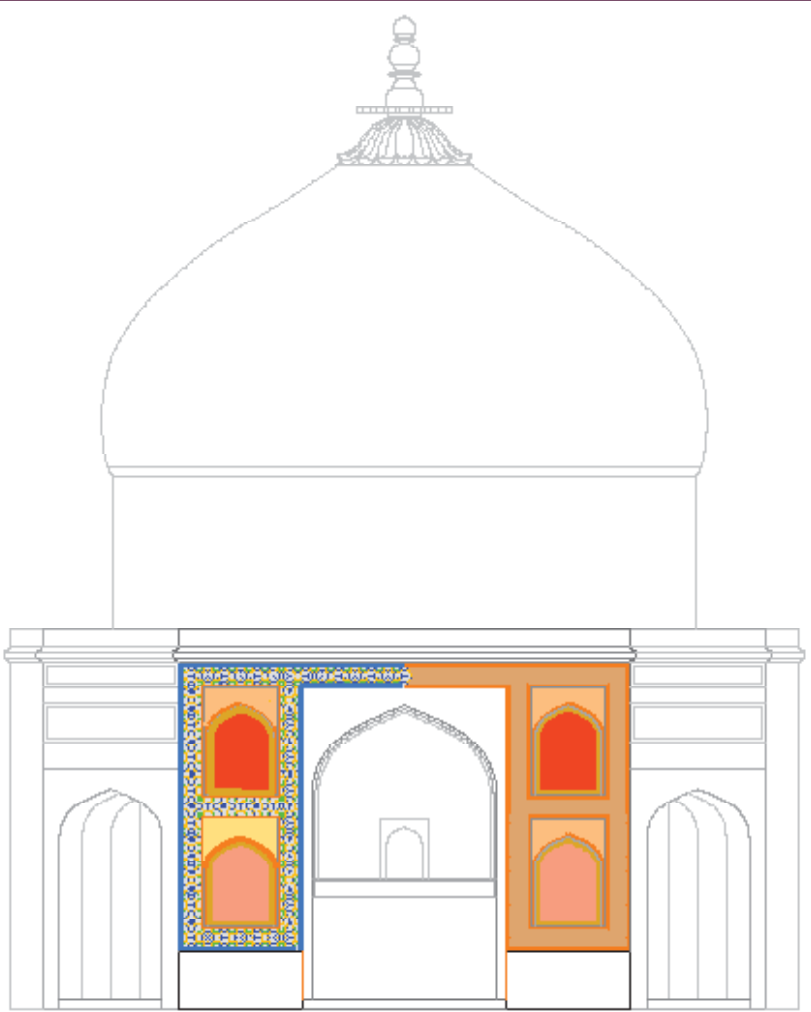
NEXT STAGE:

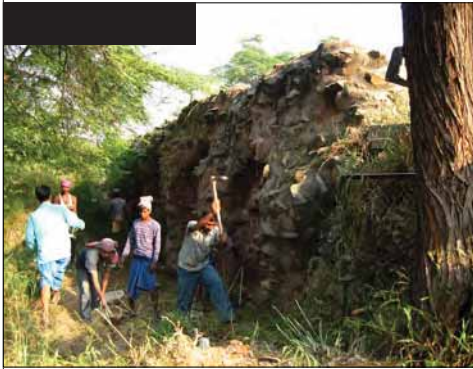
The cement layer on the wall surface needs to be carefully removed.

The Wall surfaces have to be carefully grouted and re-pointed in lime mortar.

While removing accumulated silt from the Northern well, it was discovered that the bottom portions of the walls had caved in. The wooden pile foundations are being re-installed at a depth of 20m prior to underpinning.

NILA GUMBAD CONSERVATION





August 2008

RESTORATION OF THE ARCADE

TASK:

To carefully conserve arcade that served as the northern edge of the Nila Gumbad platform.

PURPOSE:

- The Arcade has been significantly damaged due to neglect and vandalism. A squatter settlement had been built over the arcade and a road cut through the arcade in the 1980's. It is proposed to repair the arcade and restore visitor movement to Nila Gumbad from Humayun's Tomb.
- Portions of the arcade were discovered when an ITDC commissioned park was being developed in this area, work on which was discontinued due to the archaeology that came to light.

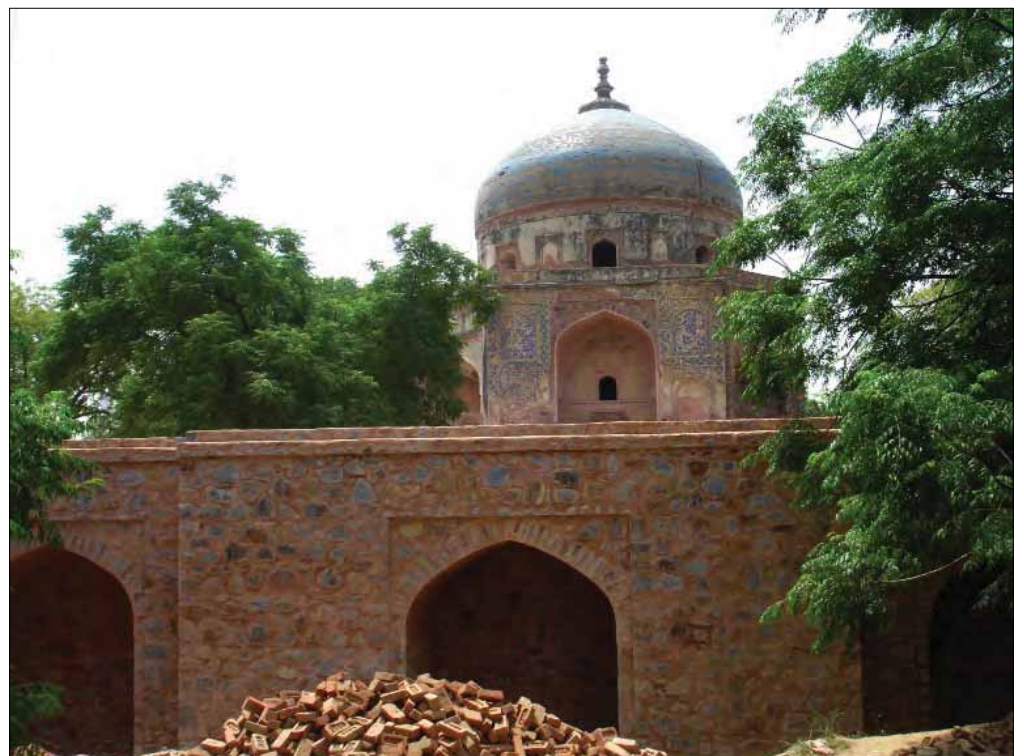
ACTION TAKEN:

- The squatter settlement built in this area was relocated by the ASI in 2004-5.
- The buried portions of the arcade were carefully excavated and documented in detail.
- The eastern and western edges of the arcade have undergone required conservation works.
- Traditional building skills and materials have been used in the conservation process.
- A ramp has been discovered; this was possibly used to lift stone which arrived by boat for the construction of Humayun's Tomb.

NEXT STAGES:

Following approval of the landscape plan by the Northern Railways the road will be relocated to the eastern edge of the park and the central portion of the arcade reconstructed.

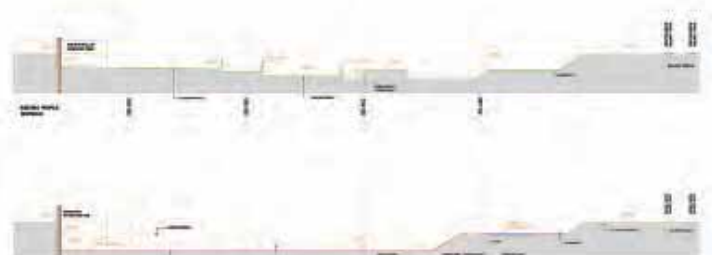
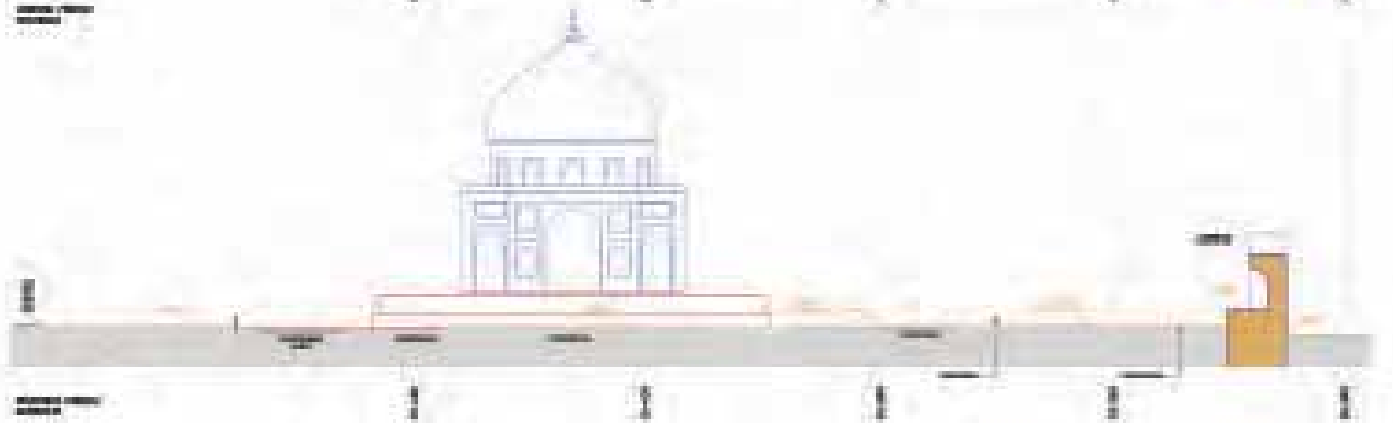
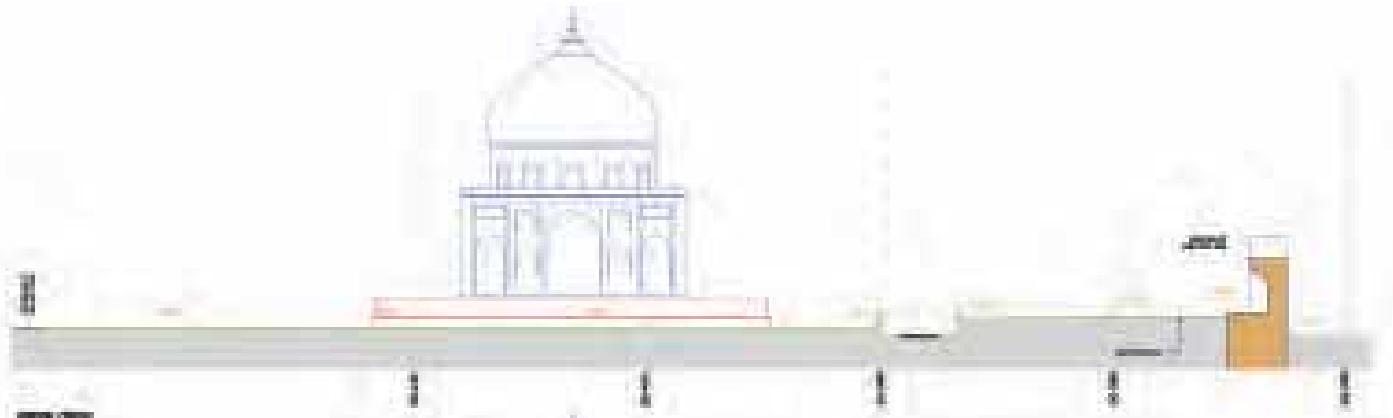
The arcade originally served as a dam for the river water and thus suffered much damage and was subsequently covered up. Portions have been reconstructed and permission from Northern Railways is now awaited to complete the arcade.



Humayun's Tomb



Railway Tracks



LANDSCAPING OF THE NILA GUMBAD COMPLEX

TASK:

To design a sensitive landscape to fulfill the purpose of the MoU signed between ASI and Northern Railways in 2004.

PURPOSE:

- To provide a sensitive setting for the World Heritage Site and Nila Gumbad.
- To have improved access for goods to Nizamuddin Railway Station.
- To restore visitor access to Nila Gumbad from Humayun's Tomb.

ACTION TAKEN:

- Based on an exhaustive survey of the area a landscape plan has been prepared and following approvals from ASI, shared with Northern Railways in December 2007.
- By May 2008, Railways suggestions and modifications have been incorporated.
- The Landscape plan envisages:
 - Road dividing Nila Gumbad and Humayun's Tomb to be relocated along the eastern edge of the plot.
 - A large green space created partly owned by the Northern Railways and partly by the ASI.
 - Relocation of the Barracks to the northern edge of the plot and lowering top level of the water tank located here by 1.5 m.

NEXT STAGES:

- Approvals from Northern Railways are awaited following which the landscape scheme can be implemented.
- The MoU between Northern Railways – ASI needs to be extended.



CONSERVATION TRAININGS



SANDSTONE CRAFTSMANSHIP



TASK

Set up a training programme for youth to develop craftsman skills and ensure traditional building skills are continued to be practiced.

PURPOSE:

- To ensure availability of high quality craftsmanship and generate employment opportunities.

ACTION TAKEN:

- Awareness has been created and twelve 12 trainees are now undergoing training in stone-carving.

NEXT STAGE:

- Ensuring sustainability of the programme

A 6-months training programme with the craftsmen has been established.



LIME MORTAR



A week long workshop in the use of lime mortar has been devised with a batch strength of 10. Three workshops have been held.

TASK:

- Organizing regular training workshops to help craftsmen and engineers employed with the ASI to understand the appropriate use of lime.
- Regular mortar sample testing for the project site.

PURPOSE:

- To generate the awareness of using lime mortar, in the recommended manner, for historic buildings illustrating the various lime techniques by lectures, presentations, site visits, demonstrations and practical exercise for the participants.

ACTION TAKEN:

- Three lime training workshops have been conducted.
- Lime tool kit has been prepared for the participants.
- A laboratory has been established with required equipment such as oven, brass Sieves, Sieve shaker motorized, electronic balance, trinocular-stereozoom micro scope with digital camera, chemicals, and all other accessories.
- The lab will also carry out lime mortar sample test from various location for analyze and investigate the components and its proportions so that appropriate lime mortars can be prepared for repair works.

NEXT STAGE:

- Workshops will continue through the course of the project.

3-D HIGH DEFINITION SURVEY



20 officers received training in the use of Leica scanner for the High Definition Survey

TASK:

- Provide training for ASI officers in High Definition Survey (HDS) methods from project planning, field capture, through data development and management.
- Document Humayun's Tomb using this state-of-art technology
- Create a base dataset of Humayun's Tomb that may be used for other applications such as: archaeological research, conservation, structural analysis, research, and education.

PURPOSE:

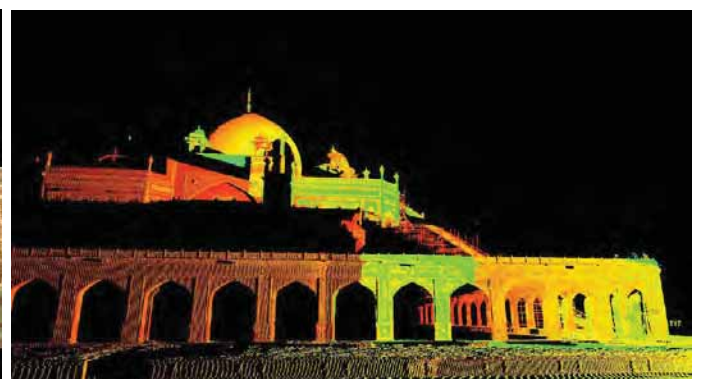
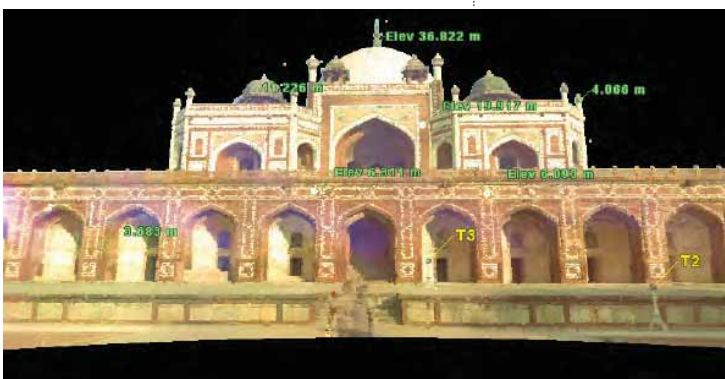
- Introduce the advance 3-D laser scanning technology in INDIA for the first time jointly with ASI and LEICA.
- Document the main mausoleum with the help of advance 3-D laser scanning technologies.

ACTION TAKEN:

- Five days workshop was carried out by ASI-AKTC-CyArk, to understand the scope of work. Several involvements of CyArk in other precious international projects has been present in this workshop.
- Two-week training for 9 ASI officers and 5 AKTC's officers was conducted in December 2008.

NEXT STAGE:

- Follow-up practise sessions planned in February 2009 and April 2009.



AutoCAD TRAINING



TASK:

Providing AutoCAD training to ASI officials through Autodesk.

PURPOSE:

- Introducing ASI's staff to AutoCAD for the documentation of monuments.
- To enable ASI's staff to use AutoCAD for digitization of the drawings.
- To enable ASI staff to convert 3D laser scanning data to the AutoCAD drawings prior to 3-D laser scanning workshop.

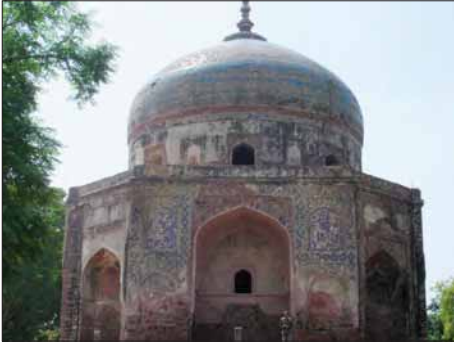
ACTION TAKEN:

- A computer lab established with 10 computers in south gate for the training.
- A fortnight AutoCAD Training workshop was organised at South Gate, Humayun's tomb in collaboration with Auto Desk from 2nd December to 10th December.
- Twenty officials (draughtsmen, artists and surveyors) from different circles of ASI participated in the workshop.
- Various commands required for 2-D drafting were taught to the participants it include drafting, editing, formatting, viewing, tracing etc commands.
- The auto cad Training Workshop concluded with an exam. The participants were divided in three groups to document the Barber's Tomb in Humayun's tomb complex.

NEXT STAGE:

- Autodesk would provide a certificate to each participant for attending the workshop,
- More AutoCAD training workshops will be organized to train more ASI staff from the various circles all over the country.
- ASI would need to provide required facilities in all circles to ensure that this software can be used effectively.

TESTING OF HISTORIC TILES



There is an extensive use of Islamic glazed tile work in monuments within the project area. A documentation and condition mapping of the tile work at Nila Gumbad and Humayun's Tomb has been carried out this year.

TASK:

Scientific testing of historic tiles

PURPOSE:

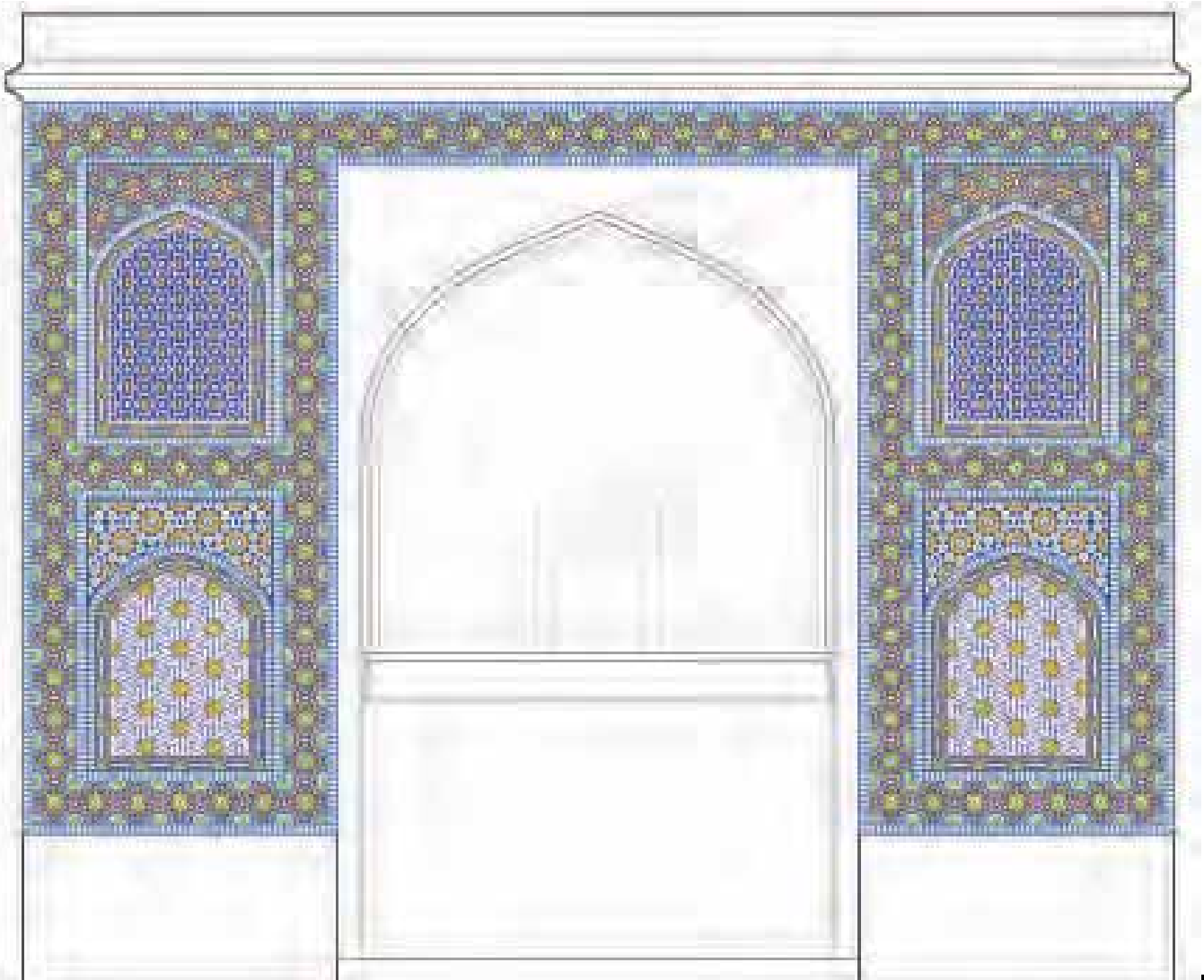
Scientific testing of samples of historic tiles to ascertain material compositions

ACTION TAKEN:

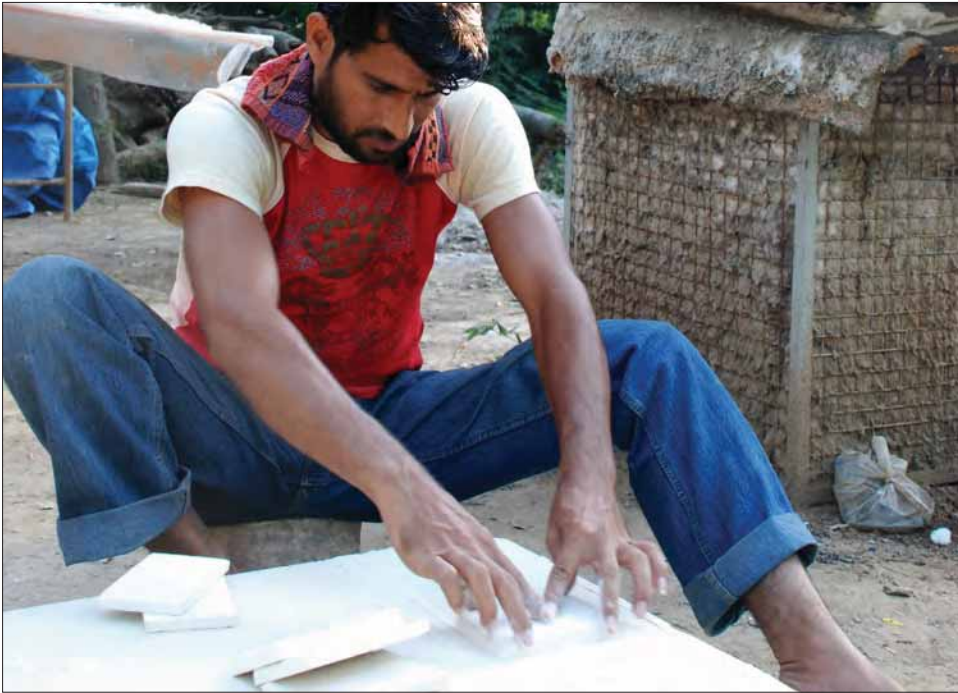
Samples of tiles have been collected from Nila Gumbad, Humayun's Tomb and Atgah Khan's Tomb. These have been sent for testing to laboratories in Barcelona and Oxford and the results are presently awaited.

NEXT STAGE:

Based on the results of the analysis, a second round of sampling will be carried out to re-create the historic glazed tile.



TILEWORKSHOP



TASK:

Workshop with craftsmen to revive the art of producing Islamic glazed tiles in India

PURPOSE:

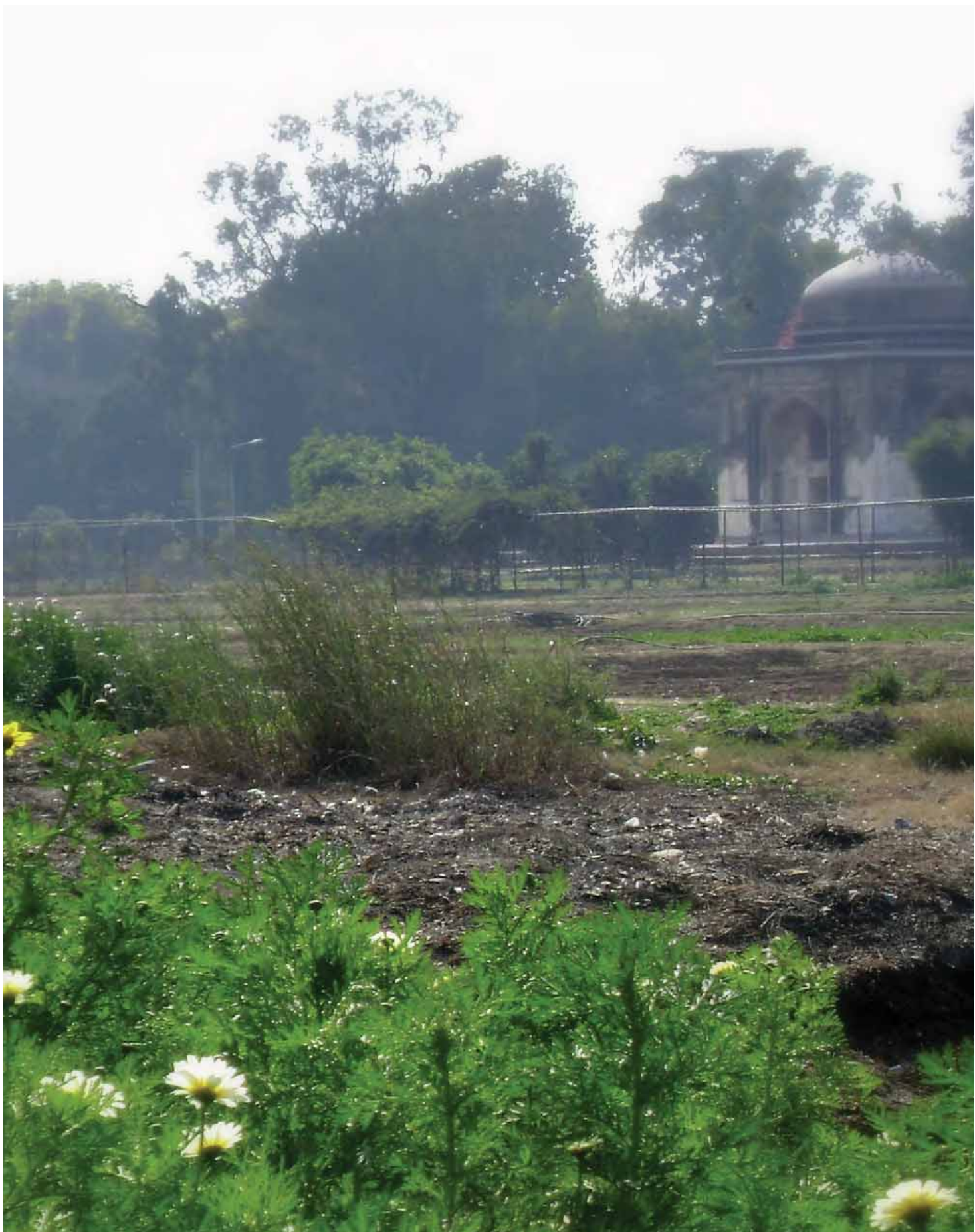
The workshop with craftsmen identified from Jaipur was undertaken to understand the methodology for fabricating tiles and to work towards the revival of traditional glazed tile production used in the embellishment of several monuments within the project area such as Humayun's Tomb, Nila Gumbad and Atgah Khan's tomb.

ACTION TAKEN:

Craftsmen from Jaipur were identified to prepare samples experimenting with different compositions of raw materials and methods so as to arrive at a sample that was similar to those used in the monuments. Based on the one month long workshop held at the Ceramic centre in Sanskriti, several samples of the base were created and some samples of the glaze were also tested. The base, made of quartzite is visually similar to the historic samples, although there is still some difference in the weight of the tile. The glaze has yet to be created as present techniques.

NEXT STAGE:

A second round of sample testing will be conducted to finalise the methodology and materials used for the glaze



SUNDAR
NURSERY

NURSERY
DEVELOPMENT

TASK:

- To design a landscape that enhances nursery functions, heritage assets and creates a micro-habitat and arboretum zone.
- That allows for facilities such as interpretation centre, restaurants, and toilets for visitors and customers.

PURPOSE:

- To upgrade Sunder Nursery into a world class nursery by optimizing land use and introducing diverse attractions.
- Introduce educational facilities to allow Delhi residents and especially school children to enhance the understanding of ecology and nursery activities.

ACTION TAKEN:

- Landscape plan has been prepared in close consultation amongst CPWD and AKTC officers and consultants.
- The Master Plan has received formal approval of the Municipal Corporation of Delhi, Archaeological Survey of India and Delhi Urban Art Commission.
- The Master Plan has distinct heritage, nursery, micro-habitat/ arboretum and facilities/recreation zones within the integrated design.
- Detailed design for nursery beds, peripheral road, Mughal pavilion garden have now been completed and implementation commenced.

NEXT STAGE:

- Detailed design for micro/habitat and lake will now be prepared.
- Civil works for the Road, nursery beds, lake and micro-habitat/ arboretum zone are expected to be completed by July 2009.



TASK:

To document the species, girth, height and canopy for all trees presently standing in Sunder Nursery.

PURPOSE:

- Sunder Nursery, established by the British to prepare plants for New Delhi was used as an experimental ground for native and imported trees.
- Over 140 tree species can be found here, which is amongst the largest number in any single park in Delhi.
- Significant trees, several of which are the single representative of the species in Delhi need to be taken special care of and no tree is to be sacrificed for any new intervention.

ACTION TAKEN:

- As a first step all trees were marked on the survey plan.
- All trees were inspected and the above mentioned characteristics documented.

NEXT STAGE:

Trees that can grow in the Delhi climate yet are not found at Sunder Nursery will be planted here; for several of these the seeds have been collected.



Photos courtesy:
Mr. Pradip Krishen

ESTABLISHING NURSERY



TASK

- Set up a nursery that will provide plants to native microhabitats and ornamental gardens of Sunder Nursery.
- Collect seeds of native flora from Delhi and adjoining areas.

PURPOSE:

- To provide plants for Sunder Nursery arboretum and ornamental gardens.

ACTION TAKEN:

- A small nursery was set up.
- Seeds of about 65 forest species were collected from Delhi, Central and Western India, most of it planted out.
- Seeds of about 39 native plants have successfully germinated.

NEXT STAGE:

- Collect seeds and stem cuttings of native flora from forest regions of Delhi, Central and Western India
- Grow native flora in the nursery from seeds and stem/root cuttings.
- Enlarge the nursery.



NURSERY STEEL FRAME STRUCTURES

TASK

To have an enclosure to house plants requiring a shaded area.

PURPOSE:

For storage of potted plants that require shade.

ACTION TAKEN:

Two steel frame structures of identical design and enclosing an area of 16 m x 16 m are being built in the nursery bed sections of the nursery.

NEXT STAGE:

The metal frame will be covered in epoxy paints for long term maintenance.



TASK

To install an effective irrigation and water supply system for all parts of Sunder Nursery.

PURPOSE:

- To ensure adequate water supply for all parts while ensuring optimum utilization of water.
- To integrate the water supply with an elaborate and effective rainwater harvesting system.
- To optimize use of waste water presently supplied to the nursery.

ACTION TAKEN:

- A survey of existing facilities has been carried out.
- A reputed Hydraulic engineering firm has been appointed.

NEXT STAGE:

- It is proposed to put in place the irrigation system in 2009.
- The entire hydraulic engineering system, including filtration plants will be in place by July 2010.



CONSTRUCTION OF THE PERIPHERAL ROAD

TASK:

To build a peripheral road along the eastern and northern edge of Sunder Nursery for easy access to the Nursery Area along the northern edge.

PURPOSE:

- To segregate pedestrian and vehicular movement within Sunder Nursery.
- To ensure easy access by vehicle to nursery beds, restaurant areas while limiting vehicular access within the historic precinct.

ACTION TAKEN:

- A peripheral road, 5 m wide with adjoining parking space for 200+ cars is being built.
- Prior to road construction the land needed to be leveled and in some points required 3 m of fill; this has been completed.
- The base layer of the road is now being laid.

NEXT STAGE:

- The R.C.C finishing of the road will be completed by July 2009.
- The parking areas will be completed BY 2010-11.



DEVELOPMENT OF THE ARBORETUM ZONE

TASK:

- Prepare an inventory of flora for native microhabitat area and ornamental gardens of Sunder Nursery and procure them.
- Identify models of Delhi's native microhabitats.

PURPOSE:

- To develop a native microhabitat area, arboretum and ornamental gardens in Sunder Nursery for educational and ecological purposes.

ACTION TAKEN:

- Working on a physical search for models of Delhi's native microhabitats: Kohi (Ridge/ rocky), Bangar (level plains), Dabar (flood-prone land) and Khadar (Riverain) prototypes
- Have prepared an inventory of native flora for each of the Khadar, Bangar, Daabar and Kohi habitats.
- Prepared a preliminary list of 150 trees and large shrubs to be grown in the native forest part of the Sunder nursery.
- Roughly 40 species have already been sourced.

NEXT STAGE:

- Establish a nursery to propagate trees and plants to be planted at Sunder Nursery.
- To revise the inventory of native flora for the four micro-habitat zones.



DE-SILTING OF A MUGHAL PERIOD WELL



TASK

Conservation and de-silting of historic wells of Sunder Nursery

PURPOSE:

Reviving the original water system of Sunder Nursery and setting up an effective water harvesting system

ACTION TAKEN:

- A site of a historic well, filled in with rubble, was identified adjacent to Sunderwala Mahal by one of the CPWD gardeners.
- The well was desilted to a depth of 12 m
- The well was carefully repaired and necessary conservation works carried out.

NEXT STAGE:

Other potential wells are being identified and will be similarly de-silted.



DISCOVERY OF THE LOTUS POND



TASK :

To expose landscape related historic features in Sunder Nursery.

PURPOSE:

To enhance the nursery landscape while conserving and presenting historic for visitors to Sunder Nursery.

ACTION TAKEN:

- A mound south of Sunderwala Mahal was identified as a potential site of a well.
- The plants on this well were carefully transplanted and are growing well in their new location along the nursery edge.
- On careful clearance of earth a floral or lotus shaped elevated tank was discovered.

NEXT STAGE:

- The GPRS has revealed a possibility of a well to the east of this Lotus pond; this needs to be de-silted.
- Following the study of the surrounding area the conservation proposal for the lotus pond will be prepared.
- The Lotus pond will be integrated in the landscape scheme for the area.

GROUND PENETRATING RADAR SURVEY

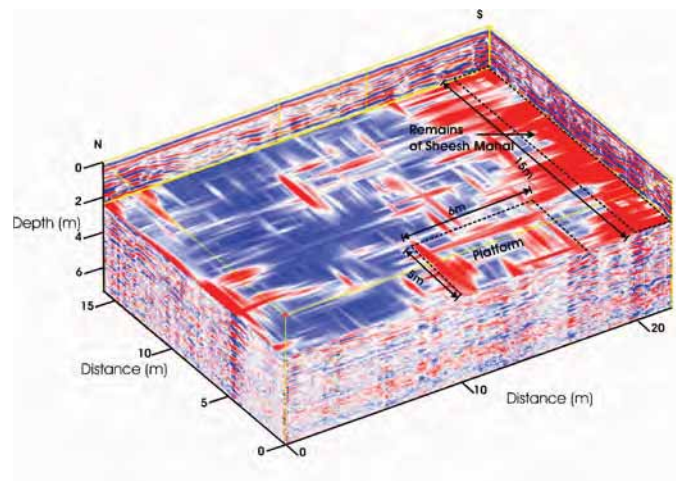
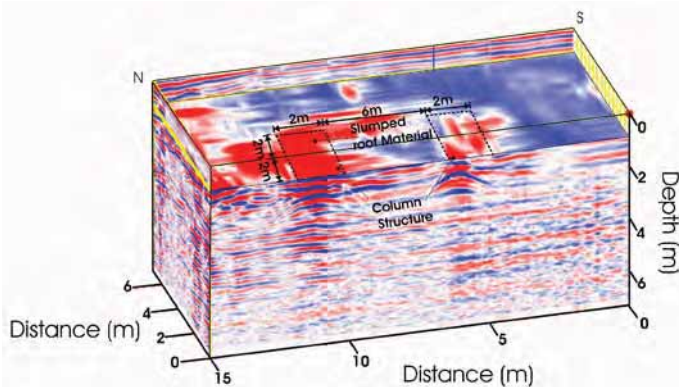


Purpose

- The survey was useful to locate wells and other underground structures.
- Of the structures identified it is proposed to de-silt the wells and ensure any new development is not sited over archaeological remains, however minor these might be.
- Archaeological Excavations are themselves destructive; GPRS allows a better understanding on hidden structures without causing any damage.

TASK

Indian Institute of Technology (IIT), Kanpur were commissioned to carry out a Ground Penetrating Radar (GPR) Survey for Sunder Nursery.



ACTION TAKEN:

- The survey has been carried out in four zones of Sunder Nursery.
- On the total 117 profiles were collected in first phase i.e. 63 profiles from Area 1, 32 profiles from Area 2 and 22 profiles from Area 3. Five profiles were collected for detailing in which 3 profiles are from Area 1 and 2 profiles are from Area 3. In second phase total 105 profiles have been collected and detailing carried out at 4 areas.
- The draft report has now been submitted by IIT; important findings are:
 - The profiles collected in the entire area revealed few findings.
 - The profile collected adjacent to the recently discovered Mughal era Lotus pond in N-S direction has shown the reflections that indicate the opening from the pond, possibly a well. The 3D profile shows two walls which are extending from the pond and a platform continues as an extension from the wall.
 - The profile collected along the southern boundary wall of the nursery reveal a continuous wall structure, 2 m wide. It is possible that the present southern edge of Sunder Nursery is the same as the walled enclosure of Sunderwala Mahal.
 - A single structure is located below the present parking area at the entrance zone to Sunder Nursery; this could be a well or a gateway.

NEXT STAGE:

Task Completed.

CONSERVATION



January 2008



August 2008

December 2008



January 2008



August 2008

December 2008



TASK:

Conservation of Sunderwala Mahal, a unique and symmetrical 16th century tomb building, large portions of which had suffered collapse over the last two decades.

PURPOSE:

To restore the architectural character by re-constructing missing portions, thereby restoring the geometrical form, on the basis of surviving architectural elements in order to enhance the cultural significance of the structure and ensure a better understanding by visitors.

ACTION TAKEN:

- A detailed documentation of the structure including architectural drawings, condition assessment, archival research and photo documentation was carried out as a first step.
- This was included in the Conservation Proposal for all Sunder Nursery monuments prepared in March 2008 and on the basis of which approval was given by the Archaeological Survey of India.
- A structural analysis was carried out in order to determine reason for collapse and to determine if the original foundations will need to be strengthened to bear the weight of the re-constructed portion.
- Original floor levels were determined by careful scientific removal of recently laid out flooring. This also helped define the extent of the original structure.
- 20th century inappropriate repairs of internal plasterwork were removed prior to replastering, now in progress.
- The reconstruction of collapsed arches on the façade was commenced at the NW corner and continued in a clock-wise manner to the SW corner.
- This included re-constructing the chamfered corners on the NW, SE & SW corners.
- The rain water spouts which had been inappropriately closed during earlier conservation attempts, were re-opened on the northern façade and two were found to be housing snake nests.

NEXT STAGE:

- The western façade is yet to be taken up for conservation; this would involve dismantling three earlier re-built arches as their shape, profile do not match the original 'half-dome' archways.
- Once the brick shuttering is removed, the muqarnas would be re-constructed.
- Three archways on each façade have an arched opening over the doorway, these originally held lattice screens which would be re-installed to prevent the entry of birds.
- The surrounding landscape of the Sunderwala Mahal would need to be significantly developed; it is proposed to have red sandstone plinth protection and pathways to accommodate the large number of visitors expected.
- Restoring the original Kangura motif on the parapet on the basis of the surviving central archway on the eastern façade.
- Possibly re-installing the turquoise blue tile band that ran on the moulding below the parapet.
- Once the facing and parapet are repaired, removing the roof concrete and re-laying a lime-concrete protective roof layer.

Before Conservation



During Conservation



Before Conservation



During Conservation



MUGHAL PAVILION

TASK:

Conservation of the garden pavilion that possibly dates from the late 17th/ early 18th century.

PURPOSE:

The structure, in a ruinous condition, was threatened with demolition by the proposed construction of an extension of National Highway 24 through Sunder Nursery to Lodhi Road. Conservation works are aimed at enhancing the cultural significance and ensuring structural stability and integrity of this unique building in Delhi.

ACTION TAKEN:

- A detailed documentation of the structure including architectural drawings, condition assessment and photo documentation was carried out as a first step.
- All vegetation on and within the structure was carefully removed. Forest Officer's permission was received to cut one tree growing on the structure.
- The cracks in the structure were carefully stitched.
- Underpinning, in Lakhori brick masonry was carried out on all internal wall surfaces where over 80% of wall depth had been lost.
- The surviving ornamental plasterwork was consolidated and the entire wall surface carefully re-pointed.
- The sandstone brackets were re-installed on a design worked out in consultation with stone craftsmen on the basis of the lone surviving bracket, of which only 70% had remained intact.
- The chajjas were re-installed on the basis of fragments found embedded in the parapet wall which indicated the thickness of the stone removed and the angle it was laid out at. The length of the chajja was worked out on the basis of study of similar buildings and experimentation on site.
- The plinth, in a state of rubble, was conserved.
- Red sandstone restored on the roof edge and on the flooring of the pavilion and the plinth.
- The base layer of the ornamental plasterwork was restored on the external and internal wall surfaces.
- A new layer of lime concrete provide on the roof.
- Sandstone lattice screen fragments were discovered during clearance works; these provided the basis of re-installing the lattice screens in the three arched openings, one on each of the northern, eastern and western sides.

NEXT STAGE:

- To install the lattice screens
- To carry out the final coat of lime punning on the new plasterwork.
- To develop the garden surrounding the pavilion.

RE-CONSTRUCTION OF THE WALL MOSQUE



in 2002

December 2008



TASK:

To re-construct the collapsed central *mihrab* of this Mughal period structure and consolidate.

PURPOSE:

- The structure was described as 'worthy of protection' and covered with incised coloured plasterwork in the ASI list of the 1920's. Due to neglect, this unprotected structure gradually collapsed over the last 5-10 years. As with the Mughal Pavilion this was threatened with demolition by the proposed NH 24 extension. The conservation works on the basis of archival research and available documentation aimed at restoring the architectural character.
- The reconstructed mihrab also lends additional historic character to this part of Sunder Nursery.

ACTION TAKEN:

- The structure, in its intact state was photographed in 1999 and then again in 2003 for the INTACH list of Heritage Buildings. Photographs from the eastern and western sides were available.
- The ASI list gave the dimensions of the structure and on the basis of this information architectural drawings were prepared for the re-construction of the central mihrab.
- The plinth was cleared of all vegetation and stone that was largely re-used was collected.
- Conservation works commenced by consolidating the plinth and the steps leading to the platform.
- The central mihrab and adjoining portions were re-constructed August 2008 onwards on the basis of archival information and architectural studies.

NEXT STAGE:

Conservation works have been completed; on account of the vegetation on the plinth no lime-concrete is to be laid here.

June 2008



GRAVES PLATFORMS

Before Conservation



During Conservation



Before Conservation



During Conservation



TASK:

Conservation of two grave platform's discovered in the north-east portion of the nursery.

PURPOSE:

Conservation of standing historic structures

ACTION TAKEN:

- Removing the vegetation.
- Reconstruction of the fallen walls of the bottom and upper platform.
- Consolidation of the loose masonry of the lower chambers, parapet and the walls.
- Construction of the rough stone ashlar masonry of the arches of the lower chambers to provide structural stability to the platform.
- Repairing the structural cracks.
- Lime plastering in the lower chamber inner walls.
- Raking and repointing with lime mortar of the exposed stone masonry.

NEXT STAGE:

Conservation works have been completed; landscape works on the surrounding area need to be undertaken.

Archaeological Survey of India

Mrs Anshu Vaish, Director General
Mr.Vijai Madan, Additional Director General
Dr.BR Mani, Joint Director General
Mr.Janhwij Sharma, Director (Conservation & World Heritage)
Dr. KK Mohammad, Superintending Archaeologist, Delhi Circle
Dr.D.V.Sharma, Former SA, Delhi Circle
Mr A.K. Sinha, SA, Headquarters
Mr. Daljeet Singh, Dy. SA, Delhi Circle
Mr.Basant Kumar, Dy.SA, Delhi Circle
Dr.H.B Singh, Chief Horticulturist
Mr.Naresh Kumar Ahier, Dy. Supdt. Horticulturist
Mr.R.K.Jhingan, Sr. Conservation Assistant, Humayun's Tomb
Mr.Naresh Kumar, Sr. Horticulture Assistant
Mr.Dilip Singh, Foreman, Humayun's Tomb

Municipal Corporation of Delhi

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Mr.Farhad Suri, Counsellor

Mr.Naresh Kumar, Additional Commissioner
Mr.Vijay Singh, Dy. Commissioner, City Zone
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Ms. Swatantra Bala, Additional Director, Education
Ms.Savita Kumari, Dist Education Officer
Mrs Sunita Rao, School Inspector
Mr.Chandra Dev, School Inspector
Ms.Anita Malik, IEC and Training Coordinator
Mr.Syed Ali Akhtar, Headmaster, MCD School
All teachers of Hazrat Nizamuddin Basti MCD School
Dr.Basu, Chief Medical Officer
Dr.Pramila Srivastava, MCD Polyclinic
Mr.Anil Prakash, Director, Sanitation
Mr.Deepak Khosla, Asst Engineer
Mr. Sunder Lal Sharma, Sanitary Inspector

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Mr. Prashant Banerjee, Architect
Mr. Saurabh Surana, Architect
Mr. Kishwar Khan, Co-ordinator, Education
Mr. Hyder Mehdi Rizvi, Co-ordinator, School Initiatives.
Mr. Vijay Dhasmana, Co-ordinator, Micro-Habitats

Mr. Balbir Singh, Sr. Conservation Engineer/ Trainer
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Mr. NC Thapliyal, Engineer
Mr. Mahender Kumar, Engineer
Mr. Mohammad Zeeshan Khan, Field Co-ordinator
Mr. Dhana, Field Supervisor
Mr. Babu Lal, Field Supervisor
Mr. Attar Singh, Chief stone craftsmen
Mr. Wasim, Site Supervisor

Mr. Somak Ghosh, Finance Officer
Ms. Deeti Ray, Co-ordinator
Ms. Priya Gangadharan, Admin officer
Mr. Harish Kumar, Finance Assistant

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Dr. Upasana Gupta, Consultant Gynaecologist
Ms. Smriti Sharma, Consultant Education
Mr. Saumitra Ranjan, Consultant, Music documentation

Ms. Seema Bohat, nurse/mid-wife
Mr. Tilak Raj, Polyclinic lab technician
Mr. Narender Swain, Photographer



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MKG, Hydraulic Engineers
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ANANT Theatre group (Arts and Education)
Mr. Mayank Mehta, Documentation

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Nazima Parveen
Raiyeesa
Rehana
Rukhsana
Shabbir Ahmed
Shagufta Praveen
Shan Mohammad
Syed Moeed

