

Centre of Central Asian Studies

University of Kashmir

Introduction

The Centre of Central Asian Studies (CCAS) and PG programme in Archaeology at the University of Kashmir is a premier research institution dedicated to exploring the historical, cultural, and archaeological dimensions of Central Asia and its interconnectedness with the Indian subcontinent, particularly the Kashmir Valley. Over the years, the Centre has developed and adopted best practices in research, fieldwork, and the application of new methodologies and technologies in archaeology. This report highlights these practices, with a particular focus on field surveys in Central Asia, the Himalayas and the Kashmir Valley.

Best Practices

1. Research in Central Asian Studies

2. Fieldwork in Central Asia and the Kashmir Valley

3. Adoption of new Research Methodology and Advanced Archaeological Techniques and Technology

4. Training and Capacity Building

1. Research in Central Asian Studies

The CCAS emphasizes an interdisciplinary approach, integrating history, archaeology, anthropology, linguistics, and cultural studies to provide a holistic understanding of Central Asian civilizations. This approach allows researchers to examine the complex interactions between Central Asia and Kashmir, including trade, cultural exchanges, and the movement of peoples and ideas.

1.1. Collaboration with National and International Institutions

Collaboration with National and International institutions is a cornerstone of the Centre's research strategy. Partnerships with universities and research centres in Central Asia, Europe, and other parts of Asia have facilitated joint research projects, exchange programs, and access to a broader range of resources and expertise. These collaborations have enriched the research output and provided valuable opportunities for scholars and students.

2. Fieldwork in Central Asia and the Kashmir Valley

Field surveys conducted by the Centre in the Himalayas, particularly in the Kashmir Valley, aim to uncover and document the region's rich archaeological heritage. The objectives include

identifying and mapping ancient sites, excavating settlements and burial grounds, and analysing material culture to understand the historical and cultural dynamics of the region.

The Centre of Central Asian Studies (CCAS) at the University of Kashmir is renowned for its emphasis on fieldwork and research tours in Central Asian countries. These best practices are integral to the academic and research activities at the centre. Here are some of the key practices:

In-depth Fieldwork: Researchers spend extended periods in the field, allowing them to conduct comprehensive studies and gain deeper insights into local contexts. The use of ethnographic methods, such as participant observation and interviews, is emphasized to collect qualitative data that captures the lived experiences of communities. The Thematic Research Tours are organized around specific themes, such as trade routes, cultural heritage, or political dynamics, and are tailored to the research interests of the participants. Researchers are encouraged to meticulously document their findings through photography, video recordings, and detailed field notes, which are later used in publications and reports.

CCAS collaborates with universities, research centres, and cultural institutions in Central Asia to facilitate access to resources, archives, and local expertise. The Scholars of CCAS often engage in joint research projects with local academics, which enriches the research outcomes and fosters cross-cultural academic exchanges. The findings from fieldwork and research tours are disseminated through publications in academic journals, books, and presentations at international conferences. These practices ensure that the research conducted by CCAS is robust, contextually grounded, and contributes significantly to the understanding of Central Asia.

2.1. Best Practices in Field Surveys

Detailed planning is conducted before any field survey, including the selection of sites, securing necessary permits, and logistical arrangements. This preparation ensures that the fieldwork is conducted efficiently and effectively. The CCAS actively involves local communities in its field surveys. This engagement fosters a sense of ownership among the locals and provides researchers with valuable insights and assistance. Workshops and awareness programs are also organized to educate the local population about the importance of preserving their heritage.

Given the sensitive ecological environment of the Himalayas, the Centre adheres to strict environmental guidelines during fieldwork. Efforts are made to minimize the impact on the natural landscape, and all activities are conducted in an eco-friendly manner.

2.2 Excavations in the Kashmir Valley

The Centre has conducted several notable excavations in the Kashmir Valley, unearthing significant archaeological finds that shed light on the region's ancient history. These excavations have revealed the existence of ancient settlements, trade routes, and religious sites, highlighting the Valley's role as a cultural crossroads between Central Asia and the Indian subcontinent.

2.3. Documentation and Analysis

Best practices in documentation and analysis are strictly followed during excavations. Detailed records of findings are maintained, including photographs, drawings, and notes. Advanced

technologies, such as 3D scanning and Geographic Information Systems (GIS), are employed to create accurate models and maps of the sites. This comprehensive documentation ensures that the data is preserved for future study and interpretation.

3. Adoption of new Research Methodology and Advanced Archaeological Techniques and Technology

The CCAS has embraced new methodologies and technologies in archaeology, enhancing the accuracy and efficiency of its research. The Centre of Central Asian Studies (CCAS) at the University of Kashmir has consistently embraced technological advancements to enhance the precision and efficiency of its archaeological research. This section of the report focuses on the use of cutting-edge technologies such as drone surveys, Differential Global Positioning System (DGPS), Total Station, LiDAR (Light Detection and Ranging), and photogrammetry in archaeological projects undertaken by the CCAS. These include:

3.1. Remote Sensing and GIS: Remote sensing technologies, including satellite imagery and aerial photography, are used to identify and analyze archaeological sites. GIS is employed to map and manage spatial data, allowing researchers to study the distribution of sites and their relationships with the landscape.

3.2. 3D Reconstruction: 3D modelling and reconstruction technologies are utilized to create digital representations of archaeological sites and artefacts. This technology enables researchers to visualize ancient structures and artefacts in their original form, providing deeper insights into their construction and use.

3.3. Drone Survey: Drones, or Unmanned Aerial Vehicles (UAVs), have revolutionized archaeological surveying by providing aerial perspectives that are both comprehensive and detailed. The CCAS has incorporated drone technology to map and document archaeological sites, especially in the challenging terrains of the Kashmir Valley and the broader Himalayan region. Drones equipped with high-resolution cameras capture detailed images of large areas quickly, which can be used to create accurate maps and models of archaeological and Heritage sites. Drones access areas that are difficult or impossible to reach on foot, such as steep mountainous regions or densely forested areas, making them invaluable in the Himalayas. Drone surveys significantly reduce the time required for field surveys, allowing for the rapid assessment of large or remote areas.

3.4. Differential Global Positioning System (DGPS): DGPS is an advanced version of the Global Positioning System (GPS) that provides much higher positional accuracy, essential for archaeological surveys where precision is critical. The CCAS uses DGPS to map archaeological sites and their features accurately. DGPS can provide location data with sub-meter accuracy, which is crucial for detailed mapping and documentation of archaeological features. The precise coordinates obtained through DGPS can be easily integrated with other datasets, such as GIS (Geographic Information Systems), to create comprehensive spatial analyses.

3.5. Total Station: Total Station is an electronic/optical instrument used in modern surveying that measures angles and distances with high precision. The CCAS uses Total Station technology

for detailed site surveys, particularly in excavation projects. Total Stations provide extremely accurate measurements of distances and angles, which are essential for creating detailed site plans and for the excavation process. The instrument collects three-dimensional data points, which can be used to create 3D models of the site, aiding in the analysis and interpretation of archaeological findings.

3.6. Light Detection and Ranging (LiDAR): LiDAR is a remote sensing technology that uses laser pulses to measure distances to the Earth's surface, creating highly accurate 3D models of the terrain and any structures present. The CCAS uses LiDAR to map and analyze archaeological sites, particularly those obscured by vegetation or difficult terrain. LiDAR helps to "see through" vegetation, making it possible to detect archaeological features hidden beneath forest canopies. The technology provides detailed topographical maps that reveal subtle features, such as ancient roads, terraces, and building foundations, which may not be visible to the naked eye.

3.7. Photogrammetry: Photogrammetry involves taking overlapping photographs from different angles and using software to create accurate 3D models of objects or landscapes. The CCAS uses photogrammetry to document artifacts, structures, and entire archaeological sites. Photogrammetry produces highly detailed 3D models that can be used for analysis, conservation, and virtual reconstruction of archaeological sites and artifacts. The technique is non-invasive, meaning it does not disturb the site or the artifacts being documented, which is crucial for preserving archaeological integrity.

4. Training and Capacity Building

Recognizing the importance of continuous learning, the CCAS regularly organizes training programs and Conferences for its researchers and students. These programs focus on the latest archaeological techniques, data analysis methods, and the use of technology in research. Collaboration with international experts ensures that the training is of the highest standard and that researchers are equipped with the skills needed to conduct cutting-edge research.

4.1. Preservation and Conservation Efforts of Archaeological and Heritage Sites

The Centre is committed to the preservation and conservation of archaeological sites in the Kashmir Valley and Central Asia. Best practices in conservation are followed, including the use of appropriate materials and techniques to stabilize and protect structures. The Centre also advocates for the protection of sites from unauthorized excavations and development activities.

4.2. Public Awareness and Education

Public awareness and education are integral to the Centre's conservation efforts. The CCAS organizes exhibitions, lectures, and educational programs to inform the public about the significance of archaeological sites and the need to preserve them. By fostering a sense of cultural heritage among the community, the Centre aims to ensure the long-term preservation of these valuable resources.

Therefore, The Centre of Central Asian Studies at the University of Kashmir has established itself as a leading institution in the field of Central Asian studies and archaeology. Through its interdisciplinary research, innovative fieldwork, and adoption of advanced technologies, the Centre continues to make significant contributions to the understanding of Central Asia's history and its connections with the Kashmir Valley. By adhering to best practices in research, field surveys, and conservation, the Centre not only advances academic knowledge but also ensures the preservation of the region's rich cultural heritage for future generations.

Best Practices Surveying/Exploration/Excavation





Flotation Process



Expedition to Zanaskar Camp Site





Students Exploring the Uftii Fort Zanaskar (Padum)









Archaeological Survey of Mawar, Handawara









Taking the LiDAR Data





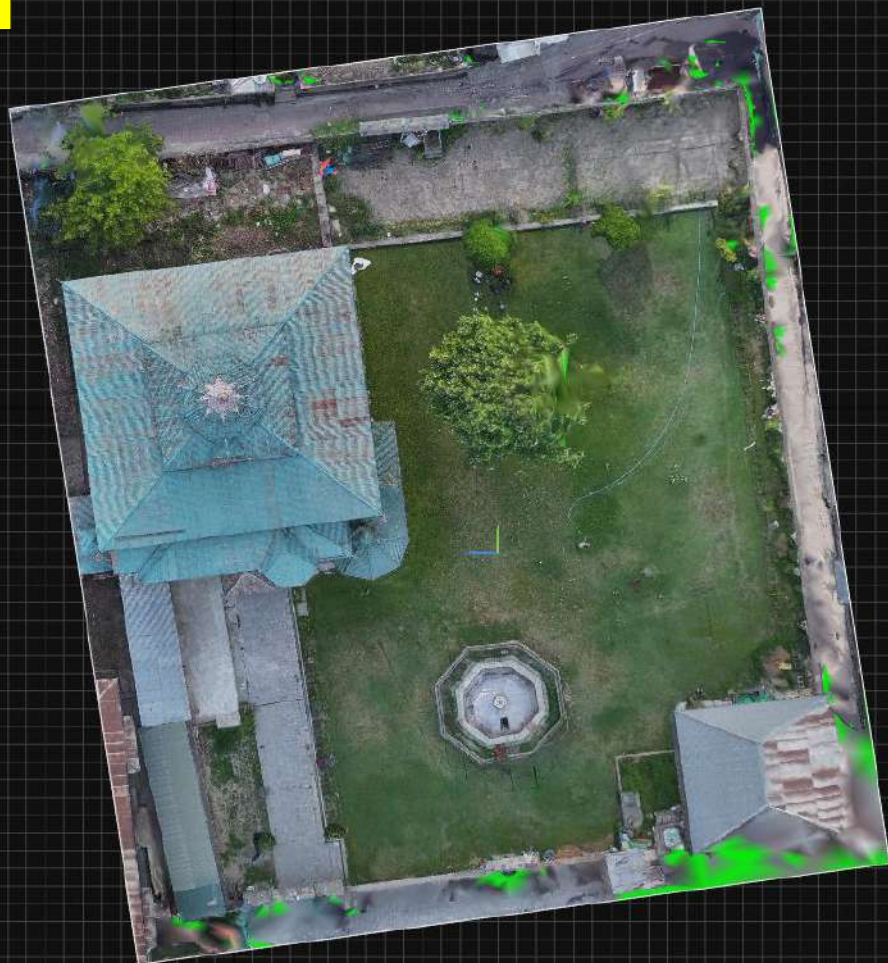
Processing the LiDAR Data



Results



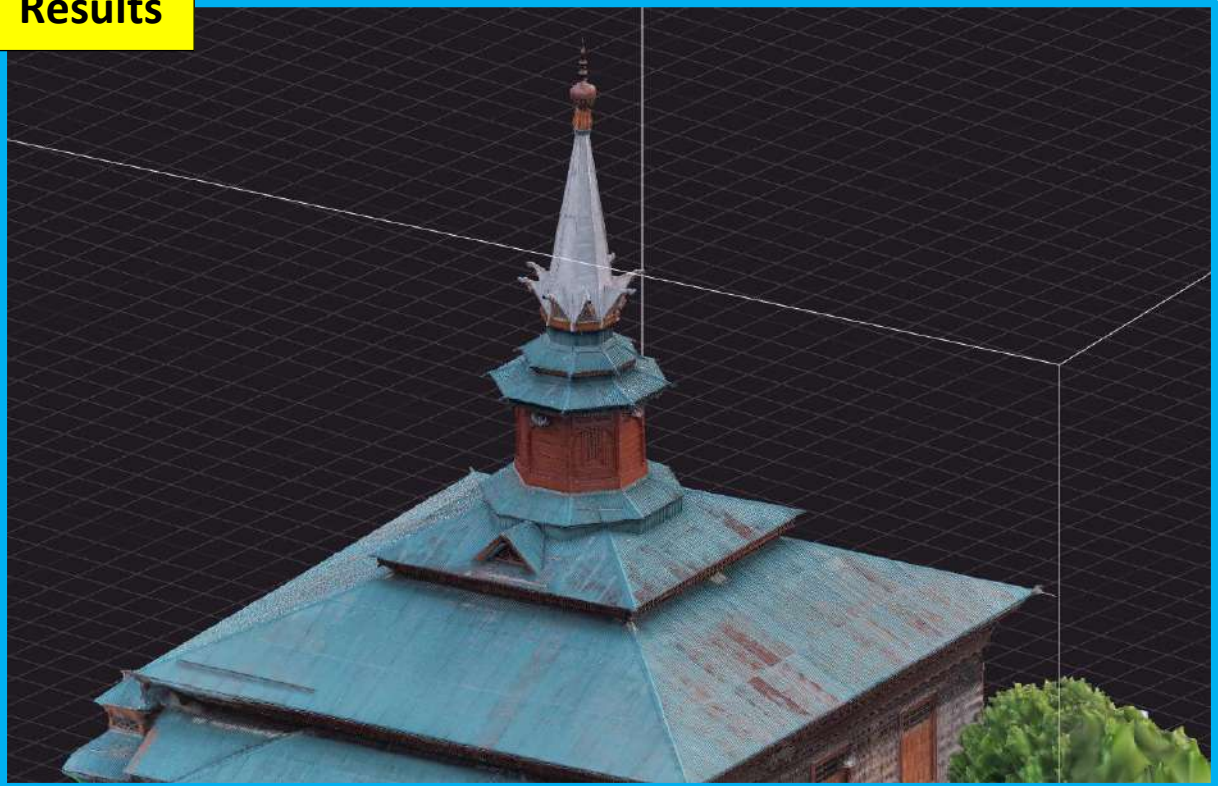
Results



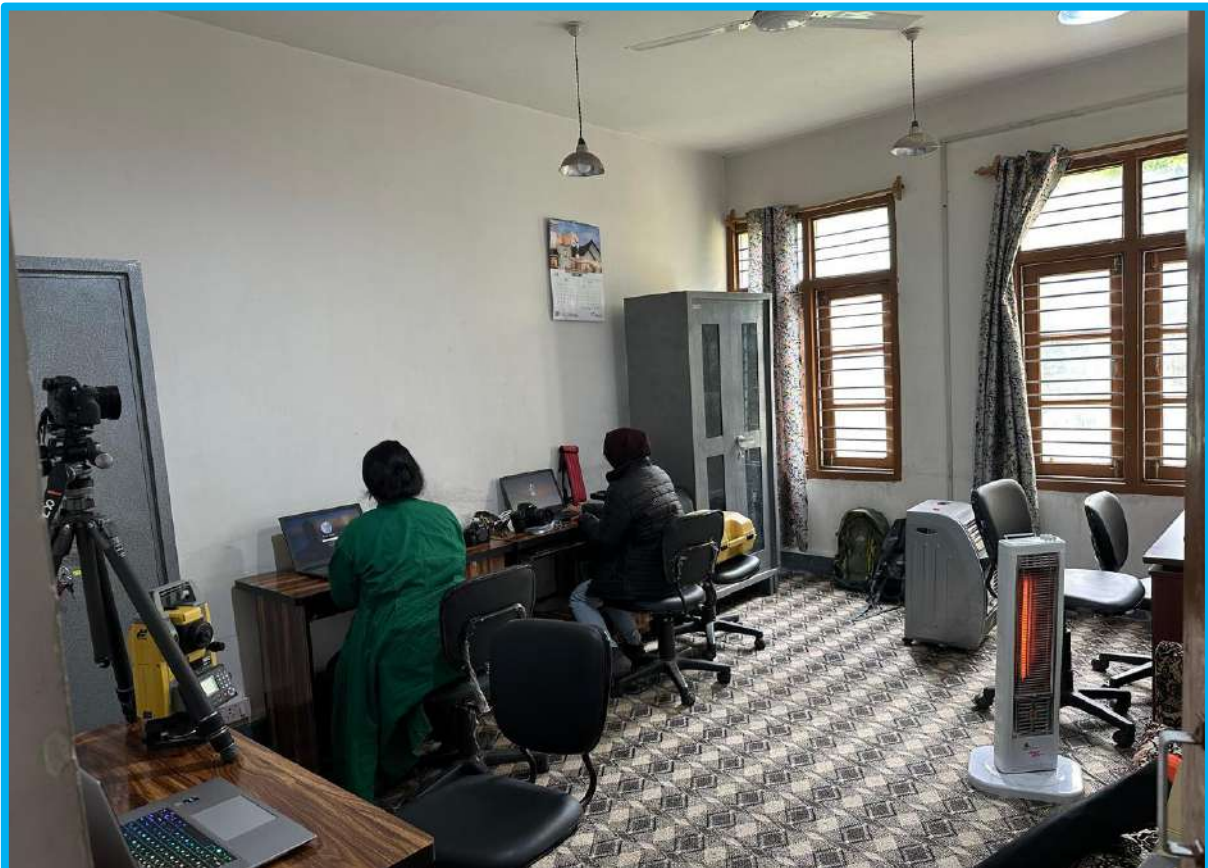
Results



Results



Endangered Wooden Architecture Program (Archaeology Digital Lab)





Data acquisition with Drone



Post Processing





Meshing Process



Students training session with Total Station Surveying training.

