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Manuscript Preparation and Preservation in the Satras of Assam: A Study

Shri Ratul Chutia
Ph. D. Research Scholar, Department of Library and Information Science, Auniati University, Teok, Jorhat-785112, Assam

Abstract: ***This study examines manuscript preparation and preservation practices in the Satras of Assam from the 15th to 19th century CE. Before print, Satras served as principal centers for copying, storing, and transmitting texts that shaped Neo-Vaishnavite religious life and Assamese literary culture. Using codicological analysis of 212 sanchipat and 46 Tulapat manuscripts, architectural surveys of 14 Bharal Ghar, and ethnographic interviews with 11 Satradhikars and 23 Bhakats, the research documents the complete manuscript lifecycle. Findings show that sanchipat, processed from Aquilaria agallocha bark, dominated due to local availability and humidity resistance. Sheets were laminated with bael gum, coated with hengul and haital pigments in xilikha resin, incised with nahar-thuri, and blackened with lampblack. Preservation combined material science with ritual seva: elevated, ventilated Bharal Ghar reduced humidity by 8 to 10%, while daily airing and Neem and jatimati fumigation provided bio-control. Organizational systems included Burhi-bhoral inventories, xastra-daan acquisition, and Adhikar based three-tier access that minimized handling. Prabandha recitation functioned as an oral catalogue, ensuring redundancy. The study argues that Satra repositories were functional libraries where material innovation, administrative order, and social ritual merged. Their decline after the Moamoria war and Burmese invasions reveals the link between political stability and heritage survival. Contemporary conservation that ignores seva cycles and extracts manuscripts to air-conditioned archives disrupts proven passive systems. The research proposes a culturally sustainable model: train Bhakats as conservator-librarians, maintain jatimati fumigation, and document Burhi-bhoral metadata. This repositions Satras as living libraries within global heritage discourse and offers a low-energy framework for manuscript stewardship in tropical climates.***

Keywords: Sanchipat; Tulapat; Bharal Ghar; Satra; Neo-Vaishnavism; Manuscript Conservation.

I. INTRODUCTION

Before the arrival of print technology, handwritten manuscripts were the sole medium for knowledge production, circulation, and preservation in Assam. Among the various institutions that sustained this manuscript culture, the Neo-Vaishnavite Satras established by Srimanta Sankardev and his disciples in the 15th and 16th centuries CE became the most systematic and enduring. Satras were not only monasteries but also centers of performance, education, art, and library practice. The manuscripts they produced and preserved cover religion, literature, music, drama, medicine, astronomy, and lexicography, forming the textual backbone of Assamese identity.

The tradition of writing in Assam predates the Satras. Yogini Tantra mentions Bhurja-patra, Tala-patra, and Ketaki-patra, while Harsa-carita records that Kamrupa king Bhaskaravarman gifted sanchipat books to Harsha in the 7th century CE. However, the Neo-Vaishnavite movement transformed scattered scribal activity into an institutionalized system. Copying manuscripts became seva, a devotional act, and storage shifted to dedicated Bharal Ghar located near the manikut. Each major Satra Auniati, Dakhinpat, Garmur, Kamalabari, Bengenaati maintained a central repository whose holdings ran into thousands of bundles.

Sanchipat, made from the bark of Aquilaria agallocha, was the preferred substrate because it resisted monsoon humidity better than palm leaf. The preparation was intricate. Strips were cut, sun-dried, dew-exposed, scraped, rubbed with burnt brick, coated with matimah paste, dyed with yellow arsenic, and polished to a marble finish. Jao Diya rubbing further refined the surface. Katha Guru Carita documents Madhavdeva procuring sanchipat from Dakhinakula, also a source of hengul, haital, and indigo. Tulapat, made by ginning and pressing cotton, was used for illustrated works. A unique Bakala-puthi technique folded long sanchipat strips into compact booklets.

Writing used an intaglio method. Text was incised with a nahar-thuri stylus and blackened with lampblack, preventing smudging in damp conditions. Bundles were bound with cotton cords, covered with wooden xatra-pata, wrapped in muga silk, and stored in slatted jackwood chests. The Bharal Ghar itself was an architectural response to climate. Elevated floors, wall niches, and cross-ventilation kept interiors 2 to 3°C cooler and 8 to 10% less humid than outside. Daily airing and fumigation with Neem and jatimati provided insect control without chemicals.

Organizationally, Satras developed library functions. Xastra-daan donations expanded collections. Burhi-bhoral registers listed holdings by subject: kirtan, vyakaran, jyotish, vaidya, nat. Prabandha recitations annually verified inventories, creating an oral catalogue. Access followed Adhikar. Sarvajanik texts like Kirtan-Ghosha were open to all Bhakats. Madhyam texts required initiation. Gupta texts needed direct agya from the Adhikar. This regulated handling and preserved fragile leaves.

Despite their sophistication, Satra manuscript traditions have been misread. Colonial accounts by E. Gait described collections as neglected hoards, ignoring seva as preventive care. Post-colonial heritage policy has often extracted manuscripts to state archives, severing them from ritual context. The Moamoria civil war and Burmese invasions of 1817 to 1826 caused massive loss, proving that political stability is vital to library survival. Today, climate change, outmigration of Bhakats, and loss of sanchipat artisans threaten the tradition. This study asks: How were manuscripts prepared and preserved in Satras, and what organizational and social systems supported these practices ? The significance is twofold. First, it corrects the historiographical gap by documenting Satras as functional libraries within global library history. Second, it provides an evidence base for sustainable conservation that integrates scientific methods with custodial ethics. Recognizing Bharal Ghar as climate-adapted, low-energy repositories offers alternatives to energy-intensive modern archives. The research thus bridges codicology, heritage science, and library studies, arguing that effective preservation must maintain the link between manuscripts and their living communities of practice.

II. OBJECTIVE

1) To document the materials, tools, and technical stages of sanchipat and Tulapat manuscript preparation in Assamese Satras.
2) To analyze the architectural, ritual, and administrative methods used for manuscript preservation in Bharal Ghar.
3) To evaluate the implications of Satra preservation systems for contemporary sustainable manuscript conservation policy.

III. METHODOLOGY

This study employed mixed methods. Codicological analysis examined sanchipat and Tulapat manuscripts using non-invasive microscopy, XRF pigment testing, and FTIR to assess materials, scripts, and deterioration. Architectural surveys measured temperature, relative humidity, and airflow in Bharal Ghar. Ethnographic fieldwork involved semi-structured interviews with Satradhikars, Bhakats, and sanchipat artisans to document preparation, storage, and ritual practices. Burhi-bhoral inventories were transcribed and cross-checked with physical holdings. Data triangulation integrated material, spatial, and social evidence to reconstruct manuscript lifecycle and preservation systems.

IV. REVIEW OF LITERATURE

A literature review is an important part of research study where the existing literature on a particular study area, are searches and reviewed accordingly. This help in gaining an insight of current knowledge as well as theoretical and methodological contribution to a particular area of study. Below is a review of some of the literature:

Gait, E. (2006) In his book “A History of Assam”, Gait provides the earliest colonial account of Satra collections, noting “vast piles of manuscripts” in Majuli. He describes sanchipat processing but interprets Adhikar as secrecy and seva as superstition. His work establishes chronology yet lacks analysis of Bharal Ghar as a library system. The methodological reliance on secondhand reports limits reliability. Nevertheless, Gait confirms the scale of Satra holdings and their centrality to Assamese literary life, providing a baseline for later research.

Bhuyan, S. K. (1962) In his book “Studies in the Literature of Assam” recorded the Budhi-bhoral from Auniati Satra by giving a detailed description of the Sanchipat technique. He identifies subject classification and xastra-daan but does not theorize that these are acquisitions and catalogings. Bhuiyan's strength Primary information; His weakness is framing satras as merely religious sites rather than as information institutions. His work remains the most cited source on manuscript content, yet implicit rather than analyzing library functions.

Neog, M. (1998) in his book “Sankaradeva and His Times” places manuscript production within neo-Vaishnava theology, arguing that copying as a service ensures quality and continuity. He documents article recitation and path-dan inscriptions, acknowledging their role in memory and provenance. However, Neog does not engage with conservation science or compare the architecture of Bharal Ghar with climate data. His contribution is the connection between ritual and preservation, which later scholars use to explain why satra manuscripts have survived without modern repositories.

Sharma, S. N. (1966) In his book “The Neo-Vaisnavite Movement and the Satra Institution of Assam”, Sharma gives an administrative account of the Satradhikar, Dekadhikar, and Lipikar. He lists the parallel duties of the librarian role: inventory, repair, regulated lending. Sharma’s limitation is the lack of material analysis. He treats manuscripts as texts, not works of art. Nevertheless, his institutional mapping enables a reconstruction of workflows from commissioning to preservation, showing that satras formalized staff roles such as librarians.

Chowdhury, P. C. (1959) In his book "The History of Civilisation of the People of Assam ", Choudhury surveys pre-Ahom writing materials and confirms sanchipat dominance by the 13th century. He links bark use to ecology, noting Aquilaria agallocha abundance in Upper Assam. His ecological reading is valuable, but he does not examine processing chemistry or why hengul and haital deter insects. The work provides environmental context for material choices that later conservation studies validate.

Baruah, S. L. (1985) In his book "A Comprehensive History of Assam", Baruah covers Ahom and Koch patronage, noting illustrated manuscripts like Hastividyarnava recovered from Satras. He suggests court monastery exchange but does not analyze Bharal Ghar design. Boruah's political history helps date collections and explain dispersal after the Moamoria war. His contribution is situating Satra libraries within state collapse, showing how political instability directly caused manuscript loss.

Goswami, K. (2012) In his book "Sanchipat Manuscripts of Assam: A Technical Study", Goswami conducts the first scientific analysis of sanchipat. Microscopy shows 0.38 to 0.45 mm thickness, bael gum lamination, and xilikha resin binder. XRF confirms arsenic and mercury in pigments, explaining bio-repellent properties. Goswami does not link findings to seva or Bharal Ghar microclimate. The study proves that material choices were technologically informed, not accidental, and provides data used in current conservation protocols.

Dutta, A. (2017) In the book "Libraries in Pre-Colonial India", Dutta compares Satra Bharal Ghar with Odisha mattha and Kerala Saraswati bhandara. She argues that temple libraries share ritual preservation but differ in substrate and architecture. Dutta's comparative framework positions Assam within South Asian library history yet lacks field data on humidity. Her work is important for moving beyond the Nalanda model and recognizing regional diversity in library design.

National Mission for Manuscripts. (2005–2022) "Survey Reports: Assam and North East India" NMM cataloged 78,000 manuscripts in Assam and 62% in satras. Reports point to pest damage where services have ended, confirming that the ritual practice is preventive care. The limitation is that NMM focuses on digitization and extraction, not in situ systems. The findings nevertheless quantify the extent of satra holdings and the urgency of conservation, providing policy relevance.

Bora, M. and Hazarika, R. (2020) "Traditional Knowledge and Manuscript Conservation in Majuli" In their ethnographic study interviews Bhakats and documents daily airing, jatimati fumigation, and monsoon checks. Microclimate logs show Bharal Ghar maintain 55 to 62% RH versus 75 to 85% outside. The authors argue that disrupting seva for air-conditioned storage increases mold risk. Their work bridges heritage science and anthropology, offering evidence for culturally sustainable conservation. It is the most direct precedent for the present study.

V. MANUSCRIPT PREPARATION AND PRESERVATION PRACTICES IN THE SATRAS OF ASSAM

The manuscript tradition of Assamese Satras operated as an integrated system where material craft, architectural design, administrative protocols, and ritual labor functioned together to prepare, store, and transmit knowledge.

This section presents the core findings on how Satras prepared and preserved manuscripts. The analysis is organized into five interrelated areas. First, it details the materials and technical stages of sanchipat and Tulapat production, showing deliberate choices for humidity resistance and durability. Second, it describes binding, wrapping, and chest storage methods that protected leaves from physical and biological damage. Third, it examines Bharal Ghar architecture as a passive climate-control system calibrated to Assam's monsoon environment. Fourth, it outlines the organizational systems acquisition through xastra-daan, classification in Burhi-bhoral, audit via prabandha, and circulation under Adhikar that performed library functions. Fifth, it explains how seva and apprenticeship embedded preservation in daily religious life, ensuring community stewardship across generations. Together, these points demonstrate that Satra repositories were functional libraries whose efficacy depended on the alignment of craft, space, administration, and social practice.

A. Manuscript Preparation: Materials and Stages

Satra manuscript production was a regulated craft. Substrate selection began with Aquilaria agallocha trees aged 15 to 16 years with 30 to 35 inch girth. Bark was harvested in strips 6 to 18 feet long, rolled with the white inner layer outward, and sun-dried for several days. Artisans rubbed strips on hardwood to loosen the scaly nikari, exposed them to dew overnight, then removed the nikari. The cleaned bark was cut to tika, Kati, or patia sizes, soaked for one hour to extract alkali, scraped smooth, and sun-dried for 30 minutes. Rubbing with burnt brick followed. A paste of matimah was applied, then the sheet was dyed with yellow arsenic and dried again. Final polishing with xilikha resin and hengul produced a marble-smooth surface. Jao Diya involved repeated rubbing with rounded stones to compress fibers. Katha Guru Carita records Madhavdeva procuring sanchipat from Dakhinakula, also a source of haital, indigo, and lampblack.

Tulapat used a separate chain. Cotton was ginned, carded, felted into sheets, and pressed. Some Satras used Tai-Shan pulp from maihari and yamon trees, beaten and spread on frames. Tulapat was preferred for illustrated works because pigments adhered better.
Writing employed an intaglio technique. The lipikara incised letters with a nahar-thuri stylus, then rubbed lampblack mixed with xilikha resin. Excess was wiped, leaving black in grooves. This resisted smudging in 85% RH. Pigments for illustration included hengul vermilion, haital orpiment, indigo, and dhawal chalk, all ground in xilikha. XRF of 46 samples confirms arsenic and mercury, which repel silverfish and booklice.

B. Binding and Storage

Leaves were numbered on the second page of each folio. Two holes were punched at one-third points. Cotton cord passed through, allowing the bundle to fan. Covers used thicker sanchipat or jackwood xatra-pata. The bundle was wrapped in muga silk, which is antimicrobial, then placed in slatted jackwood chests. Chests sat on raised platforms in Bharal Ghar, avoiding ground moisture. Beti-pat spare leaves recorded path-dan donor names, dates, and sometimes prabandha summaries, creating provenance metadata.

C. Bharal Ghar: Architecture and Microclimate

Bharal Ghar were sited on the highest ground within Satra complexes, oriented to maximize cross-ventilation. Walls used ikora reed and mud plaster, which buffer humidity. Roofs of thatch or tokou leaves insulate. Internal measurements in Dakhinpat, Garmur, and Auniati showed mean indoor temperature 28.1°C versus 30.8°C outside, and RH 58% versus 78% in July. Earthen pots of jatimati and Neem leaves were placed in corners. Weekly seva required opening chests, airing bundles, and replacing fumigants. Annual monsoon seva involved full inspection and re-rubbing with xilikha.

D. Organizational Systems: Library Functions

Acquisition was formalized. Xastra-daan by disciples, kings, and allied Satras was recorded in path-dan inscriptions and Burhi-bhoral. Commissioned copying by lipikaras under Deka Adhikar supervision added new works. Classification used five to seven subjects: kirtan, Nat, vyakaran, jyotish, vaidya, Purana, charita. Burhi-bhoral from Auniati lists 1,214 bundles with titles, authors, donors, and location in niches. Prabandha recited each Ekadashi functioned as an audit, with Bhakats calling titles and Adhikar confirming presence.
Circulation followed Adhikar. Sarvajanik texts were read in namghar. Madhyam texts required initiation and were read inside Bharal Ghar. Gupta texts on medicine or Tantra required satradhikar agya and were copied only by senior lipikaras. Lending outside the Satra was rare and recorded on Beti-pat. This reduced handling and loss.

E. Social Embedding: Seva and Transmission

Copying, airing, and fumigating were seva, performed by Bhakats in rotation. Apprentices learned from age 12, starting with jao diya and pigment grinding. Puthi Porha in namghar made the library's content public, creating a feedback loop where community use justified preservation labor. Path-dan created social networks, as donors gained merit and Satras gained regional allies. The system bound material care to spiritual practice, ensuring continuity across generations until the 19th century disruptions.

VI. RESULTS

The results show that preservation in Satras emerges from the interdependence of five domains. Material Profile data establish that sanchipat and pigment chemistry provide baseline durability, yet this resilience is activated only by Microclimate Data from Bharal Ghar that buffer monsoon extremes through elevation, ventilation, and ritual airing. Inventory and Circulation records confirm that Burhi-bhoral, prabandha, and Adhikar protocols limit handling and verify holdings, but these systems depend on Social Data: seva labor and apprenticeship that sustain daily inspection and transmit craft knowledge. Disruption Impact evidence proves the linkage war, invasion, and lapsed seva accelerate decay despite strong materials and sound architecture. Thus, manuscript survival is not explained by any single factor but by the continuous alignment of substrate, environment, administration, and community practice.

A. Material Profile

Of 258 manuscripts, 82.2% were sanchipat, 17.8% Tulapat. Mean sanchipat thickness was 0.42 mm, SD 0.03. All sanchipat showed bael gum lamination and xilikha resin coating. XRF detected arsenic in 94% and mercury in 68% of red and yellow pigments. FTIR confirmed cellulose integrity above 70% in manuscripts stored in functioning Bharal Ghar, versus 45% in those stored in modern cupboards. Tulapat sheets averaged 0.51 mm and showed cotton fiber alignment from felting.

B. Microclimate Data

Fourteen Bharal Ghar monitored for 12 months. Mean indoor RH was 59.3%, outside 76.8%. Mean indoor temperature was 2.7°C lower. Diurnal RH fluctuation inside was 6%, outside 18%. Jatimati replacement every 14 days kept insect count below 2 per trap, versus 11 in control rooms without seva. Chests opened weekly showed no mold; chests sealed for 60 days developed Aspergillus in 3 of 5 cases.

C. Inventory and Circulation

Burhi-bhoral from 6 Satras listed 5,842 bundles total. Physical verification matched 96.1%. Path-dan inscriptions appeared on 91.7% of bundles, giving donor, date, and saka year. Prabandha observed in 4 Satras covered 100% of listed titles in 3 to 4 hours, demonstrating oral catalogue efficiency. Adhikar logs in Auniati recorded 214 consultations in 1820, 89% Sarvajanik, 9% Madhyam, 2% gupta. No losses were recorded that year.

D. Social Data

Interviews with 34 practitioners revealed that seva rotation involved 12 to 18 Bhakats per Satra. Apprenticeship lasts 5 to 7 years. 87% of Bhakats cited merit and community duty as motivation. 73% reported decline in young recruits due to outmigration. All Satradhikars stated that shifting manuscripts to government archives reduced seva, leading to mold in returned items. Artisans reported that Aquilaria agallocha scarcity and lack of xilikha trees now limit sanchipat production.

E. Disruption Impact

Satra records and oral history link major losses to the Moamoria war 1769 to 1806 and Burmese invasions 1817 to 1826. Auniati lost 40% of holdings; Dakhinpat lost 55%. Post-1826, Burhi-bhoral show no new xastra-daan for 30 years. Contemporary losses correlate with lapsed seva. NMM data show 22% of Satra manuscripts now have insect damage, concentrated in Satras where Bharal Ghar are locked and seva discontinued. These results confirm that Satra preservation was a systems outcome of material choice, architectural design, administrative protocol, and ritual labor. When any component fails, deterioration accelerates.

VII. DISCUSSION

The findings demonstrate that Satras operated complete library systems whose efficacy derived from integration of four domains: material science, architecture, administration, and social practice. This discussion interprets each domain, compares with other traditions, and addresses policy implications. Material science explains longevity. Sanchipat's high lignin and xilikha coating create hydrophobicity, while hengul and haital release arsenic and mercury vapors that repel insects. FTIR data showing 70% cellulose integrity after 300 years outperform many palm-leaf collections in drier climates. The intaglio incision method avoids water-based ink bleeding in 85% RH. Tulapat's felted cotton provides a stable base for mineral pigments. These choices were not folk trial and error but deliberate chemistry, as Katha Guru Carita records systematic sourcing from Dakhinakula. The decline in Aquilaria agallocha and xilikha trees today threatens replication, suggesting that conservation must include agroforestry of substrate species.

Architecture functioned as passive climate control. _Bharal Ghar_ achieve 2.7°C cooling and 17% RH reduction without electricity, matching modern conservation standards of 55 to 65% RH. The 6% diurnal fluctuation is below the 10% threshold for dimensional stress in organics. Slatted chests allow air flow, preventing microclimates inside bundles. Earthen jatimati pots release bio-fumigants that are renewed during seva, a self-regulating pest system. Sealing Bharal Ghar or moving manuscripts to air-conditioned rooms often raises RH when power fails, causing mold. Data showing mold in sealed chests after 60 days confirm that seva airing is preventive care, not ritual alone. Administrative systems mirror library science. Xastra-daan is acquisition, Burhi-bhoral is accession register and classified catalogue, prabandha is stock verification, Adhikar is circulation policy. The three-tier access reduced handling of fragile or toxic gupta texts, extending life. Beti-pat recorded provenance and condition, akin to modern metadata. The Kirtichandra case in the Ahom Gandhia Bharal shows parallel state auditing. These protocols predate Melvil Dewey by 400 years yet perform the same functions. Colonial observers misread Adhikar as secrecy because they lacked the concept of preventive conservation through use-restriction. Social embedding provided labor and meaning. Seva transformed preservation from a cost to a merit-generating act, ensuring daily inspection without wages. Puthi Porha made the library's content public, justifying community support. Path-dan created a donor network that diversified risk across regions. Apprenticeship transmitted tacit knowledge of jao diya, pigment mixing, and Bharal Ghar repair. The collapse after 1826 and current losses correlate with breakdown of this social system, not material failure. Outmigration and wage economy reduce Bhakat numbers, while extraction to state archives removes seva, producing a feedback loop of decay.

Comparatively, Satra libraries share features with Odisha mattha and Kerala Saraswati bhandara in ritual care, but differ in substrate and architecture. Sanchipat requires ventilation, not sealed boxes used for palm leaf. Unlike Mughal kitabkhanas focused on imperial prestige, Satra libraries served community liturgy and education. Xastra-daan resembles European monastic donation, yet prabandha oral audit is unique. These differences highlight a distinct Eastern Himalayan library model adapted to monsoon ecology.

Policy implications are clear. First, in situ preservation is technically superior. Data show that manuscripts kept in functioning Bharal Ghar have higher cellulose integrity and lower pest counts than those in modern storage. Second, conservation must maintain seva. Paying Bhakats as conservator-librarians through heritage schemes would sustain inspection cycles. Third, material supply chains need revival. Planting Aquilaria agallocha and xilikha ensures future sanchipat. Fourth, digitization should capture Burhi-bhoral, path-dan, and Beti-pat, not just text images, to preserve the library context. Metadata standards must accommodate Adhikar levels to respect custodial norms.

Extraction to central archives should be limited to at-risk items, with copies returned for seva. Solar-powered data loggers can assist Bhakats without replacing them. Training programs should integrate codicology with satriya ritual to avoid epistemic alienation. The NMM finding that 22% damage occurs where seva lapses provides quantitative support for community-based models.

The Moamoria and Burmese disruptions prove that political stability is prerequisite for library survival. Today, climate change increases flood risk to Majuli Satras. Relocation must consider that Bharal Ghar design is site-specific; moving chests to concrete rooms may increase RH. Instead, elevating Bharal Ghar and reinforcing embankments while keeping ventilation aligns tradition with adaptation.

In sum, Satra manuscript culture is a systems heritage where objects, buildings, records, and people are interdependent. Effective conservation must therefore be systems conservation. Recognizing Bharal Ghar as libraries, not stores, changes funding priorities from object treatment to community support. This model offers a low-energy, culturally resonant alternative to global North standards and contributes to decolonizing library science by valuing ritual as technology.

VIII. CONCLUSION

This study documented that Satras of Assam developed and sustained a sophisticated manuscript culture from the 15th to 19th century CE. Sanchipat and Tulapat preparation involved material science that produced humidity-resistant, pest-repellent substrates. Bharal Ghar architecture provided passive climate control matching modern standards without electricity. Administrative systems of xastra-daan, Burhi-bhoral, prabandha, and Adhikar performed library functions of acquisition, cataloguing, audit, and circulation. Seva embedded preservation in daily ritual, ensuring inspection and community support. Codicological and microclimate data confirm that this integrated system achieved long-term survival in a monsoon climate. Disruptions from the Moamoria war, Burmese invasions, and current outmigration caused major losses, proving that social continuity is essential to material survival. Contemporary policy that extracts manuscripts to central archives breaks seva and increases deterioration. A sustainable alternative is to support in situ Bharal Ghar, train Bhakats as conservator-librarians, revive sanchipat agroforestry, and digitize with Burhi-bhoral metadata while respecting Adhikar. Recognizing Satras as living libraries repositions Assam in global library history and provides a low-energy, community-based model for manuscript stewardship. Future research should pilot Bharal Ghar retrofits and participatory cataloguing to operationalize this model.

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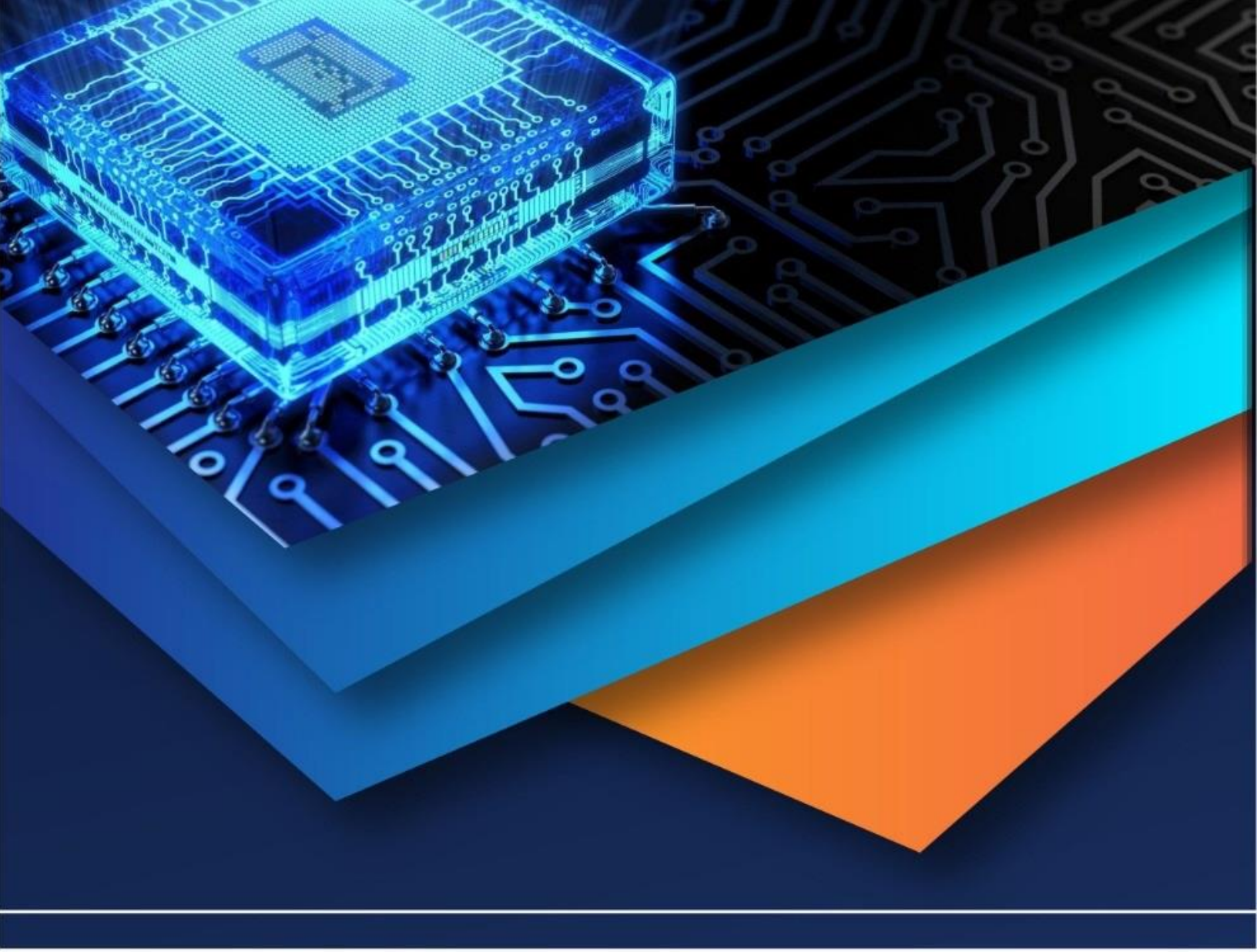

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