From Earth to Enlightenment
Materiality, Technology and Cultural Transmission of Terracruda Sculpture Across Buddhist Asia
edited by Mònica López-Prat, Emma Cantisani, Susan S. Bean

Technological and Spiritual Knowledge in Bhutanese Terracruda Sculpture

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Abstract This article examines the materials, techniques, and religious significance of Buddhist terracruda sculpture in Bhutan, where it continues to be practised as a living tradition. Based on fieldwork conducted in 2024, it documents clay selection, paste preparation, modelling, repair, and maintenance through workshop observations, temple visits, and interviews. It explores the integration of material practices, ritual requirements, and specialised knowledge transmitted through artists' lineages and formal training. The study offers comparative insights for interpreting archaeological terracruda sculpture across Buddhist Asia and informing its conservation.

Keywords Clay. Traditional knowledge. Buddhism. Sacred image-making. Material culture.

Summary 1 Introduction. – 2 Fieldwork and Methodology. – 3 Results. – 3.1 Clay Selection, Paste Preparation, and Material Knowledge. – 3.2 Layered Modelling, Structural Logic, and Sculptural Construction. – 3.3 Ritual Filling, Consecration, and the Sculpture as Sacred Body. – 3.4 Maintenance, Repair, Renewal, and Conservation Challenges. – 4 Discussion: Bhutan in Comparative Perspective. – 5 Conclusions: Towards a Metaphysical-Technological Understanding of Buddhist Terracruda Sculpture.

1 Introduction

This article is intended as a contribution to the understanding of the materials, techniques, and religious significance of terracruda (air-dried clay-based) sculpture in Buddhist Asia. We opted to focus on Bhutan, where the tradition remains dynamic, largely because of ongoing support from the government, the royal family, and the Central Monk Body. Here, terracruda sculpture is among the most highly valued forms of Buddhist sculptural

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expression. Its value does not reside solely in plasticity or local availability, but in its capacity to become a receptive, filled, and ritually activated image. The Bhutanese tradition is closely linked to terracruda sculptural practices across the Buddhist Himalayas and the Tibetan Plateau, including those found in Tibet, Nepal, and the Indian regions of Ladakh, Himachal Pradesh, and Sikkim.[1] These traditions developed within a broader religious context characterised by the prevalence of Vajrayāna Buddhism, in which material practices, ritual prescriptions, and the consecration of sacred images are closely interconnected (Bentor 1996).

Historical texts and regional narratives trace the origins of terracruda sculpture in Bhutan to King Songtsen Gampo (ca. 604-650), founder of the Tibetan empire, remembered for invigorating Buddhism in Tibet and across the Himalayan region, and constructing 108 temples, two of which are in present-day Bhutan (Rai 2009). According to tradition, he commissioned a terracruda image of Maitreya for Jampa Lhakhang in Bumthang (Phuntsho, Maki, Pakhoutova 2023). Later masters of Tibetan Buddhist teachings, including the eighth-century Padmasambhava (Guru Rinpoche), are also associated with the further development of the sculptural practice (Bean 2026, 61; Rai 2009; Yablonsky 2002).

Although the historical record of artistic exchanges between Bhutan and neighbouring Himalayan regions remains fragmentary, evidence suggests that such connections persisted over time. His Holiness the 9th Neyphug Trulku Rinpoche explained that, centuries ago Tibetan sculptors travelled to Neyphug Monastery in Paro to learn from local *jimzops*[2] ('clay sculptors') (9th Neyphug Trulku Rinpoche interview 2024; Rai 2009, 218). Lopon Dawa Penjor, head of the sculpture department at the National Institute for Zorig Chusum in Thimphu, mentioned recent assignments that Bhutanese sculptors accepted in Nepal and Sikkim (Lopon Dawa Penjor interview 2024).

The tradition emerges into documented history in the seventeenth century, when the Zhabdrung Ngawang Namgyal, founder of modern Bhutan, came from Tibet. The Zhabdrung consolidated military and political authority through the construction of fortress-monasteries *(dzongs),* which served as centres of administration and Buddhist practice. As part of this programme, he invited Trulku Dzing, a Tibetan master sculptor skilled in both terracruda and metal sculpture, who produced terracruda images, some of which have survived to the present (Bean 2026, 54-7; Rai 2009; Yablonsky 2002) **[fig. 1]**. From the seventeenth century onwards, terracruda sculpture flourished, and oral traditions developed around successive generations of masters and apprentices, preserving the memory of outstanding sculptors despite the absence of signed works.

1 Bentor 1994; Harris 2005; Heath, Russell, Zucker 1992; Lo Bue 1981; Luczanits 2003; 2004; von Schroeder 2001; Slusser 1996; 2001.

2 Bhutanese terms in Dzongkha, the national language of Bhutan, are written in Latin characters to reflect their approximate pronunciation. Their meanings and corresponding spellings in Tibetan script, represented using the Wylie transliteration system, are provided in the glossary at the end of the article.



Figure 1 Life-size portrait of Zhabdrung Ngawang Namgyal attributed to Trulku Dzing, mid 17th c., Tango Lhakhang, Thimphu. Photograph courtesy of the Honolulu Museum of Art. Photograph: Ephraim Jose, with permission from the Department of Culture and Dzongkha Development

In the twenty-first century, the practice of terracruda sculpture in Bhutan remains notably vigorous. This continuity is closely linked to twentieth-century cultural policy. In the 1960s, during the reign of King Jigme Dorji Wangchuck (r. 1952-72), Bhutan initiated a programme of modernisation through five-year plans, including the construction of schools, hospitals, and national infrastructure. At the same time, the government also supported traditional culture as a means of strengthening national unity and maintaining a distinctively Bhutanese identity with Buddhist heritage at its core (Bean 2026, 77).

According to *jimzop* Lopon Dawa Penjor at National Institute for Zorig Chusum, *jimzops,* both *lamas (*spiritual masters) and lay sculptors, acquired their skills through apprenticeships. The main centre of the practice was in western Bhutan at Neyphug, near Paro. In the 1960s, Lopon (master) Palden, from Neyphug, was selected to devise a programme that would complement workshop apprenticeship with formal instruction for interested and talented students from diverse backgrounds (Rai 2009, 220). To support the spread of *jimzo* (clay sculpture) across the country, this programme was initiated in eastern Bhutan, in Bumdeling, Trashiyangtse District. Students acquired both the technical skills and the iconographic knowledge required to make new statues and repair old ones. With the establishment of formal art schools in the mid-twentieth century, access to training opened to applicants of all backgrounds, including women, who demonstrated aptitude for clay modelling.

The practice has evolved over centuries, but the pace of change increased during the period of official modernization from the mid-twentieth century onwards. As Meenakshi Rai observed, there are noticeable stylistic differences between images made in the seventeenth century and those made today: earlier images are described as having raised shoulders, whereas many twentieth-century images have drooping shoulders and a more human appearance, partly because of modern technologies, tools, and broader exposure to modern art (Rai 2009). Bhutanese terracruda sculpture is not a static survival, but a living practice that continues to adapt.

2 Fieldwork and Methodology

Fieldwork was conducted in Bhutan in November and December 2024 with the aim of documenting technical knowledge related to the production, maintenance, and repair of terracruda sculpture. The research combined visits to workshops, temples, art schools, museum collections, and private devotional spaces, as well as conversations and semi-structured interviews with sculptors, monks, institutional representatives, and other cultural heritage practitioners. The documentation methods included direct observation of sculptural processes, video and photographic recording, interviews, collaborative discussions with practitioners, and macroscopic observations of materials. Particular attention was paid to clay selection, paste preparation, and construction process, including hollow structure, armatures, repair techniques, and the role of sacred substances in the modelling process.

The study should be understood as preliminary field documentation rather than a full ethnographic or analytical characterisation of terracruda sculpture in Bhutan. The observations derive from specific workshops, temples, and practitioners visited during a limited period. Although some material samples of current clays, fibres, and other materials were collected, their systematic

laboratory analysis remains ongoing. For this reason, references to clay types, fibres, binders, pigments, sacred additives, and repair materials are based on practitioners' accounts and macroscopic observation. Ethical and methodological caution was essential throughout the fieldwork. Many of the sculptures documented are consecrated images that remain in worship. The research therefore followed a collaborative approach, including information and observations from sculptors and religious practitioners as holders of technical, metaphysical, and historical knowledge.

The fieldwork began in Thimphu with meetings at the Royal Textile Academy, which facilitated access to artists, temples, and institutional contacts. Interviews and workshop visits were conducted with several *jimzops*, including Lopon Karma and his team at the clay sculpture workshop of the Department of Culture and Dzongkha Development **[fig. 2]**; teachers and students at the National Institute for Zorig Chusum; the workshops of Lopon Nyim Dorji, Tshedar Dorji, and Tshewang Dorji in Thimphu; Dawa Gyeltsen and Namgay Wangdi in Punakha; and Singye Wangchuk at Khewang Lhakhang. Additional discussions were held with monastic and institutional interlocutors, including Lopon Namgay from the Central Monk Body and His Holiness the 9th Neyphug Trulku Rinpoche. These conversations provided information on both technical procedures and the ritual, historical, and devotional frameworks within which clay sculpture is produced and maintained.



Figure 2 Lopon Karma and his team at their workshop. Photograph: López-Prat 2024

The fieldwork also included visits to temples and monasteries where terracruda sculptures are maintained by caretakers. These included Changangkha Lhakhang, Punakha Dzong, Khewang Lhakhang, Chimi Lhakhang, Gangtey Monastery, Jampa Lhakhang, Kurjey Lhakhang, Kenchogsum Lhakhang, Tamshing Lhakhang, Neyphug Monastery **[fig. 3]**, Kyichu Lhakhang, as well as private chapels in Thimphu, Punakha, Bumthang, and Paro. The visits allowed direct visual documentation, but photography was permitted only in a few instances, as photographing venerated images is generally restricted out of respect for their sacred character.



Figure 3 The Buddhas of the past, present and future at Neyphug Monastery. Photograph: López-Prat 2024, with permission of His Holiness the 9th Neyphug Trulku Rinpoche

3 Results

3.1 Clay Selection, Paste Preparation, and Material Knowledge

In Bhutan, *jimzops* – makers of *jimzo*, clay sculpture – create terracruda images ranging from miniature devotional figures to larger-than-life temple sculptures. Small images of the Buddha, Buddhist masters, and deities may be produced for domestic shrines, whereas larger images intended for temples (*lhakhangs*), fortified administrative and monastic complexes (*dzongs*), and monasteries (*gonpas*) are generally made in situ because of their weight and the intrinsic fragility of the medium.

Several closely related terms are used for images made from clay: *jimku* 'clay image or sacred statue', *saku* 'earthen image/sacred statue', and *menku* 'medicinal image'. Together these terms emphasise the spiritual and physical potency of substances comprising the terracruda medium. Terracruda is not conceived merely as earth shaped into form, but as a receptive material capable of incorporating substances that enhance an image's efficacy.

A recurring theme across the interviews was the importance of selecting appropriate clays for sculpture. *Jimzops* repeatedly identified the clay from an active source in Gedu, southern Bhutan, as the most valued for making terracruda images. The clay was described as very fine-grained, plastic, and suitable for producing smooth surfaces. Referred to as *kudam* (*ku* 'sacred image' and *dam* 'mud, clay'), this clay was said to occur in several colours, including white, yellow, and black. The white clay was generally described as the best for statues, especially for finishing layers, because of its fine texture and the presence of shiny mineral particles. Several practitioners explained that the best clay is taken not from the upper or lower part of a deposit, but from the middle, where the material retains a suitable degree of moisture and plasticity. The clay should feel slightly gummy when rubbed

between the fingers, a quality compared by one *jimzop* to chewing gum and by another to butter. Such assessments show that clay quality is recognised empirically through touch, texture, plasticity, moisture, and behaviour during preparation. This clay is principally used for the finishing layer, because its refined texture enables modelling subtle detail and creating a smooth compressed surface suitable to receive pigments and binders for painting.

Jimzops assess clays according to colour, texture, plasticity, shrinkage, cracking behaviour, and intended use in the modelling process. The availability of good clay is a growing concern. *Jimzops* noted that sources formerly used in the Thimphu and Neyphug areas have become difficult to access because of land control, construction, ownership issues, or the depletion of deposits. Gedu clay is now widely used, but practitioners also stated that this source is becoming increasingly limited. Many sculptors have only limited access to high-quality clays similar to that from Gedu which can be found in other locales. In Punakha **[fig. 4]**, red, black, or yellow alluvial clays serve well for the inner structural layers and *jimzops* reserve refined clay, like that from Gedu, for the finishing layer. Clay from Bumthang was also said to be used, but more prone to cracking, while Trongsa clay, while workable, was described by some sculptors as less satisfactory. Neyphug clay, yellowish or black, was described as medium quality and available only in small quantities. These assessments show that clays from different locales vary significantly in performance and modelling capacities. Sometimes *jimzops* produce refined clay by a laborious process of boiling, separating, and sieving alluvial clay.



Figure 4 Namgay Wangdi, jimzop, indicating the clay extraction site used for terracruda sculpture on the banks of the Mo Chhu River in Punakha, Bhutan. Prayer flags mark the sacred character of the site. Photograph: López-Prat 2024

Clay preparation aims to manage particle size, water content, plasticity, and workability by pounding to fine grit, and removing extraneous matter. In Punakha, the brothers Dawa Gyeltsen and Namgay Wangdi, both *jimzops*, explained that the collected clay was soaked for several days in water, cleaned by removing stones and coarse inclusions, and dried and sieved before use. At Neyphug, practitioners were said to grind, sieve, and sometimes boil clay in order to improve its texture. One sculptor noted that, if necessary, *jindam*, the finest finishing clay, can be prepared by boiling the clay for a day.

Once the clay is prepared, it is ready to be mixed with other substances. Several types of clay paste are prepared, each associated with a different stage of modelling. The principal substance added is plant fibre. Three categories of clay blends were repeatedly documented. *Thendam* (pull clay) was described as a firmer clay blend used for the first stage, building the

main volume of the sculpture. *Thendam* contains more plant fibre than other layers, and less water. Several *jimzops* gave an approximate proportion of 250 g of paper fibre per 1 kg of clay (1:4). This clay must be firm enough to hold its shape and strong enough to form the initial body of the sculpture. *Kongdam* (shaping clay) is used to model the main contours of the figure. Kongdam contains less plant fibre than *thendam* and more water, making it softer and more suitable for modelling the contours of faces, bodies, and garments. One sculptor gave an approximate proportion of around 200 g of plant fibre per kilogram of clay. *Jindam* (finishing clay) was described as creating a densely compact, smooth, polished surface. Jindam contains less fibre, around 150 g of fibre per kilogram of clay, and more water, making it very soft and appropriate for refining surfaces and details.

The fibres of the *Daphne bholua* shrub, which grows at high altitudes, have long been an essential component in the preparation of clay for sculpture. Until a few decades ago, *jimzops* had to process the Daphne bark themselves, laboriously separating the inner fibres, and processing them by hand. Since the Ministry of Trade and Industry established the Jungshi Handmade Paper Factory in Thimphu in 1990, sculpture workshops have been able to purchase sheets of *desho*, which are soaked in water until the fibres separate and can be incorporated into the clay mixture. The paper fibres improve cohesion, reduce cracking, and increase the workability of the paste. At the *desho* paper factory in Thimphu, it was reported that *jimzops* often purchase offcuts of high-quality paper for this purpose. Several practitioners noted, however, that *desho* has become expensive and harder to obtain. For this reason, cotton fibre is often used, either as a substitute or in the inner layers with *desho* reserved for the finishing layer. Sculptors pointed out that cotton is cheaper and readily available, but it does not produce the same quality of finish as *desho*. Tshedar Dorji explained that cotton does not polish as well. In recent years, some workshops have acquired mixing machines that blend clay, paper pulp, and other additives more evenly and reduce the labour required to prepare a homogeneous sculptural paste.

The incorporation of potent and sacred substances into the clay was also regularly reported, including *mendrup* (consecrated medicinal herbs prepared by *lamas),* holy water, powders of gold, ground precious stones, soil or substances from sacred Buddhist sites, and fragments of garments or cremation ashes of Buddhist masters. In one private temple in Thimphu, the patron stated that small pieces of cloth associated with Guru Rinpoche were powdered and mixed into the clay used for the statues. The *jimzops* Dawa Gyeltsen and Namgay Wangdi accompanied us to a natural source in Punakha, where a medicinal substance or *mendrup* emerges from the earth. According to their account, Drugpa Kunley, a revered 15th-century *lama* known as the *Divine Madman,* passed through and blessed the place, thereby sacralising the deposit. This naturally occurring earthen medicine is believed to regenerate itself when placed inside the modelling clay and was described not only as a sacred additive for sculpture, but also as a precious medicinal substance beneficial for all people.

The primary value of these additions, as described by practitioners and religious interlocutors, lies in their capacity to transmit blessing, sacred presence, and spiritual potency. Several interlocutors stressed that clay is especially powerful because, unlike other materials, it can receive and incorporate many kinds of potent substances. The sculptor Lopon Nyim Dorji explained that clay is precious because it comes from the earth, and the earth

contains medicines, minerals, and powerful substances. He said that this idea is associated particularly with Bhutan, which is also known as Menjong, 'the land of medicine', where earth naturally contains 'medicine'. During an interview with His Holiness the 9th Neyphug Trulku, he pointed out that the advantage of clay above other materials for sculpting is precisely that herbs, holy waters, soils from Buddhist sites, relics, and other blessed materials can be incorporated. This makes the sculptures not merely representations but spiritually charged bodies. The air-dried (unfired) condition of terracruda sculpture is not simply a technical prescription. It is part of the material and metaphysical logic of the object, enabling the sculpture to preserve the power of the substances mixed into the clay.

3.2 Layered Modelling, Structural Logic, and Sculptural Construction

In Bhutan, terracruda sculptures are commonly made hollow through a staged, layered process. The sequence documented during fieldwork reveals a coherent technical system that begins with the construction of the base and internal structure, followed by the coil-based modelling of the torso, the addition of the limbs and head, the application of successive layers of materially distinct modelling pastes, the careful management of the drying process, and, finally, during consecration, completing the filling of the image's hollow core with sacred texts and objects.

The scale of the image determines important structural decisions. Because of the weight of the medium, larger-than-life figures for temples, dzongs, and monasteries are usually made in situ and attached to the floor or wall behind. The hollow interior reduces weight, lessens the difficulty of drying thick air-dried clay without cracking or flaking, and creates an internal space for the insertion of sacred contents. Smaller portable images for private devotional spaces and temples are provided with a similar interior space. Several sculptors explained that the centre of the statue must remain open for the *zung* (sacred objects) and the *sogshing* (life-stick) that is placed inside the image **[fig. 5]**. Hollowness is both a technical and ritual requirement for sacred images of all sizes, but the structural solutions differ according to intended location, portability and ritual use.



Figure 5 Jimzop Singye Wangchuk working on the sculptural programme at Khewang Lhakhang. Right: rear view of an upright terracruda sculpture showing the sealed access opening used to insert the zung and other sacred contents. Photograph: López-Prat 2024

For colossal sculptures, the pedestal base is commonly built with unfired clay bricks mixed with cotton fibre. Wooden poles, bamboo or steel rods were documented as primary supports, depending on the scale, location and period of production. Older methods were repeatedly described as relying on bamboo and wood, sometimes cypress, padded with rice straw, and secured with plant-fibre ropes, such as coconut-fibre. Several artists stressed that older support systems were organic. In old statues, practitioners observed wooden sticks, straw padding, ropes made from plant fibres, bamboo elements, and clay mixed with *desho*. Tshedar Dorji, who has restored old sculptures, noted that, in some cases, the whole body of a sculpture could be made of straw around a central wooden element, with clay applied over it. At Phajoding Monastery, old statues were described as being attached to the wall at the back with pieces of wood. At Khewang Lhakhang, old figures were said to be anchored to the back wall and floor. The orientation of the wood is important: the top of the tree must correspond to the top of the sculpture. Bamboo sticks wrapped with thread were formerly used for fingers and delicate projecting elements. In more recent practice, copper wire is preferred because it readily forms desired shapes and angles, is commercially available, does not rust, and is not attacked by insects. Steel rods and metal armatures are also common. Wire mesh was documented only in one case, in the workshop of Tshedar Dorji, a self-taught *jimzop*, where it was used as a supporting structure over which clay was applied **[fig. 6]**.



Figure 6 Smaller-than-life-size terracruda sculptures at different stages of production outside Tshedar Dorji's workshop. Left: In the foreground, an early stage in which thendam is applied over metal-wire supports to form the hollow internal structure. Right: a mesh armature, a construction method documented only at this workshop. Photograph: López-Prat 2024

The modelling itself begins with *thendam*. At the Department of Culture and Dzongkha Development's *jimzo* workshop, Namgay Lendhup described the process as beginning with thick coils of *thendam* progressively built upwards around an internal armature to establish the hollow body of the sculpture. Depending on the scale of the image, the armature is made from metal rods or wire. To avoid sagging and distortion, the initial clay layer must be allowed to dry sufficiently before further modelling layers are applied. Practitioners repeatedly stressed the importance of waiting until the clay reaches the correct degree of dryness. Artificial drying may occasionally be accelerated by placing fire near the sculpture, but *jimzops* warned that excessive heat can damage the work.

The second stage involves *kongdam* (shaping clay), a softer paste that enables the sculptor to establish the main contours, iconographic features, and attributes. The final surface is prepared with *jindam* (finishing clay), the finest mixture, which is used for smoothing, compressing, polishing, and refining details **[fig. 7]**. Some practitioners explained that smaller sculptures may not require all three clay types; they may be made with only *thendam* and *jindam*.



Figure 7 Models illustrating the successive stages in the modelling of a small portable sculpture, stored in a classroom at the National Institute for Zorig Chusum. Photograph: López-Prat 2024

Movable images, large altar figures, and monumental temple sculptures share technical principles but require different structural strategies. A large principal image on an altar may require seven or eight months, or even a year, to complete, partly because of the drying intervals between stages **[fig. 8]**. Sculptural scale also affects the selection of supports, the thickness of layers, and the planning of openings for inserting sacred contents.

Surface preparation forms the transition between modelling and painting or gilding. Practitioners described the use of fine clay, *desho*, animal glue, and, in more recent practice, Fevicol® – a polyvinyl acetate (PVA) adhesive manufactured in India. A white ground for painting may be commercial white tempera, applied before painting. Some sculptors do the painting themselves using powdered pigments mixed with animal glue. Tshedar Dorji, for example, paints his own sculptures, preparing animal glue from cow skin as a binder, and selecting pigments according to the budget set by the patron – natural pigments are more expensive than synthetic commercial pigments, and require labour-intensive preparation. Currently, painting is frequently entrusted to professional painters.

Moulds are also used especially for ornaments and faces. *Kongdam* is pressed into the mould and removed while still slightly plastic. Vegetable oil, imported from India, may be applied inside the mould to prevent the clay from adhering to the mould. Once attached to the figure, the moulded component is refined with applications of *jindam*. Moulds may be made from

dried clay, plaster of Paris, M-seal® (an epoxy resin made in India), or sealing wax derived from lac insects (*Kerria lacca* or *Kerria chinensis*) **[fig. 9]**.



Figure 8 New chapel under construction at Khewang Lhakhang, with larger-than-life terracruda sculptures observed by our guide and Bhutanese translator, Chandra Kumar. Phobjikha Valley, Bhutan. Photograph: López-Prat 2024



Figure 9 Examples of moulds, casts, and sculptures at different stages of modelling, stored outside Dawa Gyeltsen's workshop in Punakha. Photograph: López-Prat 2024

3.3 Ritual Filling, Consecration, and the Sculpture as Sacred Body

In Bhutan as elsewhere across the Buddhist Himalayas and Tibetan Plateau, the production of sacred images is closely connected to Vajrayāna Buddhist traditions, in which material preparation, ritual prescriptions, and consecration are integral to the creation of sacred images (Bentor 1996). Terracruda sculptures are conceived not merely as representations of deities or revered masters, but as sacred bodies capable of manifesting their presence through ritual consecration. A *lama* is engaged to perform the *rabney* (consecration) which completes the transformation of a figure into a sacred image. During the creation of the image, the clay mixtures used in modelling are typically augmented with potent substances, such as water or earth from holy places, fibres from the robe of a revered *lama,* and powders of precious gems. Terracruda sculptures and many bronze images are provided with hollow torsos to receive *zung* ('sacred contents') including relics of holy men, small sacred images, sacred texts, and medicinal substances during the consecration ceremony (Reedy 1991; Bentor 1994; 2003). In Bhutan, as in Nepal and Tibet, a central *sogshing* (life-stick) is inserted into terracruda images as a central axis, like a spinal column. Several *jimzops* mentioned that the cutting and orientation of the wood for the *sogshing* are significant. The person cutting the wood should be ritually qualified and may be required to observe restrictions, such as avoiding meat. One interlocutor also noted that the person should not have recently experienced a family death. Juniper and cypress, especially those trees growing at higher elevations, are often preferred, as they are understood to combine spiritual and technical efficacy. They have strong wood and their aromatic properties repel insects and harbour medicinal properties. The *sogshing* should preserve the cardinal orientation of the original tree: its upper end should be the one that was closest to the top of the tree and the side that faces east should be oriented towards the face of the image. The *sogshing* is segmented, to represent head, neck, heart and navel, and may be inscribed with mantras according to the deity represented. The parts and placement of the life-stick suggest that the filled image is understood as a constructed sacred body with internal anatomy. Lopon Dawa Penjor of the National Institute for Zorig Chusum explained that rolls of mantras written on paper may be placed in specific areas corresponding to parts of the body such as stomach, intestines, or internal organs, giving life to the sculpture. His Holiness the 9th Neyphug Trulku Rinpoche pointed out that sacred contents may correspond to Body, Speech, and Mind and extend through the body from head to lower torso, coinciding with subtle bodily centres or *chakras*. He also described the insertion of hair, nails, and other elements as making a consecrated image "better than me", a phrase that powerfully expresses the transformation of the sculpture into a sacred presence that exceeds ordinary material representation.

3.4 Maintenance, Repair, Renewal, and Conservation Challenges

Maintenance, repair, and repainting form an integral part of the life cycle of a terracruda sculpture in Bhutan. Repair is not merely a technical intervention on damaged material; it is devotional care that prolongs the ritual life of the image, accrues merit to those who sponsor and carry out the work, and

also enhances the transmission of sculptural knowledge embedded in the sculpture from earlier generations of *jimzops* to active practitioners.

When a consecrated statue is damaged, ritual action may precede technical repair. Lopon Sangay explained that before a damaged sculpture is restored, a *lama* may perform a ritual. If possible, the *zung* is left inside the image. The internal sacred contents are not normally removed unless necessary; their preservation is essential to the sculpture's enduring spiritual power.

Common forms of deterioration include crumbling, cracking (especially at structurally vulnerable points such as the waist and neck), broken limbs, structural instability, and surface alteration caused by rodents, previous repair or repainting, and practices of ritual veneration. Several *jimzops* identified rats as a major threat, especially because they may attack organic materials such as paper, fibres, and sacred contents. Namgay Wangdi stated that cracking at the waist can be normal, partly because the hollow space for the *zung* constitutes a structural weakness. Lopon Nyim Dorji noted that wire mesh is now sometimes placed around the *zung* to protect it from rats. Some artists observed that insects are repelled by *desho*, enabling the survival of very old mantra scrolls found inside damaged sculptures.

Repair techniques documented during the fieldwork involve a combination of traditional and modern materials. The interview with the sculptor Tshedar Dorji provided a particularly clear description of this practice. In the case of a broken arm, the damaged area may first be enlarged to allow the insertion of a metal pin or frame that reconnects and reinforces the fragments. The old clay surface is then softened by applying wet *desho* paper. Fevicol® is applied to the broken surfaces before the detached fragment is reattached. Finally, fresh clay mixed with *desho* or cotton fibre is added to fill losses and restore the original contours. The surfaces may also be scored to improve the adhesion of the repair material. These practices demonstrate the importance of moisture control: the old clay must be softened enough to receive the repair material, but not so much that the original structure is destabilised.

For cracks or small holes, the damaged area may be moistened and filled directly with fresh clay. Some *jimzops* continue to prefer clay mixed with animal glue, but most interlocutors referred to the current use of Fevicol®, which has largely replaced animal glue in many repair contexts. Crack repair was directly observed at Khewang Lhakhang, where the *jimzop* Singye Wangchuk applied a thick layer of Fevicol® into the crack using a wooden spatula and then pressed in a stiff clay mixture with the same tool. Once the crack had been filled, the surface was refined with *jindam* **[fig. 10]**. This sequence shows that repairs are layered in a manner comparable to the original construction process: a stronger fill is applied first, followed by a finer finishing clay. Adhesive may also be applied at the interface between the old and new clay or used to attach moulded decorative elements, such as jewellery.

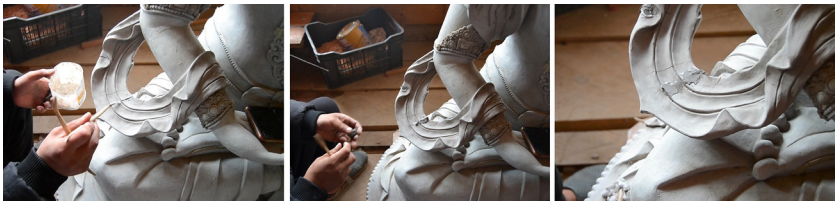


Figure 10 Sequence showing the repair of a crack that developed during drying, carried out by Singye Wangchuk while working on the sculptural programme at Khewang Lhakhang. Photograph: López-Prat 2024

Several practitioners described the use of holy water, medicinal herbs, precious stones, and other sacred powders in clay repairs. Lopon Sangay explained that for repairing broken arms he uses water mixed with herbs and precious substances collected from Buddhist places. This indicates that repair can reactivate or reinforce the spiritual energy of the image, rather than merely replacing lost fabric.

Repainting and surface renewal are central to the life cycle of Bhutanese terracruda sculpture. A monk at Jampa Lhakhang stated that the statues cannot be restored, but their colours can be refreshed. This distinction suggests that, within ritual contexts, intervention on the surface may be acceptable when understood as devotional care, while deeper structural alteration may be restricted. The caretaker monk of Kyichu Lhakhang told us that a habitual practice is the removal of dust with a dry soft brush.

Repair and maintenance preserve the ritual life of images and the relationship between sacred images, caretakers, *jimzops*, monastic communities and patrons, who gain merit for sponsoring the repairs and enable the faithful to continue venerating a sacred image. The work of repairing transmits knowledge between practitioners and their forebears by allowing sculptors to observe older construction systems. If a sculpture is considered damaged beyond repair, its clay may be reused in the making of a new statue. This practice is especially significant, as it suggests another form of sacred material and metaphysical continuity.

4 Discussion: Bhutan in Comparative Perspective

The evidence documented during the 2024 fieldwork provides a rare opportunity to examine terracruda sculpture as a living Buddhist artistic tradition. Its comparative value does not lie in treating present-day practice in Bhutan as a direct model for earlier air-dried clay-based sculpture elsewhere in Asia. Rather, it offers a framework for identifying technical and metaphysical principles that may help formulate more precise questions when interpreting archaeological terracruda sculpture from Central Asia, Afghanistan, Pakistan, Tibet, the Himalayas, and China.

One of the most significant comparative insights is the existence of a technical grammar in Bhutan. Terracruda sculpture combines internal structural systems, the selective use of different clays, the differentiated incorporation of fibres according to layer, the addition of organic and mineral substances, sequential modelling, controlled drying, surface finishing, and polychromy. These operations do not function as isolated choices, but as interdependent components of an integrated making process in which certain materials also possess metaphysical efficacy. Particularly suggestive are the parallels between the composite substances documented in contemporary Bhutanese practice and the complex lists of organic and mineral additives prescribed in earlier technical texts (Varma 1970, 20-2). These parallels raise the possibility that some contemporary preparations represent condensed formulations of a formerly broader repertoire of ingredients. While these parallels cannot be taken as evidence of direct historical continuity, they provide a productive framework for investigating whether some elements of the making process may once have fulfilled specific technological functions that, over time, became invested with metaphysical significance, this latter dimension being the one that has persisted in contemporary practice.

At the same time, the practice in Bhutan presents characteristic features that should not be generalised to other traditions. The geographical distribution of incorporating substantial quantities of paper fibre into the modelling pastes remains uncertain. The practice appears to facilitate the coiling technique through which sculptures with large hollow interiors can be constructed. The presence of an internal cavity is essential to the ritual prescriptions, providing space for the insertion of the *sogshing* and other sacred elements that contribute to the transformation of the sculpture into a consecrated body within the Vajrayāna Buddhist tradition.

The practice in Bhutan also encourages a reassessment of the material status of terracruda sculpture. In several archaeological contexts, air-dried clay sculpture has been interpreted as a comparatively rapid means of producing images or as a pragmatic response to the limited availability of materials regarded as more durable or prestigious (Luczanits 2004, 11 n. 19; Olivieri, Filigenzi 2018; Schmidt 2023). The Bhutanese evidence suggests other reasons for choosing terracruda as a medium. Clay may be deliberately selected as a preferred medium because of its plasticity, its capacity to receive different fibres and additives and, above all, its ability both to incorporate sacred substances into the modelling pastes and to form a space for contents through which the image acquires spiritual potency. The production of these sculptures therefore depends on highly specialised technical and ritual knowledge, careful planning, skilled craftsmanship, and an extended sequence of construction, drying, finishing, filling, and consecration.

The unfired condition is integral to this technological and metaphysical logic. Firing would transform or destroy many of the organic, medicinal, and sacred substances incorporated into the modelling pastes. Remaining unfired allows the clay to retain its material receptivity while preserving the substances embedded within it. The air-dried state should therefore be understood as a deliberate condition that supports the ritual efficacy of the image.

The Bhutanese evidence further challenges a strict separation between original production and later repair or restoration. The life of a sculpture encompasses construction, filling, consecration, devotional use, damage, repair, repainting, and periodic renewal, as well as processes for replacement of irreparably damaged images. Conservation and renewal are therefore not necessarily external interventions, but interventions that may form part of the continuing material and devotional life of the image.

Changes in training have also transformed the transmission of knowledge. The expansion of *jimzo* instruction through formal art schools has broadened access to the tradition beyond its earlier monastic and lay workshop settings, enabling students from across the country, including women, to acquire technical skills that were formerly transmitted within more restricted contexts. This institutional shift indicates that the social mechanisms through which knowledge is transmitted can change while other fundamental requirements remain in place. The ritual status of the image continues to depend on the appropriate selection and preparation of materials, the insertion of sacred contents, consecration, and continued devotional use.

Comparison with other regions must therefore remain cautious. The practice of terracruda sculpture in Bhutan is closely connected to broader Himalayan and Tibetan traditions, and although it cannot serve as a template for Gandharan, Central Asian, or Chinese traditions, Bhutanese practices nevertheless provide a living example of how air-dried clay can be deliberately selected as a preferred medium for Buddhist sculpture and

how its production may depend on highly specialised knowledge integrating material selection, technical processes, ritual efficacy, spiritual potency, lineage transmission, repair practices, and sacred presence within a single technological and metaphysical system. Its principal comparative contribution is to demonstrate the range of technical, metaphysical, and ritual factors that should be considered when interpreting archaeological terracruda sculpture across Asia.

5 Conclusions: Towards a Metaphysical-Technological Understanding of Buddhist Terracruda Sculpture

The present-day vitality of terracruda sculpture in Bhutan offers a rare opportunity to document material procedures, technical terminology, ritual prescriptions, and conservation-restoration practices within a single living tradition. The Bhutanese case therefore allows terracruda sculpture to be examined as both a technological and devotional system, shaped by religious authority, patronage, and the transmission of knowledge between experienced practitioners and apprentices or students.

The 2024 fieldwork showed that the making of a terracruda image involves a highly specialised sequence of operations: the selection and preparation of clays; the differentiated incorporation of fibres and other substances according to the function of each layer; the construction of internal supports; the application and controlled drying of successive layers; and the finishing and painting of the surface. These procedures do not constitute a series of isolated technical decisions but form an integrated system of production.

Technical production and metaphysical efficacy are inseparable in the creation of terracruda sacred images. Clay is valued not only for its plasticity or availability, but for its capacity to incorporate medicinal, spiritually potent and precious materials, and to enclose sacred contents. The design of the individual sculpture or broader sculptural programme, its construction, filling, and consecration are therefore interdependent stages in the transformation of clay and additives into a ritually efficacious image. The air-dried condition forms part of this logic, as it preserves both the incorporated substances and the receptivity of the clay body as a potentially vital material.

Bhutanese practices also provide a valuable comparative framework for interpreting archaeological evidence. Its relevance lies not in treating present-day practice as a direct model for earlier traditions, but in helping to formulate more precise questions about technical procedures and to recognise the possible role of metaphysical considerations in the sculptural process.

At the same time, the practice is evolving. Formal training has expanded the practice of *jimzo* by opening instruction to a broader range of students who might not previously have had access to traditional apprenticeships. Synthetic adhesives and modern armatures are altering production and repair practices. New materials and production techniques, especially moulded plaster-of-Paris images and foundry-cast metal images, are gaining popularity as more durable and often less expensive alternatives to terracruda sculpture. These developments reflect adaptation to changing social, economic, and material conditions rather than a simple rupture with tradition. Nevertheless, they raise important questions concerning the transmission of knowledge, ritual authority, material choice, and conservation of tradition.

Terracruda sculpture in Bhutan must be understood as the product of intertwined and inseparable technological and metaphysical processes involving materials, skills, spiritually potent substances, devotional intention, and consecration. This complex perspective is essential not only for documenting the living tradition and the knowledge embedded within it, but also for advancing the interpretation and conservation of Buddhist terracruda sculpture across Asia.

Glossary

Dzongkha term	English meaning	Wylie transliteration
Desho	Paper made from inner bark of the *Daphne bholua* shrub	dri shog
Dzong	Fortress monastery	rdzong
Gonpa	Monastery	dgon pa
Jimku	Sacred image or statue made of clay	’jim sku
Jimzo	Art or practice of clay sculpture	’jim bzo
Jimzop	Clay sculptor	’jim bzo pa
Jindam	Finishing clay	’jim ’dam
Kongdam	Shaping clay	kong ’dam
Kudam	Sacred image made with clay/mud	sku ’dra
Lama	Spiritual master	bla ma
Lhakhang	Temple	lha khang
Mendrup	Consecrated medicinal herbs/substances	sman sgrub
Menku	Medicinal image	sman sku
Menjong	The land of medicine	sman ljongs
Rabney	Consecration	rab gnas
Saku	Earthen image/sacred statue	sa sku
Sogshing	Life-stick	srog shing
Thendam	Pull clay	then ’dam
Zung	Dhāraṇīs (sacred formulas) and other sacred elements inserted into the internal cavities of sculptures as part of their ritual preparation and consecration	gzungs

Note: The Dzongkha terms *jim* and *dam* refer to clay or mud, with overlapping meanings that do not necessarily correspond to the distinctions between these materials in English.

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