

# EMBODIED TECHNOLOGY: THE HYBRID CULTURAL MATERIALITY OF THE TEMPAYAN IN HULU SEMBAKUNG

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**Abstract** *Technology is not merely an instrumental device but an embodied configuration of materiality, movement, and meaning sedimented within objects. Focusing on the tempayan in the Hulu Sembakung community along the Indonesia-Malaysia border, this study examines how a ritual artifact functions within a cross-border riverine lifeworld that unsettles fixed territorial governance. Methodologically, the research employs digital ethnography and digital spatial observation, tracing ongoing interactions among community members through Facebook, where prior ethnographic relations have been sustained and extended. The findings demonstrate that river morphology enables continuous mobility that exceeds state territorial boundaries, while the tempayan embodies hybrid cultural materiality shaped by historical encounters between Chinese ceramics and local ritual systems. Through processes of cultural recontextualization, the object becomes detached from its original production logic and reconstituted as a vessel of kinship, obligation, and intergenerational continuity. Its circulation across waterways and state borders generates friction with state materiality, particularly attempts to stabilize sovereignty through fixed territorial administration. These findings demonstrate that embodied technologies such as the tempayan actively mediate relations between mobility, community, and state power, revealing how borderland materiality destabilizes territorial sovereignty and generates alternative moral geographies.*

## **Keyword:**

*Technology, enframing, materiality, hybrid culture, borderlands*

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## **1. Introduction**

The natural morphology of riverine landscapes shapes movement pathways that frequently unsettle the static territorial boundaries of the modern state. This condition is evident in the Hulu Sembakung community, located along the Indonesia–Malaysia border and connected through transnational river systems. The Pensiangan River, originating in Malaysia and flowing into the Kuala Sungai Sembakung in Indonesia, cannot be physically contained, rendering strict control of population movement nearly impossible. In this context, cross-border mobility is not an exception but an everyday condition, and local residents continuously develop strategies to navigate administrative boundaries

imposed by the state.

River morphology in this context should not be understood solely as a geographical feature. Rather, it opens an analytical pathway into broader questions of materiality and technology. In the same way that rivers traverse political boundaries, particular material objects also move across territorial borders, sustaining social formations that extend beyond the reach of state sovereignty. The *tempayan*, large ceramic jars circulated within ritual exchanges, operate as mobile material vessels of memory, kinship, and obligation. The movement of waterways and the circulation of ritual artifacts are conceptually analogous. Each unsettles rigid territorial imaginaries and reveals the limits of state efforts to demarcate, categorize, and regulate social life. Viewed from this perspective, river morphology and material objects constitute interconnected infrastructures of circulation through which sovereignty, belonging, and exchange are continually shaped and negotiated.

Residents of Hulu Sembakung, therefore, devise diverse tactics to navigate boundaries that, in state regulations, are positioned as sacred and impermeable. The natural morphology supporting cross-border mobility not only facilitates physical circulation but also sustains ritual practices and cultural interactions. Through the ritual exchange of *tempayan*, the community forges kinship ties while simultaneously constructing social boundaries that operate beyond, and often in disregard of, state territorial limits.

Exchange practices among the Hulu Sembakung community follow principles of gifting as articulated by Mauss (2002). Exchanged objects carry sacred value, and their ownership is transmitted across generations. These sacred objects primarily include *tempayan*, *gongs*, and antique beads known as *bungkas*. Their presence plays a crucial role in maintaining social integration within the community. In this sense, material objects are not passive commodities but active mediators of obligation and reciprocity. While the state border seeks to define legal limits of circulation, ritual objects sustain an alternative moral geography that binds people across space. The border may interrupt formal trade, yet it cannot easily sever the ritualized obligations embedded in sacred objects.

Administratively, the Sembakung River is located within Nunukan Regency, North Kalimantan. The river forms from two main tributaries: the Sedalir River, flowing from Tau Lumbis in Indonesia, and the Pensiangan River, originating in Sabah, Malaysia. Their confluence shapes the settlement cluster of Labang Village, widely recognized as a borderland community. In addition, several large rivers, including the Sumalumung, Saludan, Samalad, Sumentobol, and Sulon Rivers, flow into the Sembakung, creating a dense hydrological network that structures mobility, settlement patterns, and exchange practices. This network operates as a natural infrastructure that precedes and exceeds state territorial demarcation.

According to local accounts, the ancestors of the Hulu Sembakung people once lived in communal stilt houses called *baloi aduat*. Each *baloi aduat* consisted of several *lamin* units, each occupied by a household. Within a *lamin*, there were no internal partitions, so nuclear families slept in a shared space, although each maintained its own kitchen. As new families formed, the number of *lamin* expanded. A single *baloi aduat* thus functioned as a settlement unit equivalent to a village, known locally as *sampangun*. When the number of *lamin* became too large to manage, a new *baloi aduat* was established, marking the formation of a new *sampangun*. Settlement expansion was therefore a material and architectural process rooted in kinship growth rather than administrative planning.

In 1970, the government introduced a policy aimed at transforming communal *baloi aduat* dwellings into single household homes. Although houses were allocated individually, many residents continued to inhabit them with multiple households. This policy illustrates an attempt at spatial simplification, in which complex communal living arrangements were reframed into administratively legible domestic units. Around 1982, another policy targeted upstream river communities whose members had to row for days to reach Mansalong to obtain food and clothing. Under this policy, the government distributed Johnson outboard engines with 40 HP capacity to upstream villages and 15 HP engines to downstream villages. However, only four units of the 40 HP engines were available, far fewer than the 28 upstream villages in need. Budgetary limitations led the government to propose consolidating upstream villages into four groups to facilitate shared use of the engines. These groupings later became Tau Lumbis, Panas, Sumentobol, and Labang Villages.

The engine distribution policy was not merely a technical intervention in transportation. It

constituted a technological reframing of riverine mobility. By standardizing engine capacity and reorganizing villages into administratively manageable clusters, the state sought to render dispersed river communities calculable and governable. Mobility that had previously been shaped by river morphology and kinship networks was partially restructured through mechanical infrastructure and bureaucratic categorization. In this sense, village consolidation was both an infrastructural and epistemic intervention that attempted to align local movement patterns with state rationality.

Generally, residents of Hulu Sembakung rely on swidden agriculture to meet subsistence needs, cultivating cassava, vegetables, fruits, and upland rice. Men also enter the forest to collect agarwood from *Gonystylus macrophyllus* or hunt wildlife such as hornbills of the Bucerotidae family and pangolins known scientifically as *Manis javanicus* as supplementary sources of income. Some residents serve as guides during Border Security Troop patrols in Labang, further embedding local mobility within state security infrastructures.

The main economic activities of Hulu Sembakung residents include swidden agriculture, hunting and fishing, agarwood collection, and trade. A smaller number have begun cultivating long-term commodities such as rubber trees, with harvests sold in Tenom, Malaysia. Other forest resources, such as rattan from *Calamus trachycoleus*, are crafted into household tools. Women weave mats known as *mamatik* and *buduy*, as well as baskets for carrying garden produce. Men produce rattan tools such as *kalong* for carrying firewood and *bikut* for agarwood collection. These material practices demonstrate that economic life is deeply embedded in ecological knowledge and artisanal skill rather than exclusively oriented toward market exchange.

The smallest economic unit is the household, often inhabited by more than one nuclear family. Food needs are met collectively, and domestic tasks such as gathering firewood are undertaken jointly to sustain a shared hearth. Consumption patterns are communal, structured around shared meals. Nevertheless, each family head retains relative autonomy over supplementary income derived from agarwood collection and trade. This dual structure of collective subsistence and partial economic autonomy reflects a social organization that cannot be fully reduced to either market logic or state administrative categories.

Taken together, the Hulu Sembakung case reveals how river morphology, ritual materiality, and infrastructural intervention intersect in shaping borderland life. Natural waterways and sacred objects both sustain forms of circulation that exceed territorial sovereignty, while state technologies attempt to reconfigure that circulation into administratively governable patterns. Rather than positioning borderland life as either resistant to or absorbed by state sovereignty, this article argues that *tempayan* circulation reveals overlapping ontological orders in which sovereignty, ritual, and materiality continuously negotiate their boundaries.

## 2. Literature Review

The *tempayan* occupies a central place in the life cycle of the Hulu Sembakung community in North Kalimantan and extends to the Pensiangan region in Sabah. Although the jar does not originate from indigenous production systems, it has undergone processes of cultural appropriation and resignification that transform it beyond a utilitarian object into a moral and relational entity. To understand this transformation, it is necessary to situate the *tempayan* at the intersection of material technology, river morphology, and borderland mobility.

The riverine morphology of Hulu Sembakung is not merely a geographical background but a structuring condition of circulation. River systems enable the movement of bodies, commodities, and ritual objects across what the state demarcates as rigid territorial boundaries. Here lies the conceptual bridge: just as river morphology structures pathways of movement, the *tempayan* as material technology structures pathways of social relation. Both natural morphology and artifactual mobility operate as infrastructures of connection that destabilize static territorial imaginaries. Thus, the technological and the geographical are not separate domains but parallel modalities of mediation.

Within Martin Heidegger's phenomenology of technology, technology is understood as a mode of revealing rather than a mere instrument. As interpreted by Risse (2019), technology shapes how humans dwell, perceive, and relate to the world. In this sense, the *tempayan* can be read as an embodied

technology: it reveals and organises kinship, ritual obligation, and moral hierarchy. Its presence in mortuary exchanges, bridewealth transactions, and inter-village relations configures social temporality and authority. Technology here is not mechanical but ontological; it structures ways of being-in-the-world.

Moreover, the *tempayan* undergoes a process of enframing as a hybrid technology. This interpretation resonates with Donna Haraway's (1991) notion of the cyborg, understood not as a literal ontological claim but as a heuristic metaphor for boundary transgression. The *tempayan* collapses categorical distinctions: indigenous/foreign, sacred/commodity, legal/illegal, national/transnational. As a cultural material, it connects inland communities with broader cosmopolitan networks through trade routes, ritual exchanges, and cross-border mobility. The cyborg metaphor highlights hybridity as relational assemblage rather than mechanical-human fusion. In this sense, hybridity describes a condition of borderland materiality shaped through entanglements between Chinese ceramic production, riverine trade networks, ritual economies, and state territorial regimes (Haraway, 1991).

The mobility of the *tempayan* across trade routes and ritual exchanges also invites engagement with Arjun Appadurai's (1986) framework in *The Social Life of Things*. Appadurai argues that commodities have "social lives," moving through regimes of value that transform their meaning across contexts. The Chinese ceramic jar entering Bornean trade networks does not retain a singular identity; its value shifts from commodity to heirloom, from trade good to sacred object. What matters analytically is not its origin but its trajectory. The *tempayan* accumulates authority through circulation, exchange, and ritual embedding.

At the same time, Bruno Latour and Steve Woolgar's (1986) notion of fact-construction remains relevant. A fact is not inherent in an object but emerges from processes that detach it from its production context and stabilize it through practice. The transformation of Chinese ceramic material into sacred *tempayan* may thus be understood as a particular concrete, a singular fact endowed with authority through social construction. In line with this perspective, de Abreu (2013) refers to such processes as particular signification, whereby an object acquires specific meaning within a social context regardless of its production history. Yet, while Latour and Woolgar (1986) emphasize stabilization, the present case equally concerns movement across regimes of meaning. The *tempayan* is not merely stabilized; it is continually recontextualized across borders.

Borderland theory further situates this material hybridity within territorial politics. In *Between Frontiers* (2010), Noboru Ishikawa conceptualizes borders as liminal spaces where state governmentality and local agency intersect. Drawing on Victor Turner's notion of liminality (Turner, 2009; Ishikawa, 2010), border zones become arenas in which normative structures are suspended and renegotiated. In such contexts, sovereignty is not absolute but continuously enacted through everyday practice.

Ishikawa (2010) further cites Joel Migdal's (2004a) concept of the mental map as a semiotic problem rooted in national territorial imagination. Official cartography constructs areas beyond state boundaries as empty or external spaces. Yet empirical realities in Indonesia's borderlands reveal the porous and historically contingent nature of such demarcations. This aligns with Willem van Schendel and Itty Abraham's (2005) argument that borders are overlapping spaces of legal and illegal flows. What the state defines as illegal may represent rational livelihood strategies from a community perspective. Similarly, Brenda Chalfin (2010) demonstrates that smuggling practices reveal the selective and fragmentary operation of neoliberal sovereignty.

The broader critique of territorial simplification resonates with Katherine Verdery (1996), James C. Scott (1998), and Migdal (2004a), who argue that modern statecraft depends upon legibility and spatial abstraction. The mental map positions the state as a stable and bounded entity, a colonial inheritance reproduced through formal education and cartographic representation. In practice, however, borderland realities are fluid, layered, and relational.

Here, Nancy Fraser's (1990) notion of subaltern counterpublics becomes crucial. Cross-border practices in Hulu Sembakung constitute alternative discursive arenas in which citizenship, legality, and sovereignty are negotiated beyond the singular national public sphere. Rather than reproducing myths of sovereignty and simplification (Scott, 1998), the border zone reveals scalar knowledge formed

through lived cross-border experience. The movements of people and objects create socially negotiated spaces of nationhood that exist alongside, rather than within, formal state institutions (Fraser, 1990).

In this context, the mobility of the *tempayan* parallels river morphology itself. Rivers carve channels according to ecological logic rather than political design. Likewise, the social life of the *tempayan* follows relational pathways that exceed national containment. Natural morphology and material artifact circulation thus form a conceptual parallel: both destabilize the mental map of the modern state (Verdery, 1996; Scott, 1998; Migdal, 2004b). Therefore, the conceptual arc of this study, spanning technology, morphology, borderland, and sovereignty, is not sequential but relational. The *tempayan* as embodied technology structures moral life; its social life reveals transformations of value across regimes; its hybridity unsettles categorical boundaries; and its circulation through riverine borderlands exposes the negotiated character of territorial sovereignty. Taken together, these perspectives frame the *tempayan* not merely as a cultural artifact but as an embodied technology whose circulation across riverine borderlands reveals the entanglement of materiality, mobility, and territorial sovereignty.

### 3. Method

This study employs a digital ethnographic approach focusing on the Hulu Sembakung community. The author's relationship with the community was initially established through prior fieldwork and has since been sustained through social media, particularly Facebook, which functions as a primary site of interaction and communication. The author observes posts and cross-border exchanges on Facebook among community members previously involved in earlier ethnographic research.

The continuity of these relationships enables an extension of fieldwork into digitally mediated space, where everyday practices, narratives, and ritual references unfold in real time. Within an interpretive framework inspired by Clifford Geertz (1973), this study adopts a thick description approach to interpret not only observable interactions but also the meanings that actors attribute to them. Digital traces, such as images, comments, ritual announcements, and exchanges, are treated as ethnographic material requiring contextual and temporal interpretation.

Methodologically, the research draws on multi-sited ethnography as formulated by George E. Marcus (1995), particularly the strategy of "following the thing." Rather than confining analysis to a single location, the study traces the circulation of the *tempayan* across generational, spatial, and digital contexts. This approach aligns with Appadurai's (1986) conception of the social life of things, which emphasizes the movement of objects through shifting regimes of value. By following the object's circulation rather than privileging a single site or actor, the study positions digital space as one of several arenas in which value, meaning, and social relations are produced and transformed. This methodological orientation enables the research to capture the dynamic interplay between material objects, mobility, and borderland social life.

### 4. Result and Discussion

The *tempayan* is a material art artifact rooted in Chinese ceramic traditions, particularly porcelain. Referring to Finlay in *The Pilgrim Art: The Culture of Porcelain in World History* (1998), porcelain is understood as a "central symbol of Chinese culture," an artifact that accompanied the mobility of Chinese people and reached diverse regions where cross-cultural interactions occurred. Chinese porcelain captivated communities across the world and became an important medium for both material and symbolic exchange. As noted by Orlina and Stroeber (2016), Chinese ceramics, gold, and silver were distributed by merchants via the Maritime Silk Route from the late Tang Dynasty (8th–10th centuries) to the Nusantara region as part of exchanges for natural commodities. In this context, local communities were not merely passive recipients but actively adopted, adapted, and repositioned the craftsmanship and its functions within their own cultural repertoire.

Within these interaction trajectories, the *tempayan* manifests as an artifact whose meanings are translated according to local socio-cultural contexts. In the Agabag community of inland North Kalimantan, the *tempayan* is not merely a utilitarian object but a material that performs cohesive functions within collective life. Inland communities of North Kalimantan and into Sarawak have long

known the production of earthenware and melting bowls used for gold panning. Unlike ceramic production traditions in royal or aristocratic patronage contexts, local pottery was not oriented toward producing “high-quality ceramics” in the elitist aesthetic sense. Therefore, Chinese artisans did not intensively transfer glazing techniques to the Kalimantan communities. This difference in production orientation underscores that the *tempayan* does not appear as a direct continuation of Chinese porcelain traditions but as an artifact rearticulated within the local material ecology.

Finlay (1998) notes that as early as the Han period, Chinese traders sailed to Kalimantan to exchange ceramics and other commodities for pearls, gold, iron, camphor, hornbills, agarwood, and bird’s nests, which held high value in elite consumption. In this study, the distribution map cited from *The Pilgrim Art: Porcelain Culture in World History* (Finlay, 1998) is presented not merely as a historical illustration but as an analytical device to show how porcelain culture circulated and networked across Asia. This network enabled the *tempayan* to traverse space and time, while also opening a space for the transformation of meaning and function when the artifact encountered the social practices of borderland communities, such as those in Hulu Sembakung.



Figure 1. Map of the distribution of Chinese porcelain material (Source: Finlay, 1998)

In northern Borneo, the pottery industry began to develop more systematically in the mid-nineteenth century, coinciding with the arrival of Chinese immigrant artisans in Sarawak who established commercial-scale workshops to meet local market demand. Many of the skilled potters who later migrated to Kalimantan were of Teochew origin, primarily from the Fujian (Fukkien) region of China. Prior to their migration, they had acquired expertise through apprenticeship and work in kilns in their home regions before sailing to what they called the Southern Seas (Nanyang) in pursuit of economic opportunity and social mobility.

Some of these artisans settled permanently in Sarawak and established family-based ceramic enterprises. Craft knowledge was subsequently transmitted genealogically, from fathers to sons or nephews, and sustained across generations. This mode of transmission illustrates how technological expertise not only circulated geographically but also became institutionalized within kinship structures. To this day, most ceramic producers in Sarawak are of Teochew descent and can be traced to the early pioneers of the industry. This continuity highlights that the materiality of ceramics in northern Borneo is the outcome of historical networks of migration, technology transfer, and local adaptation, rather than a static expression of a singular cultural tradition.



Figure 2. Ngee Pottery Factory, Kuching, Sarawak, Malaysia  
(Source: [www.facebook.com/BorneoOracle/](http://www.facebook.com/BorneoOracle/))

Pottery production in Sarawak demonstrates significant local adaptation, both in terms of materials used and its social functions. The materials employed in pottery-making were adjusted to locally available resources, resulting in technical modifications that differ from classical Chinese porcelain. Functionally, local pottery was not positioned as prestigious artifacts, as antique Chinese porcelain was in its place of origin, but rather as utilitarian objects that carried cultural and symbolic value in everyday life.

Although locally produced jars were not perceived as equivalent to high-value imported antique jars, the existence of a local pottery industry carved out its own market niche by offering products at more accessible prices. As noted on the Borneo Oracle website, it is common to find jars and decorative plates inside longhouses; although not antique imports, they were still highly valued and interpreted by their owners as markers of status, memory, and social relationships. Therefore, the value of the *tempayan* is determined not solely by age or provenance, but by the cultural signification processes attached to it.

Locally manufactured *tempayan*, including smaller jars used among the Agabag community, are commonly incorporated into dowries. In addition, new jars also serve as containers for storing and consuming local alcoholic beverages, such as *tapai*. While the symbolic value of local *tempayan* is not as elevated as Chinese porcelain within Chinese cultural traditions, its use remains within a similar functional spectrum, namely as drinking vessels. In this context, the *tempayan* is not understood merely as a material object but as an artifact whose meaning is continually reinterpreted according to local social needs and cultural practices.

The exchange of *tempayan* constitutes a mandatory ritual practice among the Agabag community. Embedded in the human life cycle, the exchange accompanies key social moments such as birth, marriage, and death, marking the jar as a sacred object within the continuity of social life. A *tempayan* may be transferred between individuals within the same kinship network, signifying enduring lineage relations. Through this circulation, the jar functions not merely as a material artifact but as a relational medium linking individuals across generations within the Agabag social order (Hastuti et al., 2025).

In ritual and cosmological dimensions, the *tempayan* attains a far more sacred significance when used as a burial container among the Agabag people. Couderc and Sillander (2012), in *Ancestors in Bornean Societies: Death, Transformation, and Social Eternity*, explain that heirloom jars function as sacred vessels representing deep respect for ancestors. In this framework, death is not understood as an end but as a process of transformation toward social eternity. Accordingly, funeral rites do not conclude with the placement of the deceased into the jar but continue through a series of complex ritual proceedings. These rituals include the sacrifice of buffaloes, the presentation of heirloom jars, hunted animals, and specific monetary offerings, delivered from the male lineage to the female lineage. This sequence of practices emphasizes that the *tempayan* functions as a material node connecting inter-lineage relations, ancestral cosmology, and ritual economy, while also demonstrating how the meanings of this hybrid artifact are continually reproduced through the social practices of the Agabag community.

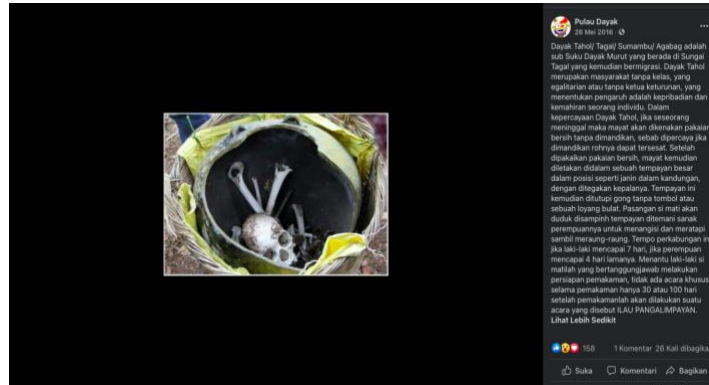


Figure 3. Human skull within a *tempayan*  
(Source: [www.facebook.com/PulauDayak/](http://www.facebook.com/PulauDayak/))

Within the cross-regional commodity exchange network, the Tidung people play a key role as mediators, enabling *tempayan* to reach the Agabag communities in the interior, which geographically lack direct access to coastal areas. Historically, the Tidung have dominated the coastal regions of Tarakan and Nunukan, positioning them strategically as intermediaries between maritime and inland trade. Okushima (2003), in *Tidung Ethnic Background: Investigation of the Coastal Rulers of North East Kalimantan*, notes that the Tidung inherited territories long situated within “contested zones” of overlapping sovereignties, ranging from British influence via the Sultanate of Sulu to Dutch colonial expansion from Kutai. Within this historical dynamic, the Tidung not only survived but consolidated their position as central actors in the trade and distribution networks supplying interior communities, including the Agabag.

This intermediary role renders the *tempayan* more than a transferable commodity; it becomes part of a chain of social, economic, and symbolic relations. The *tempayan* emerges as an artifact shaped by trajectories of power, trade, and cross-border mobility. In this context, as noted in the conceptual framework, the *tempayan* can be understood as an embodied technology within a Heideggerian phenomenological perspective. Drawing on Risse’s (2019) interpretation, Heideggerian technology is not merely a set of tools but a process of enframing (*Gestell*), a mode of revealing that orders beings as standing-reserve (*Bestand*), rendering them available within a calculative logic. In this sense, the circulation of the *tempayan* through trade networks may indeed operate within enframing, insofar as it becomes integrated into systems of exchange and distribution.

However, the ritual and ancestral deployment of the *tempayan* does not constitute a simple resistance to *Gestell*, nor does it imply an escape from enframing. Rather, it demonstrates that even within the historical destining of enframing, alternative modes of revealing may emerge situationally through ritual practice. In mercantile circulation, the *tempayan* appears as standing-reserve (*Bestand*), ordered within calculative exchange. In ritual life, however, it is disclosed as a bearer of relational obligation and ancestral continuity. The difference lies not in the object’s essence, but in the horizon of disclosure through which it becomes meaningful. The tension, therefore, is not between enframing and its negation, but between distinct ontological orientations that situate the same material object within different horizons of meaning. This does not suggest that the ritual domain exists outside the historical destining of enframing; rather, it indicates that within modern technological ordering, alternative horizons of disclosure may still persist and be activated through embodied practice.

Building on this ontological distinction, the *tempayan* functions not only as a material intermediary but also as an agent that shapes the lifeways of the communities that engage with it. Within circuits of trade, the *tempayan* may appear as standing-reserve, rendered exchangeable within calculative economic systems. Yet in ritual and ancestral contexts, its mode of revealing shifts, disclosing relational and cosmological dimensions that exceed instrumental availability. As Heidegger (1977) argues, technology is a way of revealing, a mode through which the world becomes disclosed to human beings. In this sense, the attachment of the Hulu Sembakung community to the *tempayan* generates not only specific cultural practices but also ethical orientations and forms of responsibility grounded in

relational world-making.

Thus, the *tempayan* as a component of material culture has become profoundly embodied in the life cycle of the Hulu Sembakung communities, spanning North Kalimantan to Pensiangan, Sabah, Malaysia. Although the *tempayan* does not originate from indigenous materials or knowledge, and is not merely understood as a technical device, it emerges as a Heideggerian technology: an artifact that “shapes the way we live and how we perceive fellow humans and other entities in the world” (Risse, 2019), while simultaneously acquiring moral status within the social order of borderland communities.

Since the fourteenth century, the circulation of forest commodities mediated by the Tidung has linked Hulu Sembakung communities to wider Chinese trade networks. Through these riverine exchanges, the *tempayan* entered local social worlds not merely as an imported container but as a durable and prestigious artifact embedded in long-distance commercial relations. Its subsequent incorporation into ritual life thus emerged from historically layered processes of exchange rather than from isolated local production. In mercantile exchange, it appears within what Heidegger (1977) terms enframing (*Gestell*), where beings are ordered as resources within a calculative logic. In Hulu Sembakung ritual life, however, the *tempayan* is not primarily revealed as standing-reserve but as a relational and cosmological object embedded in ancestral continuity. The difference, therefore, does not lie in a change of essence, but in the mode of revealing through which the object becomes meaningful.

Unlike the rigid, territorial logic of modern state administrative boundaries, the Hulu Sembakung's way of life, intertwined with the moral status of the *tempayan*, manifests as bricolage (Lévi-Strauss in Haraway, 1991). In practice, residents creatively reinterpret material technology to meet their cultural needs. The *tempayan* is not positioned solely as a utilitarian artifact but as a sacred object serving as a medium for social cohesion and as a binding element in inter-individual and intergenerational relations.

In this sense, the *tempayan* participates in the logic of enframing within broader trade and state networks, yet within local ritual practice it is disclosed through relational and cosmological horizons that exceed purely instrumental ordering. Drawing on Haraway's (1991) concept of the hybrid creature in the cyborg framework as a medium of liberation, the *tempayan* integrates the Hulu Sembakung interior communities into cosmopolitan networks without severing their local rootedness. The borderland population thus emerges as a hybrid social entity, living amidst riverine routes, state boundaries, and interwoven regimes of meaning.

Interestingly, this condition originates from a mechanism that, from a Marxian perspective, may be understood as commodity fetishism in exchange relations. In this process, forest commodities are traded for foreign objects that initially carry no cultural significance for the local community. However, humans, both individually and collectively, possess the capacity to enact what may be described as a rhetoric of indeterminacy. While de Abreu (2013) identifies this logic within the temporal medium of threat, the present study interprets it instead as a form of creative indeterminacy emerging from the encounter between local communities and foreign material technology.

It was never imagined by the *tempayan* makers or by the cultural collective in which this artifact was produced that the object would one day function as a burial vessel containing an intact human body without cremation, positioned in a crouching posture to fit its material confines. Similarly, the *tempayan* plays a crucial role for young couples in Hulu Sembakung to legitimize sexual relations in accordance with customary law. Thus, ceramics that initially emerged as material technology within Chinese trade networks have become inherent to the life cycle of the community, embodied in practices of birth, marriage, and death, ultimately shaping a cohesive cultural system.

The movements of Hulu Sembakung communities, legalized through contextual agreements in the sense of the “*licit*” as described by Schendel and Abraham (2005), generate alternative discursive spaces in the enactment of nationhood and statehood. These spaces are not fully governed by the state's legal-formal logic but instead operate through situational forms of social negotiation. In her critique of Habermas's normative ideal of the public sphere, Fraser (1990) argues that inequality persists when only a singular and homogeneous public sphere is recognized. In the borderland context, the discursive practices of Hulu Sembakung residents reveal the presence of multiple publics that function as matters of concern rather than merely matters of fact.

To explicate the causal logic underlying the movement of the *tempayan*, it is necessary to

distinguish between “spirit” and “matter” as they are reified in the artifact. Its movement does not merely produce dyadic causal relations but also entails indeterminacy and contingency. Within Peircean semiotics, as interpreted by Keane (2003), this dynamic corresponds to Thirdness, the mediating dimension through which signs generate open-ended and normative relations. Through Thirdness, the *tempayan* becomes not simply an object but a socially generative sign that shapes obligation, action, and subjectivity across contexts.

Within the framework of Peircean semiotics, as interpreted by Keane (2003), this dimension is conceptualized as Thirdness, a realm of possibility that enables actions and meanings that cannot be fully predicted. Accordingly, a strictly Saussurean semiology, which privileges the sign–signified relation, remains insufficient for grasping the dynamics of materiality in Hulu Sembakung. By contrast, Peirce’s triadic model offers a more adequate analytical framework for addressing the relations among sign, object, and interpretant, while also opening a spectrum of possible actions generated through material movement.

Drawing on Haraway (1991), this condition may be interpreted through the figure of the cyborg, not as a literal fusion of organism and machine, but as an analytical metaphor for the dissolution of rigid boundaries between nature, technology, and politics. In Hulu Sembakung, humans, rivers, sacred jars, and state infrastructures constitute an entangled assemblage. In this sense, the cyborg designates a condition of situated hybridity rather than a celebratory transcendence of structure. Conversely, rigid forms of social stratification risk constraining the relational configurations that have historically sustained borderland life.

The movement of the *tempayan* material artifact does not merely produce dyadic causal relations but also entails indeterminacy and contingency. Within Peircean semiotics, as interpreted by Keane (2003), this corresponds to Thirdness, the mediating dimension through which signs generate open-ended and normative relations. Thirdness exceeds dyadic causality, allowing the *tempayan* to function not merely as object but as a socially generative sign that shapes action, obligation, and subjectivity across contexts. Thirdness encompasses the logic of signification, revealing the inherent vulnerability of material artifacts to causal relations, such that the *tempayan* is not reducible to a static object but is a socially active and processual entity.

Signification does not occur solely within the interpretive consciousness of subjects; it is also anchored in the material affordances of the artifact itself, including its durability, mobility, weight, and aesthetic distinction. These material properties enable the *tempayan* to circulate across networks and to sustain emergent semiotic relations, thereby transforming it from a traded commodity into a ritual mediator. Within a triadic semiotic framework, the connection between sign and object does not terminate at the levels of iconicity and indexicality. Rather, the presence of Thirdness introduces symbolic and ontological dimensions that explain how meaning operates through an open-ended and prospective causal logic.

Thirdness mediates the relationship between sign and object into the realms of potentiality and futurity. While iconicity is limited to resemblance without certainty of actuality, and indexicality is tied to past occurrences, Thirdness provides a space in which the vulnerability of causal relations can be continuously negotiated. In this sense, semiotic ideology is not merely about signs but also concerns agentive subjects and their relations to world objects, producing what Peirce describes as a general law governing possible instances. This general law manifests through quali-signs inherent in the particular material, bundled with other qualities.

The *tempayan* becomes a particular material bundled with nodes of customary rituals that traverse rivers and national borders. Keane (2003) refers to this condition as bundling, aligning with Kopytoff’s concept of conditions of possibility and Appadurai’s notion of the biography of things. In this context, the *tempayan* acquires a sensuous quality, as the quali-signs associated with it continually shift in relative value, utility, and relevance across social contexts.

This sensuous quality is also evident in the presence of the state in border regions, which produces distinctive materialities through a combination of regional development projects framed as “isolated” and nationalistic imaginaries of Indonesian-ness. Noboru Ishikawa (2010), drawing on Migdal, describes this construction as a mental map that shapes how the state perceives the border as a liminal space. Such

imaginaries generate perceptions of territorial vulnerability to annexation and frame borderlands as empty zones requiring securitization. Furthermore, representations of Indonesia's frontiers in cartographic form, often depicted in white as critiqued by Migdal (2004b), constitute a semiotic problem embedded in formal geographical education and, over time, shape the subconscious dimensions of citizenship in interpreting national boundaries.

The concept of the state image serves to represent the integration of state, society, and territory as a unified sovereign entity. In borderland contexts, governments possess a strategic interest in establishing clear demarcation lines to assert territorial sovereignty, both domestically and internationally, including for diplomatic recognition. Consequently, the state image relies on representations of homogeneity in which governing institutions, populations, and national interests appear seamlessly aligned. Yet such representations generate epistemological problems, particularly when they shape or appropriate social science methodologies. Schendel and Abraham (2005) describe this condition as methodological territorialism, a framework that confines borderland analysis within embedded statism and the territorial trap, as though the state were the only legitimate frame of reference.

The legal frameworks applied in border regions generally derive from central authorities and often reproduce colonial-era logics. Despite its political independence, Indonesia has not entirely disengaged from this legacy. Migdal (2004a) describes these inherited cognitive constructions as mental maps, instilled from primary education through geographical instruction, in which national territory is visualized as a coherent entity bounded by land and sea, while areas beyond it appear as blank spaces. Within the framework of formal law, peripheral territories, particularly borderlands, are thus reduced to symbols of sovereignty that must be guarded, monitored, and controlled.

Borders become sacralized spaces because they intersect directly with sovereignty contestations. In *The Art of Not Being Governed*, Scott (2009) demonstrates how the state seeks to assert power not only over territorial spaces but also over the inhabitants of peripheral regions, given the political value at stake, especially in relation to other states. The state, in this framework, is often constructed as a monomorphic entity (Thelen et al., 2014). As Scott (1998) further elaborates in *Seeing Like a State*, the modern state tends to standardize, regulate, and surveil populations. However, these efforts frequently confront a fluid social reality, particularly in borderlands, where local practices exceed and relativize formal administrative boundaries.

The state's interest in homogenizing its population is pursued through formal legal frameworks and administrative apparatuses. As Scott argues in *Seeing Like a State* (1998), law and public policy simultaneously produce what he terms legibility, an effort to render society "readable" and administratively manageable. This process operates through various forms of simplification applied to social realities that are, in practice, complex, heterogeneous, and context-dependent. Such simplifications often generate unintended consequences, as many dimensions of social life are overlooked and cannot be fully accommodated within formal legal structures. Consequently, the logic of modern governance frequently encounters its own limits when attempting to translate social complexity into uniform administrative categories.

Scott's (1998) notion of state simplification entails at least two analytical cautions. On the one hand, there is the possibility of reproducing a state-centred perspective, associated with Max Weber and certain strands of structural Marxism, which relies on a nomothetic theory of power and treats the state as a relatively autonomous organic entity. On the other hand, Scott's approach may incline toward a society-centred orientation, comparable to structuralist readings of Marxism that reify society as a coherent totality. In practice, however, social structures are never fixed; values and norms exist within arenas of contestation and are continuously negotiated by actors in dynamic socio-cultural contexts. Analyses of state and society must therefore be situated within a dialectical framework that recognizes tension, uncertainty, and conflict as constitutive conditions rather than anomalies.

In the Indonesian context, the transition from feudal systems of rule to the modern state has generated a series of challenges in governmental practice. The central challenge is not merely to discipline subjects, but to shape them so that they become governable through mechanisms of consent. Tania Li (2012) describes this process as the conduct of conduct, a form of power that seeks to shape

subjects so that they actively recognize, accept, and internalize governing rationalities. This logic is particularly relevant for understanding borderland societies, as will be discussed in subsequent sections. Subjective awareness and alignment with governing norms are therefore central to modern statecraft. Whereas feudal rule prioritized sovereign authority grounded in coercion and compliance, the modern art of government focuses on managing populations in ways that generate aggregates of autonomous, rational, and reflexive subjects. Within this framework, society is never passive; rather, it responds to, negotiates, and at times redirects governmental interventions.

Nonetheless, semiotic concerns compel the state to sustain a strong interest in preserving ideas of “nationalism” among borderland communities. This interest is materialized through various development initiatives that introduce distinct governmental materialities into frontier regions, including the Garuda Monument, PLBN offices, border security posts (Pos Pamtas), and cross-border tourism programs. These infrastructures are not merely functional; they operate as moral and symbolic embodiments of what Li (2007) conceptualizes as state governmentality. Within this configuration, a triadic relation emerges among local ritual practices, borderland communities, and governmental instruments, through which the meaning of nationalism is produced, negotiated, and interpreted in situational terms.

The temporal migration activities of Hulu Sembakung residents are characterized by the circulation of *tempayan*, ritual artifacts that simultaneously signify social relations. Inter-village alliances forged through cross-regional marriages connect inhabitants of Hulu Sembakung to extended kinship formations stretching along riverine corridors toward the upper reaches of Sungai Sedalid and Pensiangan in Sabah, Malaysia. These kinship formations constitute social boundaries that traverse formal state frontiers and are continually reproduced through life-cycle rituals involving the exchange of *tempayan* (Hastuti, 2014). At the same time, such practices often encounter friction generated by the multiplicity of governmental schemes operating across the borderlands.

The Sembakung River, which cuts across the state border, serves as a natural morphological materiality and the main medium for population movement, simultaneously uniting residents through ritual interactions. In this context, *tempayan*, as a sacred object, is present in bundled co-presence with the riverine pathways, population mobility, and the presence of state actors in the border region. The transposition of *tempayan*, which is always accompanied by its surrounding material contexts, becomes a crucial element for maintaining social integration among Hulu Sembakung villages, as well as a medium for articulating cross-border identities.

Within the arena of ritual practices, *tempayan* functions as an actant that catalyzes discursive actions among actors embedded in cross-border social networks. Hulu Sembakung thus becomes a space animated by nodes of tension and controversy, stemming from the discourse of state sovereignty that continuously clashes with local ritual practices. These tensions and frictions can be understood through Anna Tsing’s (2005) metaphor of friction, which describes how local relations are always connected to, and collide with, global logics. In dialogue with Actor–Network Theory (Latour, 2005), such frictions can be understood as moments of translation and mediation within heterogeneous networks, nodes marking the entanglement of heterogeneous entities that interact and confront one another (Keane, 2003). Through *tempayan* exchange rituals, borderland communities not only forge kinship ties but also construct social boundaries that simultaneously produce and sharpen tensions with state governance practices.

## 5. Conclusion

The *tempayan* in Hulu Sembakung transcends its role as a utilitarian object, functioning as an embodied technology that mediates social, moral, and cosmological relations across riverine borderlands. Its circulation along waterways sustains kinship networks, intergenerational obligations, and ritual practices that exceed state sovereignty. Within mercantile contexts, the *tempayan* operates as Heidegger’s enframing (*Gestell*), ordered as standing-reserve in calculative trade and administrative logics; yet, in ritual life, it reveals alternative modes of disclosure, embodying relational and ancestral meaning. River morphology and material culture intersect to structure both mobility and social life,

destabilizing rigid territorial frameworks and highlighting the limits of state simplification. The *tempayan* exemplifies cultural hybridity, appropriating foreign materials and embedding them within local moral and ritual economies, continuously recontextualized between commodity, sacred artifact, and ethical mediator, depending on its horizon of disclosure. Ultimately, the Hulu Sembakung case demonstrates that technology, materiality, and mobility are inseparable from social and ethical life, with the *tempayan* actively shaping relationality, community cohesion, and moral practice, showing that in borderlands, embodied technologies negotiate the interplay of sovereignty, ritual, and hybrid cultural meaning.

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