



4. Apatani Oral Traditions: A study of *Miji-Migun* and *Biisi-Ayu* in reference to TEK

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Abstract

This study critically reviews the literature on Apatani oral traditions, particularly Miji-Migun and Biisi-Ayu, and their relationship with Traditional Ecological Knowledge (TEK) in Ziro Valley, Arunachal Pradesh. Using a qualitative literature-review design structured through thematic analysis of selected verified sources, the study integrates Media Ecology, which treats communicative form as constitutive of what can be remembered and transmitted, with Berkes's TEK framework, and situates ecological knowledge within social institutions and worldview. It proposes that Apatani oral traditions can be conceptualised as ecological media, communicative environments through which cultural and ecological knowledge is transmitted across generations. The review finds that Apatani agricultural practice and the historical content of Miji and Migun are well documented, but that no source analyses these genres as systems for ecological transmission, and that Biisi-Ayu remains comparatively undocumented. The proposed Media Ecology-TEK framework is offered as a conceptual contribution requiring empirical testing, and the study concludes with a research agenda for community-engaged study of oral ecological knowledge transmission in Ziro Valley.

Keywords: Apatani, Traditional Ecological Knowledge, Media Ecology, Miji-Migun, Biisi-Ayu, Ziro Valley

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1. Introduction

Concern over the survival of Indigenous Knowledge Systems has grown steadily across anthropology, environmental studies, and development research. Consequently, scholarship has shifted away from treating such knowledge as folklore awaiting documentation and toward



recognising indigenous communities as active holders and producers of technically sophisticated knowledge. Traditional Ecological Knowledge has been most influentially theorised by Berkes (2018), who defines it as a knowledge–practice–belief complex operating across four interrelated levels: the local empirical knowledge of species and resources; the management systems through which that knowledge is applied; the social institutions that regulate resource use; and the broader worldview that situates communities within their environment. This layered definition resists reducing TEK to an inventory of ecological facts, treating it instead as a socially embedded process a point of direct relevance to a review concerned with how such knowledge is transmitted. At the international policy level, Article 8(j) of the Convention on Biological Diversity formally commits contracting parties to respect and maintain the knowledge, innovations, and practices of indigenous communities relevant to biodiversity conservation, subject to community approval, thereby situating TEK as a resource of direct relevance to agriculture, forest management, and conservation policy.

Oral tradition is frequently the primary vehicle through which such knowledge is composed, remembered, and transmitted, yet popular treatments often flatten it into generic "storytelling." Ong (1982) says that, distinguishing primary oral cultures from literate and secondarily oral cultures, and shows that orality imposes distinctive mnemonic, performative, and communal demands on how knowledge is structured and passed between generations. This article draws on the Media Ecology tradition, which treats communication forms not as neutral channels for content but as environments that shape what can be known, remembered, and passed on (Postman, 1970; Strate, 2017), to propose that oral performance genres can themselves be examined as media environments within which ecological knowledge is cultivated and reproduced.

A Tani-speaking community of Ziro Valley in the Lower Subansiri district of Arunachal Pradesh is called the *Apatani*. They first documented in detail by colonial-era ethnography (Haimendorf, 1962), offer a well-documented case for exploring this proposition. The community practises an integrated wet-rice and fish-farming agricultural system regulated through customary land classification and village-council institutions (Kala et al., 2008; Rai, 2005), and their cultural landscape has been placed on UNESCO's Tentative List of World Heritage Sites, though it has not been inscribed as a full World Heritage property (UNESCO World Heritage Centre, 2014). *Apatani* oral tradition is documented in peer-reviewed literature principally through the genres *Miji* and *Migun*, ritual chant and prose narrative, respectively (Blackburn, 2003). The term *Biisi-Ayu* appears mainly in institutional and community documentation (INTACH Intangible Cultural Heritage Division, n.d.; Rana, 2012, 2014). Both the *Apatani* language and its oral performance traditions face documented pressures associated with regional language endangerment (Moseley, 2010).

Although *Apatani* ecological practice and *Apatani* oral genre have each attracted serious independent academic attention, the relationship between them specifically, how the communicative structure of *Miji*, *Migun*, and *Biisi-Ayu* might function as a mechanism for transmitting ecological knowledge. And the remains comparatively unexamined in the literature identified for this review. This article addresses that gap by critically examining existing literature/Docmunets on *Apatani* oral tradition and TEK through an integrated Media Ecology-TEK lens, pursuing two objectives: first, to review the literature on *Apatani* oral traditions and their role in transmitting cultural and ecological knowledge; and second, to examine literature on indigenous communication, Media Ecology, and TEK in order to identify gaps in understanding the transmission of *Apatani* oral ecological knowledge.

1.1 Research Objectives:

- a) To review and map the existing literature on TEK in relation to the Apatani tribe published between 2015 and 2025.
- b) To synthesise the major themes and research trends on Apatani oral traditions with particular attention to Miji-Migun and Biisi-Ayu.
- c) To determine what is established and what remains unestablished about the role of Apatani oral performance in the intergenerational transmission of TEK

Research Questions

1. How does the existing literature characterise the form, performance context, and communicative structure of the Miji-Migun and Biisi-Ayu?
2. What does the literature establish, and fail to establish, about the relationship between Apatani oral Narratives and the TEK intergenerational transmission?
3. What theoretical and empirical gaps must future research address to test a Media Ecology–TEK framework?

2. Research Methodology

The researcher has adopted a structured literature-based approach to examine existing published literature on Traditional Ecological Knowledge (TEK), the Apatani community, and its oral traditions. Relevant literature was identified using defined keywords and selected based on thematic relevance to the research objectives.

2.1 Research Design:

This study adopts a Qualitative literature mapping and thematic analysis to examine existing scholarship on Apatani oral traditions, Traditional Ecological Knowledge (TEK), indigenous knowledge, and Media Ecology. The review covers literature published between 2015 and 2025 and combines keyword-based literature search, relevance-based screening, keyword mapping through VOSviewer, and thematic analysis. The approach was used to identify major areas of research, recurring themes, and gaps in scholarship concerning Apatani oral traditions and their potential relationship with ecological knowledge transmission.

2.2 Data Collection:

The Researcher conducted a keyword-based literature search using Scopus, Web of Science, and Google Scholar, restricting the publication period to 2015–2025. Keywords were selected according to the central concepts and geographical and cultural focus of the study, including “*Miji-Migun*,” “*Biisi-Ayu*,” “Oral Traditions,” “Apatani Oral Traditions,” “Ziro Valley,” and “Traditional Ecological Knowledge.” The broader concept of “Media Ecology” was also included to establish the theoretical and interdisciplinary context of the study.



Figure 1 Word cloud illustrating the key concepts and thematic dimensions of the study.

Figure 1 Word cloud illustrating the key concepts and thematic dimensions of the study. The word cloud was generated from the keywords and recurring terms identified across the selected literature to visually represent the concentration of major research themes. The size and prominence of individual terms indicate their relative frequency within the reviewed literature.

The searches returned 226 results for “Ziro Valley,” 438 for “Apatani,” 21 for “Apatani Oral Narratives,” 121 for “*Biisi-Ayu*,” and 70 items for “*Miji-Migun*.” The broader search for “Media Ecology” returned 594,689 results. These initial results were examined to identify the major disciplinary areas, recurring concepts, and research directions associated with the selected keywords. The substantial variation in the number of results also helped distinguish between highly specific Apatani-related literature and the broader interdisciplinary scholarship surrounding Media Ecology.

2.3 Selection of Literature

The retrieved literature was subsequently screened according to its relevance to the objectives of the study. Priority was given to relevant scholarly publications that directly addressed Apatani oral traditions, *Miji-Migun*, *Biisi-Ayu*, indigenous knowledge, Traditional Ecological Knowledge, language, cultural practices, ecological practices, and knowledge transmission. Following the screening process, 35 relevant sources were selected for detailed analysis. The final selection was not based solely on the number of search results but on the substantive relevance of each source to the research questions and conceptual focus of the study.

Table 1 List of 35 selected Papers

S. No.	Author/Organisation	Year	Title / Source	Main Focus	Major Theme
1	Asghar, M.	2024	Traditional Knowledge of Herbal Medicines Practiced by Apatani Tribe in the Ziro Valley of Arunachal Pradesh	Traditional Practices	TEK / Agriculture
2	Dutta et al.	2017	Sacred Groves of Ziro Valley Dominated by Apatani Tribes in Arunachal Pradesh	Sacred groves and conservation	TEK / Conservation
3	Taka & Tangjang	2015	Sustainable Approach: Paddy-Cum-Fish and Bamboo-Cum-Pine Agroforestry in Ziro Valley	Integrated agriculture and agroforestry	Agriculture / TEK
4	Tangjang & Ramachandran Nair	2015	Rice + Fish Farming in Homesteads: Sustainable Natural-Resource Management for Subsistence in Arunachal Pradesh, India	Rice-fish farming	TEK / Agriculture
5	Tayo et al.	2017	Integrated paddy, fish and finger millets cultivation by Apatani tribes	Integrated farming	Agriculture / TEK
6	Dutta et al.	2017	Sacred groves of Ziro Valley dominated by Apatani tribes	Traditional conservation	Culture / Ecology
7	Chakravorty et al.	2019	Arunachal's Adi and Apatani tribes' traditional knowledge of harvesting and using edible insects	Ethno-entomological knowledge	TEK / Ethnobiology
8	Yamang & Singh	2021	Women, IKS and Sustainable Development: A Perspective on the Apatani Tribal Women of Ziro Valley	Women's indigenous knowledge	IKS / Gender



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9	Samaddar et al.	2025	A novel strategy to optimize resources to boost production in rice-fish coculture at Ziro Valley, India	Rice-fish production and resource optimisation	Agriculture / Sustainability
10	Hage, Hage & Hage	2025	Indigenous agri-horticultural and forest-land use systems of the Apatani community of Ziro Valley	Agriculture, horticulture and forest use	TEK / Land Use
11	INTACH report	2017	Study of the Intangible Heritage of the Apatani Tribe, Arunachal Pradesh	Miji-Migun, Biisi-Ayu, language and intangible heritage	Oral Tradition
12	ICAR-ATARI, Zone VI	2024	Village Knowledge Bank initiative in Ziro Valley	Documentation and preservation of Apatani agricultural and indigenous knowledge	TEK / Knowledge preservation
13	Apatani Interdisciplinary Research Society	2023	Apatani: Change and Continuity	Cultural change and continuity	Culture / Continuity
14	Rana	2022	Community documentation of Miji-Migun traditions	Miji-Migun oral literature	Oral Tradition
15	Hilaly	2018	Culture of friendship among the Apatanis of Arunachal Pradesh	Oral history and historical memory	Oral Tradition / Memory
16	Sen, T. et al.	2023	Prohibition on tradition, tattooing, and the Apatanis of Arunachal Pradesh	Cultural relation, change and continuity	Cultural change and continuity
17	Michelis, M.	2023	Atlas of the World's Languages in Danger	Media Ecology	Media Ecology
18	UNESCO World Heritage Centre	2014	Apatani Cultural Landscape	Agriculture, ecology and customary institutions	TEK / Cultural Landscape
19	ICAR-ATARI	2024	Village Knowledge Bank initiative in Ziro Valley	Indigenous agricultural knowledge documentation	Knowledge Preservation
20	Apatani language documentation	2019	Apatani/Tanii Agun language resources	Language vitality and documentation	Language
21	Dutta et al.	2017	Apatani sacred groves and traditional conservation	Sacred landscapes	Ecology / Culture
22	Taka & Tangjang	2015	Paddy-cum-fish and bamboo-cum-pine systems	Sustainable agriculture	Agriculture / TEK
23	Tangjang & Ramachandran Nair	2015	Rice-fish farming in Ziro Valley	Traditional agricultural system	TEK / Agriculture
24	Tayo et al.	2017	Paddy-fish-finger millet cultivation	Integrated farming	TEK / Agriculture
25	Chakravorty et al.	2019	Traditional knowledge of edible insects	Ethnobiological knowledge	TEK / Ethnobiology
26	Yamang & Singh	2021	Apatani women and indigenous knowledge	Women and sustainability	IKS / Gender
35	Hage et al.	2025	Indigenous agri-horticultural and forest-land use systems	Land-use systems	TEK / Land Use



28	Samaddar et al.	2025	Rice-fish coculture at Ziro Valley	Resource optimisation	Agriculture / Sustainability
29	Media Ecology literature	2023	Studies retrieved using “Media Ecology”	Media, communication and environment	Media Ecology
30	TEK literature	2019	Studies retrieved using “Traditional Ecological Knowledge”	Indigenous ecological knowledge	TEK
31	Apatani literature	2017	Studies retrieved using “Apatani”	Apatani society and knowledge	Apatani Studies
32	Ziro Valley literature	2022	Studies retrieved using “Ziro Valley”	Ecology, agriculture and geography	Ziro Valley
33	Apatani Oral Narratives literature	2021	Studies retrieved using “Apatani Oral Narratives”	Oral tradition and cultural history	Oral Tradition
34	Rana	2025	Dree Busi: A song of Framing Life	Apatani oral tradition	Oral Tradition
35	Chaudhuri, P. R.	2022	In-between sound and landscape: Inter-community innovations and sustainability through Dree festival among the Apatani people of Arunachal Pradesh	Ritual, history and oral tradition	Miji-Migun

2.4 Tools and Techniques

The selected literature was examined using VOSviewer software for keyword mapping and visualization of relationships among major concepts and research themes. The literature search was conducted across Scopus, Web of Science, and Google Scholar, with the publication period restricted to 2015–2025 and the language limited to English. The search focused primarily on peer-reviewed scholarly literature using keywords including “*Miji-Migun*,” “*Biisi-Ayu*,” “Oral Traditions,” “Apatani Oral Traditions,” “Ziro Valley,” and “Traditional Ecological Knowledge.” The broader term “Media Ecology” was also used to identify relevant theoretical and interdisciplinary literature.

VOSviewer was used to visualise keyword co-occurrence and thematic relationships within the selected literature. The resulting maps and clusters were examined to identify recurring concepts, interconnected research areas, and comparatively underexplored themes related to Apatani oral traditions, indigenous knowledge, ecological knowledge, cultural practices, language, and communication. The VOSviewer outputs were interpreted alongside the content of the selected literature rather than treated as independent empirical findings.

2.5 Thematic Analysis

Following the mapping process, selected sources were analysed thematically. Attention was given to recurring themes concerning oral traditions and cultural memory, Traditional Ecological Knowledge, agriculture and ecological practices, customary institutions, language and



cultural continuity, rituals and performance, and intergenerational knowledge transmission. The themes were compared across the literature to identify areas of convergence, differences in scholarly emphasis, and gaps in existing research.

Special attention was given to the extent to which existing scholarship connects Apatani oral traditions with ecological knowledge and communication. The analysis distinguishes between knowledge that is already documented in the literature and conceptual relationships that require further empirical investigation.

2.6 Scope and Limitations

The review is limited to literature published between 2015 and 2025 and to sources accessible through the selected scholarly databases and search platforms. Consequently, community-held knowledge, unpublished materials, and sources that were not digitally accessible may not be fully represented. The substantial difference in search-result volume across keywords also means that broader concepts such as Media Ecology have a much larger literature base than highly specific terms such as *Biisi-Ayu* and *Miji-Migun*.

2.7 Theoretical Framework

Media Ecology views communication forms as environments that shape how knowledge is remembered, organised, and transmitted (McLuhan, 1964; Postman, 1970; Ong, 1982; Strate, 2017). For this study, it helps examine how Apatani oral forms such as ritual chants, narratives, and performances may influence the preservation and intergenerational transmission of knowledge. Traditional Ecological Knowledge (TEK) provides a complementary perspective by focusing on community-based knowledge related to land, water, agriculture, natural resources, and customary practices. Together, the two frameworks provide an analytical basis for examining how Apatani oral traditions such as *Miji-Migun* and *Biisi-Ayu* may function as communicative forms through which ecological knowledge and cultural memory are transmitted, while recognising that this relationship requires further empirical investigation.

3. Data Analysis:

The collected literature was systematically analyzed to identify major research themes, patterns, areas of scholarly concentration, and gaps. Descriptive and thematic analysis were used to synthesize the findings. The collected sources reviewed cluster unevenly across four areas, and that imbalance is itself an analytical finding rather than incidental background. The following mentioned Fig.2 presents the overall data-analysis process, illustrating the progression from

literature collection and selection through thematic clustering, analysis, and the identification of key findings and research gaps.

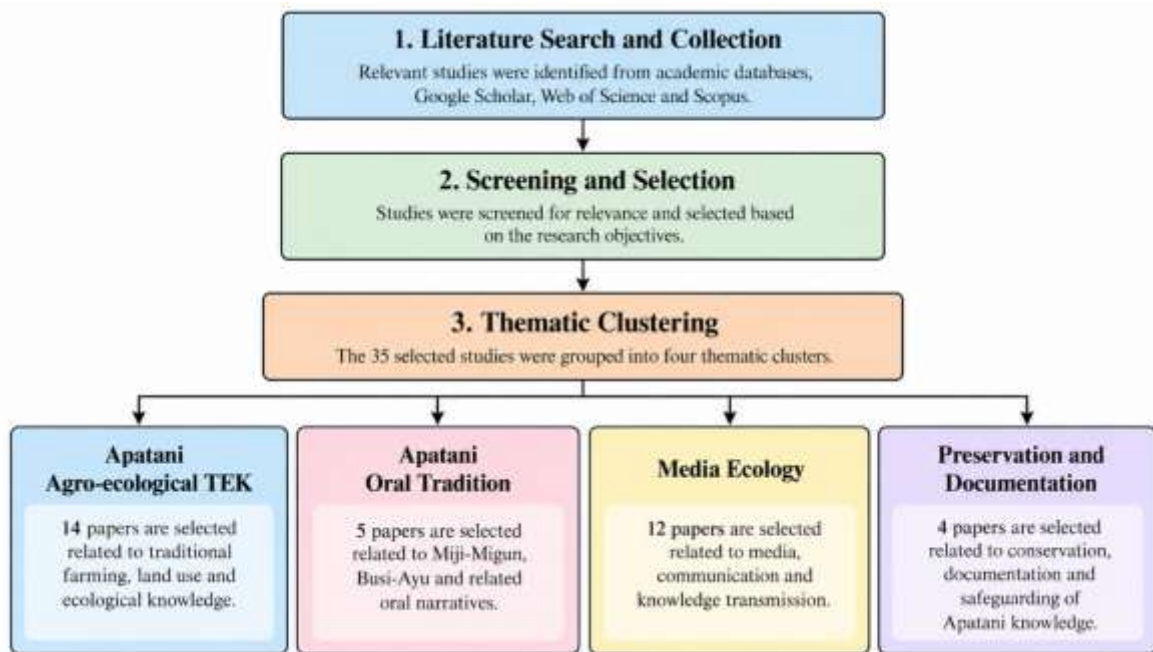


Figure 2 Flowchart of analysis Process

3.1 Apatani agro-ecological TEK:

Apatani agro-ecological is the dominant research area, accounting for 9 of the 35 sources (Kala et al., 2008; Rai, 2005; UNESCO World Heritage Centre, 2014; Taka & Tangjang, 2015; Tangjang & Ramachandran Nair, 2015; Tayo et al., 2017; Dutta et al., 2017; Chakravorty et al., 2019; Samaddar et al., 2025). This literature is empirically dense and methodologically varied land-classification surveys (Kala et al., 2008), farming-system economics (Tangjang & Ramachandran Nair, 2015), ethnoentomology (Chakravorty et al., 2019), and sacred-grove conservation (Dutta et al., 2017) and it converges on a consistent picture: an integrated wet-rice, fish, and millet system regulated by customary institutions, with ecological knowledge embedded in practice rather than codified separately. A recurring pattern within this cluster is that ritual and



ecological practice are described as intertwined. Tayo et al. (2017) explicitly note agricultural rituals ("worshipping the Mother Earth, Rain and Sky") as part of the Paddy-Fish-Finger Millet system, but none of these nine sources analyses the oral or performative content of that ritual as a communicative act. The ritual is observed; it is not read as a text or performance in its own right.

3.2 Apatani oral tradition:

Apatani oral tradition genres for a second, smaller cluster (Blackburn, 2003, 2008; Haimendorf, 1962; INTACH Intangible Cultural Heritage Division, n.d.; Rana, 2012, 2014). Blackburn's work is the clear anchor here: it distinguishes Miji (ritual chant) from Migun (prose narrative) and uses oral material alongside colonial records to reconstruct specific historical episodes, establishing that these genres carry historiographic weight. INTACH confirms *Biisi-Ayu* as a recognised, distinct category institutionally; Rana's self-published compilations evidence that detailed knowledge of these genres is still actively maintained by elders and priests. The pattern across this cluster is historical, religious, and folkloric in orientation none of these six sources frames Miji, Migun, or *Biisi-Ayu* as a communication system, and none examines whether their content includes ecological knowledge.

3.3 Media Ecology:

Media Ecology theory (McLuhan, 1964; Postman, 1970; Ong, 1982; Strate, 2017; Media Ecology Association, 2004) and TEK theory (Berkes, 2018; Sillitoe, 1998; Convention on Biological Diversity, n.d.) form two further, self-contained clusters. Both offer general conceptual tools — Media Ecology for how communicative form shapes memory and transmission, TEK for how ecological knowledge is embedded in social institutions but neither cluster engages Apatani material directly. This is a significant pattern for RQ3 and Objective (c): the theoretical apparatus needed to analyse Apatani oral tradition as ecological communication exists, but it has not been applied to this case by any source in the sample.

3.4 Preservation and Documentation:

Two smaller clusters round out the sample: language documentation (Moseley, 2010; Tanw Supuñ Dukuñ / Apatani Cultural and Literary Society, 2015), which establishes Apatani's endangered status and a community-led script initiative without linking either to oral-genre transmission specifically; and a single source on gender (Yamang & Singh, 2021), which documents Apatani women's distinct role in forest-resource knowledge — a finding that stands alone in this sample and is not cross-validated elsewhere in the literature reviewed.

Across all selected sources, the relationship between TEK, oral tradition, cultural memory, and Media Ecology is asserted nowhere and nowhere empirically tested. The agro-ecological cluster documents TEK content without oral-genre analysis; the oral-tradition cluster documents genre



structure without ecological-content analysis; the theory clusters supply frameworks without a case application. This is a structural gap in the literature, not a conclusion this review has reached by inference. it follows directly from what the 35 sources do and do not, individually, contain.

4. Discussion

4.1 Oral forms as communicative environments:

Ong (1982) and the broader Media Ecology literature (McLuhan, 1964; Postman, 1970; Strate, 2017) support treating a communicative form as an environment that shapes what can be remembered and transmitted, rather than a neutral container for content. Applied to Blackburn's (2003, 2008) account of Miji and Migun, this lens is useful: the fact that Miji is performed by ritual specialists in a formal register, while Migun is narrated more prosaically, is consistent with Ong's account of how oral genres structure retention. However, this is an application of a general theoretical claim to a structural description already in the literature. it is not something Blackburn's data itself demonstrates about ecological content, because Blackburn's analysis does not address ecological content at all.

4.2 Cultural memory and knowledge transmission:

The literature establishes that Miji and Migun function as vehicles of historical and genealogical memory. Blackburn (2003) demonstrates this directly, using oral accounts to corroborate and supplement colonial-era written records of specific events. This is a documented finding, not a conceptual proposition. What the literature does not establish is whether this same transmission capacity extends to ecological content specifically. The agro-ecological literature (Section 4) shows that ecological knowledge is socially transmitted and institutionally regulated, but through customary practice and village-council governance (UNESCO World Heritage Centre, 2014; Kala et al., 2008), not through any documented oral genre.

4.3 Apatani ecological knowledge:

The reviewed literature indicates that Apatani TEK is substantial, practice-embedded, and still actively studied as of 2025 (Samaddar et al., 2025). It corresponds closely to Berkes's (2018) "management systems" and "social institutions" levels. This is well-supported.

Does the evidence support a connection between oral tradition and TEK? Not directly. No source in the sample analyses Miji, Migun, or *Biisi-Ayu* performance for ecological content, and no source applies Media Ecology to Apatani material. The connection proposed in the Theoretical Framework is therefore a conceptual proposition, built by applying two independently well-supported bodies of theory to a case neither has been tested against not an empirical finding this literature has produced. if a future version of this review wishes to claim the connection has been empirically observed rather than theoretically proposed. Miji and Migun are comparatively well



documented as historical-religious genres (Blackburn, 2003, 2008); *Biisi-Ayu* is institutionally named (INTACH, n.d.) but structurally undocumented in any peer-reviewed source in this sample. This asymmetry means any future claim about "Apatani oral tradition" collectively should be read as resting on stronger evidence for *Miji-Migun* than for *Biisi-Ayu*.

4.4 Intergenerational transmission:

The literature documents language endangerment (Moseley, 2010) and a community script initiative (Tanw Supuñ Dukuñ, 2015), and Rana's (2012, 2014) continued community compilation work suggests active, if non-institutional, transmission effort.

The findings substantially address the three research objectives. Objective (a) is addressed through the review of literature on TEK published during 2015–2025, represented by the nine-source agro-ecological cluster, with the UNESCO (2014) source serving as an important foundational reference outside the defined period. Objective (b) is addressed through the oral-tradition literature examined in Section 4, which reveals key themes, emerging patterns, and significant gaps, particularly the marked asymmetry in the documentation of *Miji-Migun* and *Biisi-Ayu*. Objective (c) is addressed at the conceptual level by drawing on independently supported theoretical perspectives in Section 5 to understand oral traditions as communicative media for the transmission of TEK. This should be understood as a theoretically grounded proposition rather than an empirical finding directly established by the reviewed literature, thereby providing a conceptual basis for the proposed study.

RQ1 — How do existing sources characterise the communicative structure of *Miji*, *Migun*, and *Biisi-Ayu*? The literature characterises *Miji* as specialist ritual chant and *Migun* as prose narrative, both orally transmitted and historically significant (Blackburn, 2003, 2008); *Biisi-Ayu* is named but not structurally described (INTACH, 2018). RQ1 is partially answered: well for *Miji-Migun*, not for *Biisi-Ayu*.

RQ2 — What does the literature establish and fail to establish about oral performance and ecological-knowledge transmission? It establishes that Apatani TEK exists and is substantial (Section 4A), and that *Miji-Migun* carry historical/genealogical memory (Blackburn, 2003). It does not establish that oral performance transmits ecological content specifically

RQ3 — What gaps must future research address? Three, directly derived from Section 4: (i) no source analyses ecological content within *Miji*, *Migun*, or *Biisi-Ayu* performance; (ii) no source applies Media Ecology to Apatani material; (iii) *Biisi-Ayu* lacks peer-reviewed structural documentation entirely.

5. Conclusion:



This review explored the intersections between Apatani oral tradition, Traditional Ecological Knowledge (TEK), and Media Ecology. The literature demonstrates, with substantial evidentiary support, that Apatani agroecological practices are extensively documented and continue to receive scholarly attention through 2025. It also confirms that Miji and Migun serve as important repositories of historical, genealogical, and cultural memory within Apatani society. However, the review found no empirical evidence directly examining whether these oral genres function as mechanisms for the transmission of ecological knowledge, nor did it identify a peer-reviewed structural analysis of Biisi-Ayu.

Consequently, the Media Ecology-TEK framework advanced in this study constitutes a conceptual contribution rather than an empirically established finding. By bringing together two well-developed yet previously unconnected bodies of scholarship, the framework highlights a promising avenue for future research. Advancing this line of inquiry will require rigorous, community-led empirical investigation undertaken with the informed consent and active participation of Apatani knowledge holders, whose authority, perspectives, and stewardship of their oral traditions must remain central to any future scholarly engagement.

5.1 Limitations and further recommendations:

This review is limited by its literature-based design, which draws on no interviews, field observation, or original recordings and therefore cannot empirically confirm any connection between Apatani oral tradition and ecological knowledge; by a systematic but non-exhaustive search that may under-represent unpublished or community-held materials; and by an uneven 35-source sample in which Apatani agro-ecology is well documented while *Biisi-Ayu* rests on a single institutional source. Future research should prioritise community-consented documentation of *Biisi-Ayu*'s structure, empirical study of whether ecological content appears within Miji and Migun performance, attention to the gendered dimension of knowledge transmission noted by Yamang and Singh (2021), and investigation of current transmission pathways and pressures facing ritual-genre continuity all conducted under Apatani community leadership and consent.

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