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Religious Soundscape and Intercultural Identity: A Study of the Sound of the Adhan, Church Bells, and Gamelan in Bandung, West Java

Henrycus Napitsunargo

Universitas Katolik Parahyangan, Bandung, Indonesia

Author Email: henrycus.napit@unpar.ac.id

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Abstract: This study analyzes how Bandung's religious soundscape—the call to prayer, church bells, and gamelan—shapes spatial identity, religious experience, and intercultural relations in a pluralistic urban environment. Religious sounds here function beyond ritual: they generate social meaning and mediate everyday interfaith interactions. Using a qualitative case study design, the researchers collected data through soundscape observations, audio documentation, and in-depth interviews with diverse city residents. The analysis employed thematic analysis grounded in a posthuman acoustic framework. The findings suggest that religious soundscapes function as shared markers of time, space, and social identity. The call to prayer serves as a collective temporal marker; church bells reinforce historical spatial identity; gamelan embodies a sense of belonging to a local culture. Together, these auditory elements create a collective acoustic environment that fosters intercultural identification in urban space. The study also reveals shifts in sonic meaning driven by technological mediation: digital amplification, recording, and circulation can diminish perceptions of sacredness, transforming some sounds into functional rather than purely sacred sounds. By situating sound as a site of encounter, this research advances contemporary religious studies and the study of everyday religiosity. Its originality lies in integrating post-human soundscape and acoustic perspectives into the study of Indonesian Islam and in centering sound as a medium of religious-cultural interaction in a pluralistic urban context.

Keywords: Adhan; Interreligious relations; Nusantara music; Posthuman acoustic; Religious soundscape.

Introduction

Over the past two decades, sound has shifted from being treated as a purely physical phenomenon to being understood as a socially and culturally embedded medium that actively structures experience, identity, and spatial relations. Rather than functioning as a neutral background, sound operates as a form of “acoustic agency” that organizes how individuals perceive time, space, and social presence (Tate, 2023). While global trends in audio consumption indicate the growing centrality of sound in digital culture, such macro-level data alone do not sufficiently explain how sound operates within specific socio-religious contexts. In urban settings, particularly in religiously plural societies, sound becomes a contested and negotiated medium through which different groups assert presence, construct meaning, and shape everyday coexistence. Therefore, examining sound requires moving beyond general cultural trends toward a more situated analysis of how specific auditory practices—such as religious sounds—mediate social relations and spatial identity.

In urban contexts, this phenomenon becomes increasingly complex because cities are not only shaped by visual dimensions but also by acoustic landscapes (soundscapes) that regulate the rhythm

of social life. Bandung, one of Indonesia's multicultural cities, offers a distinctive array of soundscapes, including the *adhan*, church bells, and gamelan. Demographically, Bandung's multicultural character appears in its heterogeneous population composition, with Muslims forming the majority at more than 92% (approximately 2.37 million people), followed by Protestants (around 5.17%), Catholics (2.14%), Buddhists (0.44%), Hindus (0.06%), as well as Confucians and other belief systems in smaller proportions (Badan Pusat Statistik Kota Bandung, 2024; Darmawan, 2025). This diversity also appears in religious infrastructure, where more than 2,671 mosques are distributed across the city alongside churches, temples, and other places of worship. In addition, from an ethnic perspective, Bandung is dominated by the Sundanese as the indigenous population, but it has also developed into a cosmopolitan city inhabited by various ethnic groups, including Chinese, Malay, Javanese, Madurese, and communities from across Indonesia (Warsudi, 2023). Within this context, these three sound elements—the *adhan*, church bells, and gamelan—coexist simultaneously in public spaces and shape the auditory experiences of people across religions and cultures. Although these sounds coexist in everyday life, studies that examine them as a unified, integrated religious soundscape remain limited. This condition indicates that sound not only functions as a medium of communication but also as a marker of spatial identity and social dynamics in a plural society.

From an Islamic perspective, the adhan occupies a distinctive position as both a ritual call and a public auditory marker that structures temporal and spatial order in Muslim life. However, its significance cannot be reduced to a purely functional role. As a sound circulating in public space through amplification technologies, the adhan extends beyond the mosque's boundaries and becomes audible to diverse religious communities. This raises an important analytical question: how does a specifically Islamic sound operate within a plural auditory environment? Rather than assuming that the adhan uniformly shapes collective awareness, it is necessary to examine how different listeners interpret, negotiate, or even contest its presence in everyday life. Previous studies suggest that the adhan contributes to shared temporal rhythms, yet empirical attention to how this experience is socially differentiated across religious and cultural groups remains limited (Wallach & Clinton, 2013). Thus, the adhan should be understood not only as a marker of religious time but also as a site of interaction, negotiation, and meaning-making within a heterogeneous urban soundscape.

From a Catholic perspective, church bells serve not only as markers of the beginning of worship but also as symbols of a religious community's presence in public space. Historically, church bells have marked liturgical time, religious celebrations, and important moments in the life of the congregation, thereby shaping a distinctive religious rhythm in social life (Inglis, 2013). In urban contexts such as Bandung, church bells are heard not only by Christians but also by people of other religious backgrounds, thereby fostering collective awareness of diverse religious practices. Thus, church bells function as an auditory medium that represents the historical identity and existence of the Catholic community within a plural social space.

Meanwhile, from a local cultural perspective, gamelan plays an important role as a representation of cultural identity within Javanese and Sundanese communities, including in Bandung. The sound of gamelan not only appears in artistic performances but also in various rituals, celebrations, and communal social activities, thereby shaping auditory experiences rich in cultural meaning (Sumarsam, 2013). In urban contexts, gamelan connects local traditions with modern life while simultaneously introducing a cultural dimension into the city's soundscape (Sumarsam, 2014). The coexistence of gamelan alongside religious sounds such as the *adhan* and church bells indicates that the city's soundscape is shaped not only by religion but also by culture. Therefore, gamelan functions as an auditory medium that strengthens local identity while enriching intercultural dynamics in urban space.

Theoretically, soundscape studies provide an important foundation for understanding the relationship between sound, space, and social life by positioning sound as an environment imbued with cultural meaning (Schafer, 1977; Truax, 2001). However, classical soundscape approaches tend to privilege human perception and often overlook the role of technology in shaping auditory experience. This limitation becomes increasingly significant in contemporary contexts where sound is extensively mediated through digital and electroacoustic systems. The posthuman acoustic perspective addresses this gap by conceptualizing sound as a relational phenomenon emerging from interactions between humans, technologies, and environments. Within this framework, practices such as the recorded adhan or automated church bells are not merely technical modifications but indicate a shift in the ontology of

sound—from embodied and situational to mediated and reproducible. Nevertheless, existing studies rarely integrate these perspectives into their examination of religious sound in plural urban settings, particularly in the Indonesian context. As a result, the transformation of religious sound meaning under conditions of technological mediation remains insufficiently theorized.

Studies on sound, religion, and society show several major tendencies. First, research on soundscape and culture emphasizes that sound plays an important role in shaping identity, collective memory, and spatial experience in human social life (Feld, 1996; Truax, 2001). Soundscape does not only represent the acoustic condition of an environment but also becomes a cultural expression that reflects lived experience, values, and community heritage. In various contexts, soundscape functions as a medium that connects individuals with space and history while maintaining the continuity of cultural identity, as seen in the soundscape of historical regions and diaspora communities. In addition, soundscape contributes to the formation of a sense of place, where interactions between natural and artificial sounds influence social perceptions of space, whether as comfortable, sacred, or culturally meaningful environments (Aletta et al., 2023; Xie et al., 2024). In urban contexts, soundscapes are shaped not only by physical factors but also by social and cultural dynamics, including population density, spatial structures, and ongoing cultural practices.

Second, research on religion still tends to focus on textual, doctrinal, and formal ritual aspects, with relatively limited attention to auditory dimensions as part of religious experience in everyday life. In fact, sound plays a crucial role as a medium of religious expression that is not only communicative but also shapes social experience and collective identity in religious practices (Fernandez & Ramirez, 2024; Weidman, 2014). However, the dominance of textual approaches in religious studies often marginalizes sound, so auditory religious experiences remain underexplored.

Third, research on sound and technology demonstrates that contemporary auditory experience is increasingly shaped by digital devices and non-human systems, which reconfigure how sound is produced, circulated, and interpreted in social life (Ribeiro, 2020; Turchet et al., 2023, 2025). However, existing studies tend to approach technological mediation primarily in terms of access and sensory transformation, paying limited attention to its implications for the social and symbolic dimensions of sound. In particular, the question of how technological mediation reshapes the meaning of religious sound—especially in plural urban contexts—remains insufficiently explored. While recent scholarship acknowledges the shift from direct to mediated auditory experience (Gutierrez, 2023; Young et al., 2023), it rarely examines how this shift affects the negotiation of sacredness, authority, and coexistence between different religious and cultural sound practices. As a result, there is a lack of integrative analytical frameworks that connect sound, religion, and technology as mutually constitutive elements within contemporary urban life. This gap highlights the need for an approach that not only accounts for technological mediation but also situates it within the dynamics of religious plurality and everyday social interaction.

From these three tendencies, a significant research gap remains. Soundscape studies tend to focus on cultural and spatial aspects but rarely integrate religious dimensions explicitly. Conversely, religious studies remain dominated by textual and ritual approaches, paying less attention to sound as part of everyday religious experience. Meanwhile, the posthuman acoustic approach, which emphasizes the relationship between humans, technology, and sound, remains rarely applied in the Indonesian cultural context. More specifically, research that examines the simultaneous interaction of the *adhan*, church bells, and gamelan within a single integrated auditory landscape in urban space remains very limited. Therefore, a study is needed that integrates religious, cultural, and technological dimensions in understanding religious soundscapes as complex social phenomena in urban society.

Based on this gap, this study aims to analyze the religious soundscape in Bandung as a space of interaction between the sounds of the *adhan*, church bells, and gamelan, and to understand how these sounds shape spatial identity, religious experience, and intercultural relations in urban society. In addition, this study aims to examine the transformation of sound meaning from a posthuman perspective, particularly through technological mediation in religious and cultural practices.

This study argues that the religious soundscape not only functions as an auditory background in urban life but also acts as a medium that actively shapes social identity, intercultural relations, and religious experience. Within the posthuman acoustic framework, sound is understood as a relational entity that is not only produced by humans but also constructed through interactions with technology

and the environment (Baofu, 2013). Therefore, the development of audio technologies such as recordings and loudspeaker systems not only transforms how sound is produced and distributed but also alters the meaning of sound itself—from a sacred, embodied experience to a more mediated, utilitarian function.

Method

This study employs a qualitative case study design to analyze the religious soundscape formed by the interaction of the adhan, church bells, and gamelan within Bandung's urban space. The researcher selects this approach because it allows an in-depth exploration of meanings, experiences, and social relations constructed through sound practices in the everyday life of a plural urban society (Creswell, 2014). Within this framework, the researcher understands the soundscape not only as an acoustic phenomenon but also as a social practice that reflects the relationships among religion, culture, and technology in spatial contexts.

The data consist of primary and secondary sources. The researcher collects primary data through soundscape observation in three main locations: Masjid Dzikrullah, Bandung City Police Headquarters Complex, Jl. Nias No. 4 (for the sound of the *adhan*); Saint Peter's Cathedral Church, Jl. Merdeka No. 14, Babakan Ciamis, Sumur Bandung District (for the sound of church bells); and Bandung Station, Jl. Stasiun Barat, Kebon Jeruk, Andir District (for the sound of gamelan). In addition, the researcher documents these three types of sound using audio recordings and conducts in-depth interviews with 20 urban residents from diverse backgrounds to explore their perceptions and experiences of the religious soundscape.

The researcher uses secondary data in the form of peer-reviewed journal articles, policy documents, and urban cultural reports, selected for their relevance to three key themes: religious sound practices, soundscape studies, and technological mediation of sound. These sources are used to contextualize the empirical findings and support the study's theoretical framework.

The researcher analyzes the data using thematic analysis following a systematic procedure adapted from Miles et al. (2014). First, the researcher conducts data reduction by organizing field notes, interview transcripts, and audio documentation into manageable units. Second, open coding is applied to identify recurring patterns related to temporal markers, spatial identity, religious meaning, and technological mediation. Third, these codes are grouped into broader thematic categories that reflect the interaction between sound, religion, and urban space. Finally, the researcher interprets these themes through a posthuman acoustic framework to examine how human and non-human elements (e.g., loudspeakers, recordings, and spatial acoustics) co-construct religious experience and the identity of urban space.

To ensure analytical rigor, the researcher employs triangulation by comparing observational data, interview responses, and audio recordings, and by cross-checking themes across different participant backgrounds. This approach enhances the transparency and credibility of the findings.

Results and Discussion

The Soundscape of Bandung as a Plural Urban Acoustic Space

The soundscape of Bandung demonstrates a distinctive configuration of an acoustic landscape shaped by the simultaneous presence of the *adhan*, church bells, and gamelan within urban space. Based on field observations conducted at three main locations—Masjid Dzikrullah at the Bandung City Police Headquarters Complex, Saint Peter's Cathedral Church, and Bandung Station—the findings show that each sound has different patterns of occurrence, functions, and characteristics, yet they overlap in the everyday lives of urban residents. The *adhan* is broadcast five times a day through loudspeakers as a marker of obligatory prayer times, while church bells are rung three times daily at 06:00, 12:00, and 18:00 (WIB) as a marker of the Angelus prayer. Meanwhile, the Sundanese degung gamelan at Bandung Station plays continuously in a loop throughout the station's operational hours as part of the public space atmosphere.

To provide a comparative overview, Table 1 presents the main characteristics of these three types of soundscapes based on field observations and audio documentation. The classification is derived from repeated observations of temporal patterns, spatial reach, and functional roles of each sound within urban space.

Table 1. Analytical Characteristics of Soundscape in Bandung

Type of Sound	Location	Time of Occurrence	Frequency	Sound Characteristics
Adhan	Masjid Dzikrullah	Five times daily	Regular	High amplitude, long-range diffusion, directive function
Church bells	Bandung Cathedral	06:00, 12:00, 18:00	Periodic	Rhythmic pattern, moderate diffusion, symbolic signaling
Gamelan	Bandung Station	Throughout the day	Continuous	Low to moderate amplitude, ambient repetition, atmospheric function

The analytical data show that each sound occupies a distinct temporal and spatial niche while simultaneously overlapping within shared urban space. The adhan has the widest spatial reach through loudspeaker amplification, functioning as a dominant temporal marker beyond its immediate religious context. In contrast, church bells exhibit a more localized yet symbolically dense presence, marking specific moments without continuous auditory dominance. Meanwhile, gamelan operates as a continuous ambient layer that shapes the background acoustic environment without imposing a directive function.

This differentiation indicates that the urban soundscape is structured not only by the presence of sound but by variations in intensity, repetition, and social function, which together produce a layered and relational acoustic environment.

The data indicate that the soundscape in Bandung is not random but follows structured temporal and spatial patterns. The *adhan* functions as a daily sound of high frequency, church bells as periodic sounds with specific rhythms, and gamelan as a continuous background sound. Therefore, the city's acoustic landscape emerges from the interaction of sounds that differ in function, timing, and context but overlap within the same space.

Analytically, these findings suggest that Bandung can be understood as a plural acoustic space, namely an urban space shaped by diverse sounds that represent different religious and cultural identities. This condition aligns with the characteristics of soundscapes in Indonesian cities, which tend to be dynamic, dense, and "eventful," where sound is not always perceived as noise but rather as part of spatial identity (Mediastika et al., 2023; Mediastika et al., 2021). In this context, sound does not merely appear as a physical phenomenon but also as a social expression that reflects cultural and religious plurality.

From a soundscape theory perspective, these findings can be interpreted using Schafer's (1977) framework, which distinguishes between keynote sounds, sound signals, and soundmarks. However, rather than applying this classification purely descriptively, the empirical data from Bandung reveal a more fluid, overlapping categorization.

The adhan, for instance, serves as a sound signal because of its explicit communicative role in marking prayer times. At the same time, field observations and interview responses indicate that it also operates as a soundmark, as many participants—both Muslim and non-Muslim—recognize it as a defining auditory identity of the city. This dual function is reinforced by its high amplitude and wide spatial diffusion through loudspeakers, which extend its presence beyond the mosque into broader public spaces.

In contrast, church bells primarily function as sound signals, as their temporal occurrence is limited and tied to specific liturgical moments. Interview data suggest that, while they are symbolically meaningful to Christian communities, their recognition as a shared urban marker is more limited than that of the adhan. This indicates that not all religious sounds equally achieve the status of soundmark within plural urban contexts.

Meanwhile, gamelan operates as a keynote sound that shapes the continuous acoustic background of public space, particularly in Bandung Station. However, observational data show that its role is not entirely passive; for some participants, gamelan also carries cultural identity and contributes to the perception of place. This suggests that the boundary between keynote sound and soundmark can become blurred when cultural sounds are repeatedly encountered in public space.

Therefore, the Bandung case demonstrates that Schafer's typology, while analytically useful,

requires contextual adaptation. Sound categories are not fixed but are dynamically constructed through spatial reach, repetition, technological mediation, and social interpretation. This finding highlights the need to move beyond rigid classifications toward a more relational understanding of urban soundscape.

Furthermore, within the framework of urban pluralism, the presence of diverse soundscapes reflects how the city becomes a space of negotiation among various social, cultural, and religious identities (Arkesteijn & Volker, 2013; Rogers & McAuliffe, 2025). Bandung is not only a physical space where different groups coexist, but also an acoustic space where diversity is expressed through sound. Thus, the soundscape can be understood as a materialization of urban pluralism, in which sound functions as a medium that connects, differentiates, and unites various groups within a shared social space.

Based on these findings, this study concludes that the religious soundscape in Bandung is not a coincidental phenomenon but rather the result of a social structure that reflects the plurality of religion and culture in urban life. The soundscape not only functions as a background element but also as a representation of social dynamics that shape the identity of urban space. Therefore, sound can be understood as a social structure in acoustic form that lives within the everyday experiences of society.

The Social Function of Soundscape: Markers of Time, Space, and Identity

The findings indicate that the religious soundscape in Bandung operates not merely as an acoustic phenomenon but as a socially embedded mechanism that structures temporal coordination, spatial orientation, and identity formation in everyday life. Rather than functioning in isolation, the three sound forms—the adhan, church bells, and gamelan—interact within a shared urban acoustic field, producing differentiated yet interrelated modes of social organization.

Based on observations and interviews conducted at Masjid Dzikrullah, Saint Peter's Cathedral Church, and Bandung Station, each sound demonstrates a distinct modality of influence: the adhan regulates collective temporal discipline, church bells sustain symbolic and reflective temporal awareness, and gamelan shapes ambient cultural perception of space. This differentiation suggests that the urban soundscape operates as a layered system of auditory practices, in which sound mediates the relationships among individuals, social groups, and spatial environments.

From a soundscape and social space perspective, these findings support the argument that sound functions as a form of spatial production (Lefebvre, 2014), where auditory practices actively participate in constructing lived space rather than merely occupying it. Thus, the religious soundscape in Bandung can be understood as a relational structure in which sound organizes social life through the synchronization of time, the marking of space, and the reinforcement of collective identities.

To provide a comparative overview, the following table presents the social functions of the soundscape in Bandung:

Table 2. Social Functions of Soundscape in Bandung

Type of Sound	Temporal Function	Spatial Function	Social Function
Adhan	Marker of prayer time	Religious space (mosque and surrounding area)	Mobilization of congregation, Muslim identity
Church bells	Marker of prayer time (Angelus)	Sacred church space	Spiritual reflection, community symbol
Gamelan	Situational marker	Public space (station)	Cultural atmosphere, local identity

Empirically, the *adhan* serves as the most dominant function, both as a temporal marker and as a mechanism of social mobilization for Muslims. One informant (AS) explains, "The *adhan* is not only a call to prayer, but it brings people together, encourages collective prayer, and strengthens social ties. From this, routines and Muslim identity are formed" (Interview, April 17, 2026). This statement indicates that the *adhan* functions not only as a religious signal but also as a mechanism that organizes collective activities, shapes social habits, and reinforces religious identity.

Meanwhile, church bells perform a more symbolic and reflective function. Based on an interview with a church administrator (MS), the bells do not only mark the Angelus prayer time but also remind the congregation of God's presence in everyday life and invite them to pause briefly from worldly activities. As stated, "the bells are not merely time markers, but they remind people of God's presence and invite them to reflect in silence" (Interview, April 17, 2026). In addition, church bells are used in various liturgical events, such as mass, weddings, and funerals, expanding their function as markers of sacred space and community identity.

In contrast, gamelan at Bandung Station performs a more cultural and atmospheric function in public space. A station officer (AZ) explains, "This gamelan creates a distinct West Javanese atmosphere, so passengers feel calm and comfortable while also learning about Sundanese culture" (Interview, April 18, 2026). Therefore, gamelan not only functions as an aesthetic element but also serves as a medium that represents local cultural identity within modern urban space. This function indicates that soundscape relates not only to religious practices but also to the production of cultural meaning in urban life.

Analytically, these findings show that the religious soundscape functions as a social organizer, regulating and coordinating social activities through sound. In this perspective, sound does not merely convey information but also shapes collective behavior by synchronizing coordinated social actions, in which individuals act simultaneously toward shared goals (Hyska, 2025; Swarts, 2013). This concept emphasizes that social organization does not depend solely on formal structures but can also emerge through everyday practices that mobilize individuals within specific social spaces. In this context, sound serves as a trigger for collective action, creating connections among individuals in social life. As explained in studies of community organizing, this mobilization process not only produces collective action but also builds solidarity, collective identity, and social awareness within a community (Hardina et al., 2015; Swarts, 2013).

In the empirical context of this study, the adhan serves as a particularly strong mobilization mechanism because it triggers synchronized responses among individuals, leading to patterned collective practices at specific times and places. This can be observed in the regular flow of individuals toward the mosque during prayer times, as well as in interview responses that emphasize the formation of routine and social cohesion. In this sense, what is referred to here as causal complementarity can be operationalized as the convergence of individual actions—such as preparing for prayer, moving toward the mosque, and participating in congregational worship—that mutually reinforce one another and produce stable collective patterns.

Unlike the adhan, church bells generate a more limited form of synchronization. While they mark specific moments for reflection or prayer, observational data suggest that they do not consistently produce spatial convergence of participants to the same extent. Instead, their effect operates more symbolically, shaping individual awareness rather than collective mobilization.

Meanwhile, gamelan operates differently, organizing the affective and atmospheric dimensions of social experience rather than direct behavioral coordination. Field observations at Bandung Station indicate that gamelan contributes to a shared sense of place, influencing mood and perception without requiring synchronized action. This suggests that sound can organize social life not only through direct mobilization but also through the production of shared sensory environments.

Therefore, the three sound forms demonstrate different modes of social organization: the adhan produces high-intensity synchronization, church bells generate symbolic-temporal alignment, and gamelan shapes ambient social cohesion. These findings indicate that the concept of social organization through sound must be understood as a spectrum of influence, ranging from direct collective mobilization to indirect affective coordination.

Furthermore, within the framework of social space theory, this function of soundscape can be understood as part of the socially produced space (Bourdieu, 1991; Lefebvre, 2014). Space is no longer understood as merely a physical entity but as a product of social interactions mediated by various practices, including sound practices. The *adhan*, church bells, and gamelan are not only heard within space, but also actively shape it as a religious, cultural, and social environment. Thus, soundscape becomes part of the dialectical relationship between physical space and social practices that shape human experience.

In addition, these findings align with the lived religion approach, which emphasizes that religion exists not only in doctrine and formal institutions but also in everyday practices that are

concrete and sensory (Ammerman, 2007; McGuire, 2008; Orsi, 2003). In this context, the *adhan* and church bells are not only understood as religious symbols but also as lived experiences that continuously shape individual religious consciousness. Even gamelan, although not explicitly religious, contributes to shaping cultural experiences that intersect with the community's spiritual life.

In conclusion, the religious soundscape in Bandung functions as a mechanism that organizes social life by regulating time and space while also shaping identity, social relations, and religious experience. Therefore, sound can no longer be understood as a passive element in urban space, but rather as an active force that collectively constructs social life.

Soundscape as Religious Experience and Intercultural Space

The findings show that the religious soundscape in Bandung functions not only as an acoustic phenomenon or a social mechanism but also as a subjective religious experience and an intercultural space that brings together diverse religious and cultural identities. Based on interviews with informants from various religious backgrounds, the study finds that experiences of the sounds of the adhan, church bells, and gamelan are not uniform but vary, ranging from calming to ordinary perceptions to experiences perceived as disturbing.

This variation reflects the subjective and context-dependent nature of auditory religious experience, as emphasized in soundscape and lived religion studies, which argue that sound is interpreted through individual perception, cultural background, and situational context (McGuire, 2008; Truax, 2001; Weidman, 2014). In this sense, sound does not carry a fixed meaning but operates as a relational medium whose significance emerges through interaction between the listener, the environment, and broader social frameworks.

Empirically, most informants describe the religious soundscape as a calming experience with a strong spiritual dimension. A Muslim informant (IR) states, “the *adhan* is not just a sound; it moves my heart and immediately motivates me to pray. It feels peaceful and reminds me of God” (Interview, April 18, 2026). A similar perspective appears in the statement of a Catholic informant (MB), who explains that “church bells create a peaceful atmosphere and serve as a reminder to pray, like an invitation to pause from worldly activities” (Interview, April 18, 2026). Even in a cultural context, the sound of gamelan creates a positive emotional experience, as expressed by a tourist (JM), who states, “gamelan makes the atmosphere calm, like relaxation, and it makes me proud of Indonesian culture” (Interview, April 16, 2026).

However, not all experiences are strongly religious or emotional. Some informants indicate that these sounds have become part of routine and are perceived as ordinary. One informant (AS) explains that “the *adhan* is heard so often that it feels ordinary and sometimes goes unnoticed” (Interview, April 17, 2026). A similar view is held by another informant (RA), who perceives church bells as a habitual sound without specific meaning. In addition, in certain situations, soundscape may create disturbance, particularly in relation to sound intensity and situational context. One informant (ZA) states that “sometimes the *adhan* can be distracting during meetings, especially when it is too loud” (Interview, April 15, 2026), while another informant (RP) associate’s gamelan with certain cultural perceptions that feel less comfortable.

Interestingly, in an interreligious context, the religious soundscape demonstrates a relatively high level of acceptance and tolerance. A Catholic informant (BV) states that he does not feel disturbed by the *adhan* and even considers it part of shared life in Bandung, saying that “it is part of living together in society and a form of tolerance; sometimes it even serves as a marker for rest time” (Interview, April 15, 2026). Conversely, a Muslim informant (MAA) who lives near a church state that the sound of church bells contributes to social harmony, noting that “it does not disturb at all; in fact, it is beautiful when heard together with the *adhan*” (Interview, April 15, 2026). In addition, gamelan is perceived as a universal cultural element that does not conflict with religious values, as expressed by an informant (NA), who stated, “Traditional music like gamelan is a cultural heritage that should be respected by all religions” (Interview, April 16, 2026).

These findings indicate that the religious soundscape in Bandung can be understood as a shared acoustic space, namely a space in which multiple sound sources coexist, overlap, and interact within the same acoustic environment. In this concept, acoustic space is not only understood as a physical condition composed of sound waves but also as a social space shaped by perception, experience, and interaction among individuals who experience it (Jeon et al., 2026; Lian et al., 2025). In this context,

soundscape becomes an arena where various social and symbolic practices intersect, producing collective meanings that are not necessarily homogeneous. In contrast to conventional acoustic studies that often view sound diversity as a source of disturbance or conflict, these findings demonstrate a pattern of coexistence, where religious and cultural sounds are accepted as part of the rhythm of shared life. This perspective aligns with soundscape studies that emphasize how sound perception is shaped by social and cultural contexts, so that the same sound can be interpreted as comfort, identity, or disturbance depending on individual subjective experience (Kang et al., 2016; Truax, 2001).

These findings also contribute significantly to expanding interreligious studies in Indonesia, which have often focused on conflict, formal dialogue, or institutional tolerance policies (Sari, 2022; Setiawan & Asa, 2024). In this study, the soundscape demonstrates that interreligious relations do not always develop through verbal interaction or formal discourse but also through everyday sensory experiences that often remain implicit. Sound becomes a practical medium of tolerance in which individuals from different religious backgrounds share the same acoustic space without engaging in explicit negotiation. This finding supports studies on interreligious relations in Indonesia that highlight the importance of everyday practices, informal interaction, and local wisdom in building social harmony (Japar et al., 2022; Pangalila & Rumbay, 2024). Therefore, soundscape can be understood as a form of everyday interreligious practice, where tolerance is not only expressed but also enacted through repeated lived experiences.

Furthermore, from the perspective of urban religion, these findings show that the city is not only a physical space governed by development and infrastructure but also a lived spiritual environment shaped through everyday sound practices (Gómez & Van Herck, 2012; Rüpke, 2020). However, rather than treating this idea at a purely conceptual level, the empirical data from Bandung demonstrate how such a process occurs in practice.

Field observations and interview responses indicate that sounds such as the adhan and church bells extend religious presence beyond institutional boundaries, entering shared public spaces and becoming part of everyday urban experience. For instance, several non-Muslim informants report recognizing the adhan not only as a religious signal but also as a temporal reference point in daily routines, while Muslim informants living near churches describe church bells as contributing to a sense of coexistence rather than separation. This suggests that religious sound does not simply mark territory but participates in shaping shared spatial experience across religious boundaries.

In this context, Lefebvre's concept of the production of space (Lefebvre, 2014) can be critically extended: space is not only produced through visual, material, or institutional practices but also through auditory practices that are repetitive, diffusive, and collectively experienced. The soundscape of Bandung illustrates that religious space is not confined to mosques or churches but is continuously re-produced through sound that circulates across urban environments.

Moreover, the presence of gamelan in public space further complicates this framework by introducing a cultural layer that intersects with religious experience. Observations at Bandung Station show that gamelan contributes to a shared affective atmosphere that is not tied to a single religious identity but still shapes how individuals experience space, including in ways that intersect with spiritual sensibilities. This indicates that urban religiosity cannot be fully understood through formal religious categories alone but must also account for aesthetic and sensory dimensions of experience. Therefore, the religious soundscape in Bandung demonstrates that urban space is co-produced through the interaction of religious, cultural, and sensory practices, where sound acts as a key medium in extending, negotiating, and sometimes blurring the boundaries of religious presence in contemporary urban life.

In conclusion, the religious soundscape in Bandung forms a living interreligious space, in which different sounds do not merely coexist passively but interact dynamically in shaping complex social experiences. This space does not only reflect diversity but also produces forms of practical and sustainable coexistence. In this context, soundscape does not merely function as an auditory background but also as an intercultural space that enables the negotiation of meaning, the formation of shared identity, and the strengthening of social cohesion within a plural urban society. Therefore, sound can be understood as an active social medium in shaping interreligious relations and as an important indicator of social dynamics in contemporary urban life.

Transformation of Soundscape: Technological Mediation in the Perspective of Posthuman Acoustic

The findings show that the religious soundscape in Bandung has undergone a significant transformation alongside technological development, particularly in sound production, distribution, and experience. Based on observations and interviews, the three types of sound examined—the *adhan*, church bells, and gamelan—are no longer entirely produced manually but are mediated by various technological devices that alter both their characteristics and their reach within urban space.

To provide a clearer overview, the following table presents the technological transformation within the religious soundscape:

Table 3. Technological Transformation in Religious Soundscape

Type of Sound	Technology	Production System	Main Impact
Adhan	Loudspeakers	Manual with amplification	Wider reach, increased intensity
Church bells	Electronic automated system	Scheduled automation	Time precision, efficiency
Gamelan	Digital audio system	Recording/looping	Continuous, adaptive, atmospheric

The use of loudspeakers in the practice of the *adhan* represents the most dominant form of technological transformation. Previously, the *adhan* was delivered directly without amplification, but the use of loudspeakers now allows the sound to reach a wider area and be heard more intensely in public spaces. One informant (AS) states that "with loudspeakers, the *adhan* can be heard farther, and the call for congregational prayer becomes more widespread; this is very helpful for the community" (Interview, April 17, 2026). This statement indicates that technology not only extends the reach of the adhan's sound but also strengthens its social and religious functions as a mechanism of collective mobilization.

A similar transformation occurs with church bells, which are now often operated through electronic automated systems. Bells are no longer rung manually but are programmed to sound at specific times, such as 06:00, 12:00, and 18:00 to mark the Angelus prayer, as well as during other liturgical moments. A church member (MS) states that "with an automated system, the bells become more punctual and regular, so worship can proceed in a more disciplined manner" (Interview, April 17, 2026). This automation demonstrates that technology enhances the efficiency and consistency of religious practices while reducing dependence on direct human intervention.

In the context of public space, technological transformation also appears in the use of digital gamelan at Bandung Station, which plays automatically as part of the spatial atmosphere. Unlike traditional gamelan, which is performed live by human musicians, this gamelan is reproduced through a digital audio system that operates continuously without direct human intervention. One informant (JM) notes that "this digital gamelan feels more modern and can play continuously, so the station atmosphere becomes more lively and comfortable" (Interview, April 16, 2026).

However, beyond its functional advantages, this transformation indicates a significant shift in the ontology of sound within urban space. From a posthuman acoustic perspective, the production of sound is no longer solely dependent on human performers but is co-constructed through technological systems that enable repetition, stability, and scalability of auditory experience. In this case, digital gamelan does not merely replicate traditional sound but reconfigures its role—from a performative cultural practice into a continuous ambient layer that shapes spatial perception.

This shift also raises critical questions regarding authenticity and cultural mediation. While traditional gamelan is characterized by temporal variability, embodied performance, and communal interaction, its digital form tends to standardize sound into a fixed and repeatable pattern. As a result, the cultural meaning of gamelan becomes partially detached from its original social context and repositioned as an aesthetic resource within modern urban infrastructure.

Therefore, the presence of digital gamelan in Bandung Station illustrates how technological mediation transforms not only the mode of sound production but also its social function and cultural

significance. Rather than functioning as a site of collective performance, gamelan becomes part of an engineered soundscape that contributes to comfort, atmosphere, and place identity within a highly regulated public environment.

These findings indicate a fundamental shift from human-based sound production toward technologically mediated systems. In this context, sound is no longer produced solely through direct human action but emerges through complex interactions between humans and technological devices. This shift aligns with perspectives in posthuman studies, which emphasize that humans are no longer the sole actors in producing social experiences but are part of broader sociotechnical systems (Kalpokiene & Kalpokas, 2023; Kudina & van de Poel, 2024). Within this system, technology functions not only as a tool but also as an agent that shapes social experiences and practices.

Furthermore, in the posthuman acoustic perspective proposed by Peter Baofu, sound is understood as a relational entity that does not originate solely from humans but is produced through interactions among humans, technology, and the environment (Baofu, 2013). Within this framework, the religious soundscape in Bandung can no longer be understood as a purely human expression but rather as the result of a network of relations between human and non-human actors. The use of loudspeakers for the *adhan*, automated systems for church bells, and the digitalization of gamelan demonstrate that technology has become an integral part of sound production, thereby transforming the ontology of sound itself.

This transformation can be further understood in relation to the development of digital technology, which increasingly blurs the boundary between human and non-human production. While Hancock (2023) highlights how technological systems displace or reconfigure human roles in contemporary life; it extends that argument by demonstrating how such transformations operate specifically within the domain of religious and cultural sound. In the context of Bandung, sound is no longer produced solely through human performance but emerges through hybrid interactions between humans, technological systems, and spatial infrastructures.

As noted by Jensenius (2022), digital technology enables precise, continuous, and human-independent sound reproduction. However, the findings of this study suggest that this shift is not merely technical but also social and symbolic. The transition from live to technologically mediated sound—such as in the case of digital gamelan—reconfigures how sound is experienced, from an embodied, event-based practice to a stable, ambient presence in public space.

Furthermore, while existing studies argue that digital audio technologies shape human perception and interpretation of sound (Taffel, 2023; Weisser et al., 2023), this study contributes by showing that such mediation also transforms the meaning of sound within plural urban contexts. In particular, technological mediation alters how sound functions as a marker of identity, shifting it from a localized and context-bound practice into a more standardized and widely distributed auditory experience.

This study argues that digital sound technologies do not simply reproduce existing soundscapes but actively reconfigure the relationship between sound, space, and social meaning. This highlights the need to understand religious sound not only as a cultural expression but also as a technologically mediated process that reshapes how identity and experience are constructed in contemporary urban life.

Therefore, the religious soundscape in Bandung can be understood as the result of a dynamic relationship between humans and technology within urban space. Sound can no longer be interpreted as a natural and static phenomenon but rather as a product of an evolving sociotechnical system. This transformation demonstrates that religious and cultural experiences are shaped not only by human practices but also by technological mediation that alters how sound is produced, distributed, and experienced in everyday life.

Reconstruction of Soundscape Meaning: Sacredness, Function, and Ambivalence

The findings show that the religious soundscape in Bandung undergoes a dynamic reconstruction of meaning, in which sound is no longer interpreted solely as a sacred entity but also as a functional phenomenon and, in certain contexts, as a disturbance. Based on interviews with informants, perceptions of the sounds of the *adhan*, church bells, and gamelan reveal significant variation, reflecting the diversity of experiences and interpretations within urban society.

Empirically, most informants continue to interpret sound as possessing a strong sacred dimension. One informant (IR) states that “the *adhan* is not merely a sound; it brings a sense of calm and reminds us of God” (Interview, April 18, 2026). A similar perception is evident in the

interpretation of church bells, which are regarded as symbols of spiritual presence and reminders of prayer. In this context, sound functions as a medium that connects individuals with transcendent experience, thereby carrying inherent sacred value.

However, within the dynamics of urban life, sound also undergoes normalization as part of everyday routine. One informant (DN) explains that "the sound of the *adhan* has become part of daily life, so sometimes it is no longer noticed" (Interview, April 17, 2026). Similar perceptions appear regarding church bells and gamelan, which are often considered ordinary background sounds in urban life. In addition, in certain situations, sound may also be perceived as disturbing, particularly when the intensity of the sound is considered too high or incompatible with the context of individual activities. One informant (ZA) states that "when I am focusing on work, sounds that are too loud can feel disturbing, even if it is the *adhan*" (Interview, April 18, 2026).

These findings demonstrate the presence of ambivalence in the meaning of religious soundscape, which can be understood through the dichotomy of sacred versus noise. The boundary between sound perceived as sacred and sound perceived as disturbance is not fixed but is shaped by social context, individual experience, and power structures within society (Brennan et al., 2023; Llano, 2016). In this perspective, what one group considers "sacred sound" may be interpreted as "noise" by another group, depending on social position and auditory experience. This condition indicates that the meaning of sound is not inherent in the sound itself but is socially and culturally constructed.

Furthermore, studies on religious soundscape often understand sacred sound as a medium that presents spiritual dimensions and reinforces collective identity within a community (Laferrière, 2019; Shelley, 2020). However, in modern urban contexts, sound must also negotiate with the logic of public space, which is governed by diverse norms, regulations, and interests. This condition creates tension between the sacred and social functions of sound, in which religious sound no longer exists exclusively within sacred space but enters a plural and complex public sphere. Thus, the religious soundscape becomes an arena where meanings interact, conflict, and are continuously negotiated.

This transformation cannot be separated from the role of technology in mediating auditory experience. The use of loudspeakers, automated systems, and digital reproduction not only transforms how sound is produced but also reshapes how sound is experienced and interpreted by society. Within the framework of posthuman acoustic proposed by Peter Baofu, sound is understood as the result of relationships among humans, technology, and the environment (Baofu, 2013). In this context, technology does not merely extend the reach of sound but also shifts its meaning from an embodied, sacred experience to a more mediated, functional one.

In line with this, developments in modern technology indicate that human experience is increasingly integrated into complex sociotechnical systems, where the boundary between humans and technology becomes progressively blurred (Hancock, 1997; Kudina & van de Poel, 2024). In the specific context of Bandung, this transformation becomes evident in the use of loudspeakers for the adhan, automated bell systems in churches, and digital gamelan in public spaces such as Bandung Station. These technologies do not merely extend the reach of sound but actively reshape how it is produced, distributed, and encountered in everyday life.

Empirical findings suggest that this mediation alters the relationship between sound and its meaning. For instance, amplifying the adhan allows it to reach wider audiences beyond the mosque, but it also contributes to its normalization as a routine background sound for some listeners. Similarly, automated church bells maintain temporal regularity but reduce the variability and situational nuance of live performance. In the case of digital gamelan, continuous playback transforms what was once an event-based cultural performance into a stable ambient presence within public space.

These examples demonstrate that sound in Bandung can no longer be understood as a purely human expression but as a hybrid product emerging from interactions between human intention, technological systems, and spatial conditions. Consequently, changes in the meaning of sound are not only the result of individual perception but also reflect broader structural transformations in how auditory experience is organized, standardized, and embedded within urban sociotechnical environments.

In conclusion, the meaning of religious soundscape in Bandung is unstable, fluid, and ambivalent. Sound can function as a sacred medium, as an ordinary social background, or as a disturbance, depending on context and individual experience. Therefore, the soundscape does not merely reflect social reality but also becomes an arena in which meaning is continuously produced, negotiated, and transformed in contemporary urban life.

Conclusion

This study shows that the religious soundscape in Bandung—comprising the sounds of the *adhan*, church bells, and gamelan—is not merely an acoustic phenomenon but an active social structure that shapes plural urban life. The main findings reveal that soundscape functions as a social organizer that regulates the rhythm of time, space, and collective activities within society. The *adhan* serves as both a temporal marker and a mechanism of social mobilization for Muslims, church bells mark the spiritual rhythm of the Catholic community, and gamelan shapes the cultural atmosphere of public space. These three sounds coexist simultaneously and form a shared acoustic space that enables coexistence and interaction across religious and cultural boundaries in everyday urban life.

Furthermore, this study finds that the religious soundscape also shapes subjective and intercultural religious experiences. Sound not only presents a spiritual dimension for individuals but also becomes a medium of implicit tolerance in everyday life. In this context, interreligious relations are not always constructed through formal dialogue but through repeated auditory experiences that are often unconscious. In addition, this study identifies a transformation of soundscape due to technological mediation, in which sound production is no longer entirely human-based but involves sociotechnical systems such as loudspeakers, automated systems, and digital reproduction. This transformation leads to a shift in the meaning of sound, which becomes increasingly fluid and ambivalent, where sound may be interpreted as sacred, ordinary, or disturbing depending on context and individual experience.

Academically, this study contributes to soundscape studies, urban religion, and contemporary Islamic studies by providing an empirically grounded analysis of how religious sound operates within a plural urban context. The findings demonstrate that soundscape functions not only as a symbolic or ritual element but as a relational mechanism that organizes social life through temporal coordination, spatial extension, and shared sensory experience. Through cases such as the amplification of the adhan, the automation of church bells, and the digitalization of gamelan, this study shows how technological mediation reshapes the production and meaning of sound in everyday urban life.

This study also offers a contextual refinement of posthuman acoustic perspectives by illustrating that religious sound emerges from interactions among human actors, technological systems, and spatial environments. Empirically, the findings indicate that soundscape serves as a medium of coexistence in which meanings are continuously negotiated across religious and cultural groups. Rather than proposing a universal model, this study provides a context-specific insight into how religious soundscape operates as a dynamic and mediated social phenomenon in contemporary urban society.

However, this study has several limitations. First, the study focuses on a case study in Bandung with a relatively limited number of informants, so the findings cannot be broadly generalized to other urban contexts with different characteristics. Second, the study emphasizes auditory experience and perception, and therefore does not fully explore policy, regulatory, or conflict dimensions related to religious soundscape in public space. Third, the use of a qualitative approach means that the study does not measure sound intensity or acoustic impact quantitatively. Therefore, future research should develop comparative studies across cities, integrate quantitative-acoustic approaches, and explore policy and conflict dimensions in managing religious soundscape in urban space.

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