



Urbanization, impermeable boundary and losing communal identity: A case study of the local waterfront community in Bangkok suburbs

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Abstract

This study aims to investigate urbanization effects on place identity of the local waterfront community in a Bangkok suburb. The study argues that urban developments in a Bangkok suburb community contribute to impermeability, which refers to bordering space separating new urban communities from their local waterfront counterparts. The emergence of impermeable boundaries leads to the decline of social connections and communal identity of place in terms of physical functions and communal sharing. Spatial-relation schemes and aerial photograph analyses and process tracing were employed to examine the expansion of urban subdivisions and public transportation on waterfront communities along Om-Non canal, Nonthaburi province. The findings indicate that expansion of the new gated residences in parallel with transportation-network developments changes physical and social structures of the local waterfront community in such a way that it has faced the symbolic deterioration of interdependency and the decline of communal sharing. This study recommends that in order to promote sustaining identity of the waterfront community on the development, new physical nodes for communal interactions could be created; for example, livable waterfronts can become recreational, public places for reconnection between local and new-coming residents to regenerate kinships.

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Introduction

While urbanization has expanded into waterfront suburbs nearby Bangkok, local waterfront communities are degenerating into segregation from developments.

Dialectic relationships between local waterfront communities and urbanization continue challenges of the future environmental development. Urbanization as the process of the city growth creates transformation of the waterfront-community settlements and their identity of place toward urban sprawls in relation to transportation infrastructures: roads and skytrains. How urbanization affects place identity of the waterfront communities in Bangkok suburbs thus lies in the core of this study.

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This research is based upon the assumption that urbanization in Bangkok suburbs overlooks local identity of place that consists of triple interrelated elements: physical form, socio-cultural activities and meaningful symbols (Relph, 1976), and performs as a key constituent for sustainable-community making. Place identity of traditional Thai settlements have been engaged with waterways as vital environments generate waterfront settlements, lifestyles, and culture, all of which construct waterfront communities. Waterfront communities still reflect uniquely socio-cultural environments of traditional settlements engaged with local canal networks, the so-called *Klong*. Clustering settlements along waterways, waterfront architecture as well as cultural kinships accumulate characteristic identity of the waterfront communities. Thai waterfront residential architecture embodies architectural elements of verandas connecting dwellings with waterways. Waterfront verandas perform as edges of place for two-folded functions of connections and divisions (Laiprakobsup, 2008) as Gehl (2010) defines as “soft edges” in transition to foster communal associations that cultivate sustainability of place. On the other hand, impermeable boundaries merely operate separations between neighboring domains in rigid, unlivable forms such as solid fences, thereby obstructing spatial interpenetration. Impermeable boundaries appear in modernist urban and architectural development into zoning separation leading to social segregations (Jacob, 1961).

For more than 6 decades, local waterfront communities around Bangkok suburban areas have faced ecological and social transformation due to governmental development policies. The rise of city and urban areas contributes to environmental, economic, and social transformation in negative ways (Keil, 2005). Urbanization leads to farmers’ vulnerability to land entitlement due to the expansion of residential communities and industrial estates (Adger, 2006). Environmentally speaking, urban expansion has transformed agricultural land near the city to public infrastructures and urban residences. Particularly, place identity of the waterfront communities in Bangkok suburbs have been fading away since urbanization has taken place in Bangkok suburbs.

Maintaining identities of the waterfront community and urbanization seem to be in conflict to construct sustainable development of place. However, urbanization effects on identity of the waterfront communities have barely been addressed in sustainable development. As place identity of the waterfront community and urbanization effects lie in an unrefined investigation, the

research objectives consequently focus on examining the following:

1. To define place identity of the waterfront community in a Bangkok suburb
2. To analyze urban sprawling impacts on the waterfront community in sustainable development.

Understanding of place identity of the waterfront community and its transformation through urbanization will contribute to new insights into constructing collective place of the communal sharing. Collective place will play a critical role in the waterfront-community rehabilitation as retaining local identity via urban development.

Literature Review

Thai waterfront communities are considered as unique places that convey characteristics of architectural and environmental forms, socio-cultural patterns, and communal relationships in relation to waterway living. These characteristics construct place identity of the waterfront communities. With urban expansion, waterfront communities have confronted physical, social, and historical transformations. This research encompasses three reviewed topics: waterfront community, place and sustainability, and urbanization in an interdisciplinary perspective.

Waterfront communities exist as socially clustering settlements on the land adjacent to waterways that shape topographical, living configurations, ecology, history, cultures, and customs into water-based places. Waterfront communities tend to associate with religious places functioning as a central, gathering venue for ritual and public activities (Panin & Jiratadsanakul, 2001; Silapatcharanan, 2013). They, moreover, collect vernacular form of architecture, that is, unselfconsciously constructed corresponding to water and social ecology: houses, temples, mills, and villages are oriented and interdependent to waterways of living. Based on Ekistics theory, identity of the waterfront communities comprises of these five constituents: topographical water ecology, architectural forms, ethnic groups, socio-cultures, and waterway networks of transportation (Haocharoen, 2017; Silapatcharanan, 2013). These collective fundamentals of water communities’ identity are congruent to Relph’s place-identity counterparts of physical attributes, social activities related to human beings, and communal symbols (1976).

Every place articulates identity of place symbolizing unique patterns of the specific environment and human relationships that distinguish from other places. Identity of place retains environmental sustainability to promote

In conclusion, place identity encompasses interrelated elements of distinctive physical forms, socio-cultural functions, and expressive symbols. Studies on Thai waterfront communities' identity, however, mainly concentrate on more nostalgically physical attributes than social and symbolic constructs as well as sustainable-making for supporting contemporary livelihood.

Based on criteria of urbanization impacts on the waterfront community in a Bangkok suburb and infrastructure developments, this study selected Klong Bang Phai waterfront community in Bang Bua Thong, Nonthaburi province as a case study, to investigate place identity and transformation. The scope of the focused area ranges from Wat Molee to Wat Bang Praek (Figure 1). The community consists of waterfront dwellings, Buddhist temples (i.e., Wat Molee and Wat Bang Praek), small-sized fruit orchards, new gated residences, high-rise buildings. Klong Bang Phai community was previously a farming neighborhood in Nonthaburi. The community is located along Om-Non canal, called Klong Om-Non, which connects Nonthaburi with the Chao Praya River and Western Bangkok. Klong Om Non was previously one of the significant waterways in Nonthaburi province commuting people in waterfront communities to Bangkok piers and marketplaces. Local farmers used Klong Om-Non for transporting agricultural commodities to Tha Tien marketplace in Bangkok.

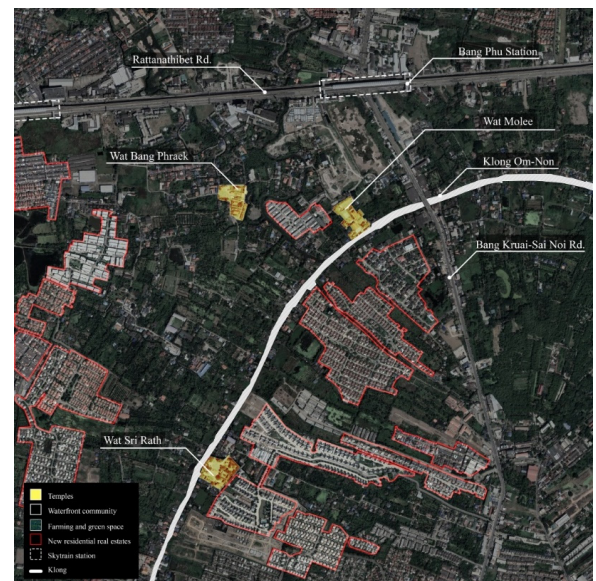


Figure 1 Klong Bang Phai Community's vicinity diagram shows typologies of land uses
Source: Modified by authors based on Google Map (2022).

Klong Bang Phai community's locals are a mix of Thai and Thai-Chinese residents. In the past, the community was economically dependent: Thai farmers sold their commodities to Thai-Chinese merchants and rice millers. Thai and Thai-Chinese locals, in this vein, are culturally assimilated. As witnessed, Buddhist temples and Chinese shrines are located alongside each other. Community locals helped each other when there were communal festivals no matter whether Buddhist or Chinese events, as to local informants' interviews.

The community has faced socio-physical transformation due to expansion of transportation infrastructures (i.e., roads and electrically elevated railways). According to field observations, several old waterfront houses have been abandoned since it was difficult to connect to main roads. In terms of family structure, residents living in the community are mostly seniors who are already retired and become semi-active farmers. Middle-aged residents hardly exist in the selected community while younger generations leave the community for studying and working in Bangkok metropolitan areas.

Combined Methods and Thematic Analysis

Having understood complex dynamics of environmental transformations of Klong Bang Phai waterfront community, several methods were employed for data gathering and interpretation in this study. First, archival searches of place were collected: case documents, map archives from Google Earth starting from 1985 to the present. Second, physical observations were gathered to examine physical structures of the waterfront community through: (1) visual records of drone aerial views and normal-viewpoint photographs of settings; (2) spatial-relation schemes to collect the relationship between waterfront architecture and lifestyles by means of the waterway voyage; (3) participation on a community sightseeing tour to realize naturalistic characters of the community. Third, key informant interviews with the orchard owners and Thai-Chinese residents, who had lived in the community for more than 6 decades, were employed to trace the socio-cultural and economic history of the community and to understand how the waterfront community has transformed. Interview questions were divided into three sections: (1) describing social and cultural characteristics of Klong Bang Phai community in the past and the major characters of the community; (2) identifying what factors contributed to changes in the community; and (3) noting expectations of the community development. An interview was

also conducted with the local-born village headman, who initiated the local community tourism program concerning the cooperation with public and private agencies.

To assess and interpret research data, thematic analysis was carried out. The thematic analysis was used to analyze the relation between explanatory factors of the environment and identity of place. Thematic analysis is defined as “a method for identifying, analyzing, and reporting patterns within data” (Vaismoradi et al., 2013). Unitizing and categorizing process (Lincoln & Guba, 1985) was utilized to interpret factors of socio-physical phenomena: relations between environmental attributes, socio-cultural activities, and local history. Sorting spatial-relation schemes of the waterfront settings collaborating with social behaviors characterized physical structures of transformations. Having analyzed the pattern of impermeable boundary, urbanization effects on place identity of the waterfront community are thus thematized into three interrelated subject matters in terms of physical, socio-functional, and symbolic transformations. Each theme presents transformations through infrastructure developments.

1. Clustering Settlement Versus Bounded Domains
2. Interdependency Versus Capitalism
3. Edging Interactions Versus Impermeability

Results

Over 60 years, Thai waterfront communities have gradually converted multiple facets which configure their unique identity of place: morphological, social, ecological characteristics. Research findings reveal that infrastructure developments based on government policies induce critical impacts on urbanizing Bangkok suburbs of Nonthaburi Province. Located in the Western outskirt of Bangkok, Nonthaburi Province has been rapidly growing over a half century as a large Bangkok suburb. Satellite-city shifting of Nonthaburi lies in substantial urbanization as to development of transportation modes: highways and skytrain networks. Urbanizing Nonthaburi has crucially resulted in transforming the identity of place from agricultural communities of interdependency toward rootless urban sprawl, especially Khlong Bang Phai waterfront community, with disconnected residential juxtapositions (Figure 2).



Figure 2 Urbanizing Klong Bang Phai, Nonthaburi has caused the emergence of real estate development among a clustering settlement and local agricultural landscape
Source: Authors (2022).

Clustering Settlement Versus Bounded Domains

Klong Bang Phai community is a clustering settlement along Klong Om-Non and Klong Bang Phraek. Having been operated as agricultural farmlands, local landscape of orchards, vegetation patches, and rice paddy fields as well as waterway networks distinctively demonstrated the community's physical forms. Its public and religious

places lie in local Buddhist temples: Wat Molee, established in 1832 during King Rama III's reign, serves as a gathering place of Klong Bang Phai community. Wat Molee's main court and chapel are oriented toward a waterway, and its approximately hundred-meter-long waterfront runs parallel to Klong Om-Non. Klong Bang Phai community has been a mixed-cultural settlement, between Thai and Chinese groups, which is witnessed in a Chinese shrine in Wat Bang Phraek. Thai locals operated farmlands while Chinese counterparts ran several local businesses which created new typologies along the waterfront: grocery stores, waterside gas stations, ice plants, and rice mills, including retail floating houses (Figure 3).

Architecturally speaking, vernacular houses along Klong Om-Non convey one and two-story wooden dwellings with gable rooftops. Moreover, every dwelling outstandingly possesses a veranda, called “Chan (ชาน)” in forms of loggias, vestibules, and pavilions. The waterfront verandas function as living space and main entrances, manifesting as connecting layers to the waterway. Waterfront verandas encourage possibilities of social encounters as neighbors move through the waterway. In this context, waterfront verandas turn into unique dwelling characteristics of the local landscape in Klong Bang Phraek community (Figure 4).



Figure 3 Architectural typologies in Klong Bang Phai community: (A) A Chinese shrine; (B) A waterside grocery store; and (C) A rice mill
Source: Authors (2022).

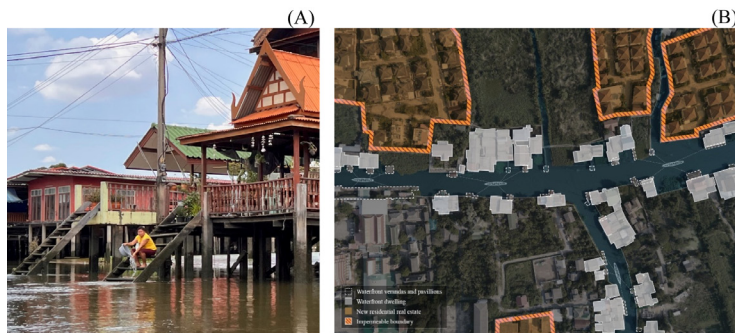


Figure 4 (A) Waterfront verandas promote possibilities of social encounters along Klong Om-Non and (B) An analytical diagram reveals the socio-spatial relationship of the waterfront verandas in the community
Source: Authors (2022).

However, physical configuration of Klong Bang Phai community has been continuously altered since infrastructure developments over 4 decades (Saengthumthavee, 2016). Rattanathibet Road particularly initiated Western Bangkok suburban linkages, thereby contributing to urbanization to Nonthaburi, Om-Non district, and Klong Bang Phai community.

Urban sprawling phenomena have invaded environmental characters of the local farmland as well as Klong Om-Non ecology. Highways have replaced waterways as main transportation accessible to the city. Infrastructure development has given rise to urban expansions and gated housing developments have taken over farmlands. Especially witnessed in Bang Len sub-district, an island-shaped swamp on the Eastern side of Klong Om-Non, a lot of residential developments have amputated waterway systems. More importantly, new residential enclaves obstruct vernacular waterfront dwellings to access main roads. Residential developments present in bounded domains, oriented toward main roads and turning the rear to Klong Om-Non. On the other hand, vernacular waterfront dwellings face Klong Om-Non. This opposite orientation causes a state of environmental juxtaposition, between seamless local dwellings and new residential territories. The emerging, critical morphology of Klong Bang-Phai therefore raises “back-to-back phenomena,” due to urban sprawls disconnecting with environmental concerns and place attachment. New residential developments have enclosed their properties through high-solid walls against local waterfront dwellings. Defensive, solid walls circumscribe contextual relationships even though new residences stand nearby Klong Om-Non (Figure 4 and 5). In this sense, these solid walls prevent new residences from direct accessibility to Klong Om-Non considered as sharing public place and Klong Bang Phai community.

These urbanized, isolated phenomena cause spatial impermeability: rigid, built forms of boundaries which account for deprivation of environmental interactions and social participations to the local community.

Interdependency Versus Capitalism

Socio-cultural activities and functional roles of Klong Om-Non illustrate place identity of Klong Bang Phai community. Not only does Klong Om-Non function as transportation infrastructure but also a place of mixed cultures. Mixed-ethnic settlement based on a coexisting multiplicity between Thai-Chinese traditions, cultures, and lifestyles fostered a culture of interdependency: sharing and supporting. For instance, Thai-Chinese locals in the community allocate food offerings for ancestors to local acquaintances; in the reciprocal way, Thai farmers share vegetation products to generous Chinese locals. In addition, communal interdependency is evidently present in volunteering for neighbors’ merit events. New residential housings, in contrast, are disengaged with both physical and socio-historical environments of place, which in turn result in communal isolation.

Distinctive, socio-cultural activities of Klong Bang Phai community have been intimately related to physical settings: religious places, dwellings, and public venues. The Chinese shrine, located near Wat Bang Praek, symbolizing protection, growth, and wealth, is respected by Thai and Chinese locals: it is a melting pot that brings about socio-cultural activities of communal sharing and participations, as observed. According to interviews with locals, Chinese operas and Thai traditional dances are annually offered to worship the local Chinese shrine, revealing mixed, participant acts of the communal assembly. On the last day of this festival is the traditional



Figure 5 Back-to-Back phenomena From left to right: (A) Neighborhood disconnections between local dwellings and new residences, (B) enclosed land properties with elevated solid walls adjacent to Klong Om-Non, and (C) contextual detachments of residences

Source: Authors (2022).

auction event for commodities received from local sponsors; the auction signifies sharing distribution for most local participants. Auction funds aim at maintaining Klong Bang Phai community. Temples and a Chinese shrine in Klong Bang Phai community function as public places for communal assembly, sharing, and interdependency with socio-cultural associations. Other than sacred places, settings such as verandas and waterfront retail outlets, called rafts (เรือ), significantly perform as place of communal attachment and social encounters. People in boats passing house owners in pavilions, locals on retail rafts, and local commuters on a temple pier, could greet each other. In this view, waterways, religious places, and waterfront architecture were connected for promoting social activities in mutually supportive patterns of cohabitation.

In enlarging urbanization in Nonthaburi, Rattana Thibet Road has become the main infrastructure: it essentially reduces Klong Om-Non's commuting functions. Everyday lifestyles and social activities related to waterway commutes have vanished from Klong Bang Phai community. Two-story boats, known as green boats, stopped services for distributing agricultural products to markets as passenger boats have cut out trips. Retail rafts and gas stations were closed. As waterway lifestyles significantly decrease, potentials of social encounters and communal interdependency fade away.

Urbanization has increased capitalist orientation toward Klong Bang Phai community. For instance, Buddhist temples in the community have launched new functions such as Buddhism commerce, flea markets, and fish feeding to attract new urbanized residents. Emergent skytrain infrastructure moreover motivates organic agricultural tourism (Figure 6). A few local farm owners have employed place characters attached to the waterway and environmental resources to run new recreational

functions. Utilizing place resources as capitals primarily drives adaptive functions and activities in Klong Bang Phai community, as sponsored by central government and municipal organizations.

The government has played an important role on revitalizing local communities in Bangkok suburban areas. In case of Bang Phai community, there are actors taking actions to improve qualities of place, communal interactions, and local lifestyles via assistance programs. Regarded as capitals, characteristics of the waterfront community and orchard local farming lie in the focus of place promotion, by The Ministry of the Interior's One Tambon One Product (OTOP) New Way Project. These government grants and supports facilitate community-based enterprises for developing local tourist programs and organic products. As a result, active places of the community-based enterprises in Klong Bang Phai community develop into attractive nodes along Klong Om-Non. Moreover, The Ministry of Public Health collaborating with local organizations of Bang Rak Yai municipal administration initiated the elderly physical rejuvenation and recreation center in Wat Molee to serve as a communal venue for a primary care service. It additionally functions as a vocational training center: communal, gathering place for seniors and local people to get together. As a key communal center, Wat Molee has also played a role in encouraging local economy via local tourism. It provided a courtyard to establish a weekend flea market in 2017. The flea market mainly supports local farmers and merchants to have a place for selling commodities and food. Up until COVID-19 pandemic in 2020, the market was attractively active to tourists coming to visit every weekend. The temple flea market, in other words, turned into a communal node lending itself to place of exchanges and social interactions.



Figure 6 Capitalist-oriented activities in Klong Bang Phai community. Left to right: (A) Buddhism commerce in Wat Bang Praek, (B) a weekend flea market in Wat Molee, and (C) organic agricultural tourism

Sources: Authors (2022); Konnontnews (2020); Baan Suan Thom Ya Organic Garden (2019)

Collaboration between government agencies, local administrative organizations, and the local temple manifests efforts to make solutions toward challenging effects of urbanization in Klong Bang Phai community through assistance programs, which in turn generate new communal nodes among ever-changing circumstances.

Edging Interactions Versus Impermeability

Finally, yet importantly, meaningful symbols of place present as another aspect of the waterfront community. Place of the waterfront community conveys a symbolic domain that manifests characteristic relationships between waterways, waterfront lifestyles, and waterfront vernacular architecture. Along edging transition, social interactions and cultural interdependency are incubating and immersed in waterfront communities. Edging interactions for waterfront socio-cultural bonds symbolize Klong Bang Phai community along Klong Om-Non collaborating with transitional layers of the waterfront architecture: verandas, local piers, and waterfront shophouses. Edging interactions, in the context, sustain sentient place image of the communal, living harmony in waterfront communities.

In contrast, disruptive boundaries of the enclosed, gated communities, constructed as defensive barriers, induce spatial impermeability, which socially isolates new residential development from waterfront dwellings and local settlements. As inactive interfaces, impermeability represents unfriendly disconnected conditions of juxtaposition without transitions in the community.

In some settings, impermeability obstructs potential accessibility. Impermeability, in this fashion, abruptly separates gated communities from waterfront contexts—environmental, socio-cultural, and communal—into physical fragments.

As closely observed, new gated community residents need to get to the temple to obtain an accessible opportunity to the waterfront and the local nature. Emergent impermeability constructed by urbanized residences is thus completely opposed to edging interactions of the local waterfront community, in terms of physical and social characteristics (Figure 7).

Conclusion and Recommendation

Urbanization inevitably drives built-environmental developments in parallel with transforming identity of the local place. Urbanization in Bangkok suburbs of the waterfront communities contributes to three-folded aspects: infrastructure developments, suburban residential sprawls, and place identity-shifting. Klong Bang Phai community's place identity once conveyed relationships between a water-based settlement connected to religious places, waterfront vernacular architecture, a Thai-Chinese cultural melting pot, and lifestyles collaborating with waterways. These relationships, on the one hand, draw similar responses to Laiprakobsup (2011); Silapatcharanan (2013); Knox and Mayer (2009); who observe that place identity of the communities arises from topographic ecology, vernacular-built forms, ethnic assemblies, and



Figure 7 A contrast between edging interactions and impermeability

Source: Authors (2022).

socio-cultural associations along pathway networks. On the other hand, findings of Klong Bang Phai community's place identity point out that critical relationships between built forms and communal integrations emerged out of waterfront architectural elements of verandas as interactive edges of place. With interactive edges along the waterway, potentials of social encounters and communal interactions can take place in waterfront communities. Therefore, place identity of Thai waterfront, agricultural-based community in Bangkok suburbs demonstrates uniquely physical-social interrelations of the clustering settlement along waterways attached to communal places as well as interactive waterfront edges, which collectively support social functions of cultural integration as a cohesive bond. Communal places in the waterfront community moreover constructively symbolizes culture of interdependency.

On the contrary, urbanizing Bangkok suburbs has created local morphological transformation in negative effects as Jiraprasertkun (2011), pointed out, whereby communal structures turn out to be fragmentation and inequality. Having replaced local farmlands, new gated residential settlements represent self-contained domains, deprived of place connections. New self-contained gated residences significantly cause impermeability; disruptive form of boundaries intensifies the abrupt isolations to neighboring waterfront communities. Commuting functions of waterway networks have been restricted by highways: recessions of waterway activities continue in the community, leading to deteriorating social causality. On a sustainable view, urban development lacking plans of communal space and participatory dialogues engenders continuous changes of the local waterfront community's place identity.

This research suggests that to sustain identity of the waterfront community on the development, new nodes of communal interactions could have been constructed as collective realms to cultivate sense of communal locality. Flexible, communal place of reciprocity could revitalize being-urbanized waterfront communities. Suitable-scaled waterfront settings can become recreational and gathering places for local and new-coming neighbors to regenerate kinships, for instance, the local temple's historical buildings, piers, and courtyards being redesigned to serve for accessibly public space as lively resilient venues for understanding local history and reintegrating communal assembly. Meanwhile, new gated neighboring residences and real estate properties as private sectors should open new platforms and spaces in their facilities for accessible opportunities to local niche products, to support local farmers, community-based enterprises, and businesses.

Offering reciprocal, public space will foster communal collaboration among urbanization, thereby contributing to sustainable development.

Conflict of Interest

The authors declare that there is no conflict of interest in this research.

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