POST-CONFLICT LANDSCAPE RESTORATION OF COMMUNAL SPACES FOR USER ACCESSIBILITY IN JAFFNA CITY REGION

A Case Study of KKS Beach and Keerimalai Sacred Water Springs in Post-War Jaffna

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Abstract: The Sri Lankan civil war (1983–2009) had a profound impact on the Northern Province, particularly on the accessibility of communal spaces. Although post-war developments have revitalised many war-affected areas, the extent to which the landscape quality of these renewed communal spaces influences user accessibility remains unclear. This study investigates how landscape restoration has enhanced accessibility in two key communal spaces: Kankesanthurai (KKS) Beach and the Keerimalai Sacred Water Springs. A comprehensive literature review identified circulation and edge design, amenities and comfort, heritage form, and spatial character as key landscape quality parameters. Correspondingly, perceived ease of access and movement, user diversity, and frequency and patterns of use were selected as user accessibility parameters. Using a mixed-methods approach, data on landscape quality and user accessibility were gathered through observations, measured drawings, structured surveys, interviews, and photographic documentation. Spatial data were analysed through spatial mapping techniques, while user accessibility was examined using movement mapping, demographic analysis, and user behaviour analysis. Overall, the findings indicate that the landscape design quality of post-war communal spaces significantly influences user accessibility. Consequently, more responsive and context-sensitive landscape interventions are essential to ensure that post-war communal spaces are easier, more comfortable, and more inviting for public use.

Keywords: *Accessibility, Landscape Restoration, Communal Spaces, Post-Conflict Areas, Jaffna, Sri Lanka*

1. Introduction

The civil war in Sri Lanka (1983–2009) did not only damage buildings and infrastructure; it also fragmented the everyday landscapes through which Jaffna's residents lived their social and cultural lives. A large share of the peninsula's population experienced forced displacement, with traditional family structures, community networks and mental health severely affected. Parks, temples, lagoons, beaches and market streets that once hosted daily encounters were converted into high security zones, military installations or ruins.

Reconstruction efforts after the war initially prioritised roads, housing and basic services. Yet rebuilding walls and roads alone cannot mend the social fabric. Restored communal landscapes spaces where people gather, work, worship, trade and relax are central to how communities re-establish continuity, renegotiate identity and practise peace in everyday life. This paper explores how two such landscapes in Jaffna's coastal belt KKS Beach and Keerimalai Sacred Water Springs have shifted from militarised or inaccessible zones to shared meeting grounds that support safe accessibility for the residents, while promoting social interactions.

1.1. JAFFNA'S POST-WAR LANDSCAPE CONTEXT

Jaffna and the Northern Province of Sri Lanka in general experienced radical changes in the course of and following the war. High Security Zones (HSZs) entangled many cultural and natural values such as beaches, temples, shrines and sacred water bodies. Such areas have been closed to the general population over decades dividing societies into areas that previously supported livelihoods, practices and social connections.

The reopening of sites and the gradual withdrawal of HSZs after the war was a symbolic and practical relinkage of people and place. An example is the A9 Highway which was initially closed but with the help of the closed highway, the Jaffna can now connect with the rest of Sri Lanka, boosting mobility and symbolic reintegration. Of the numerous sites that have been reopened, Kankesanthurai (KKS) Beach and the Keerimalai Sacred Water Springs are a characteristic landscape. Both were important sites, culturally and socially, prior to the war, and the reinstatement of the two sites demonstrates the extended value of landscapes in reconciliatory processes.

The KKS Beach used to be a fishing, recreational, and social centre. It was also absorbed in the HSZ during the war severing residents livelihoods and cultures. It was reopened in 2010 and combined with physical clean-up, restructuring of its harbors as well as community-based interventions it turned to a vibrant public space that represents a symbol of renewal.

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Keerimalai Sacred Water Springs which was attributed to the Hindu rituals of purification and healing also fell victim to the fighting. Its restoration following the war's end, which was done by religious groups and the contributions of the NGO's, entailed reconstruction of temple buildings, restoring bathing tanks, and planting gardens. It is used today as a holy pilgrimage place and a collective communal landscape.

The two cases illustrate how indissoluble the process of physical restoration, cultural revival, and accessibility is to each other.

1.2. RATIONALE FOR THE STUDY

Although landscapes are crucial in post-war Sri Lanka, there is a paucity of research on the role of restored spaces in reconciliation. A majority of scholarship is concentrated on transitional justice, political settlements or economic development without much on cultural and spatial practices. However, accessibility, which this paper discuss, is achieved not just at high-level political systems but also in daily visitation, engagement and recollection in common spaces. Theoretical Contribution is to connect the research on safe accessibility to landscape architecture and heritage studies, while emphasizing landscape design as a mean of social healing. Practical Relevance is to offer information to policymakers, planners, and designers about how cultural landscape restoration can be used to increase safe accessibility leading to inclusivity, sense of belonging, and discourse in fractured societies.

1.3. RESEARCH AIM AND OBJECTIVES

The main aim of the research is to examine the role of restored landscapes in user accessibility in the post-war Jaffna. While achieving this aim, the study achieves the following objectives:

- To investigate accessibility and usage and community participation patterns in these sites.
- To examine how these landscapes help in social interaction, interethnic encounters and cultural survival.
- To contribute to the wider discussion on accessibility in communal spaces by positioning landscapes as central agents for improving physical, visual and social access.

2. Literature Review

2.1 THEORETICAL FOUNDATIONS OF ACCESSIBILITY

Accessibility in communal spaces is broadly understood as the ability of all individuals to reach, enter and meaningfully use places that support everyday life, regardless of age, gender, income or physical ability .It encompasses multiple dimensions: physical access through barrier-free routes, ramps and crossings; visual access through openness, sightlines and wayfinding; social access through the absence of exclusionary practices; and perceptual access through feelings of safety, comfort and welcome (Gehl, 2010). Contemporary urban design and landscape literature emphasises that well-connected paths, inclusive edges, clear signage, adequate lighting and basic amenities such as seating and shade are essential to support diverse forms of movement and occupation in public space (Gehl, 2010).

From a spatial perspective, accessibility is also linked to patterns of connectivity at the neighbourhood and city scale, including public transport links, walkability and integration with surrounding street networks (Carmona et al., 2010). In coastal and heritage landscapes, additional attention is given to safe approaches, stable edges and legible transitions between sacred, recreational and everyday use zones so that different user groups can share the same setting without conflict (UN-Habitat, 2015). These theoretical perspectives highlight that accessibility is not merely an engineering or regulatory issue but a key design parameter that shapes who can use communal spaces, how often they visit, and what kinds of activities and social interactions are supported. In the context of beaches and sacred springs in the Jaffna city region, accessibility-oriented landscape interventions therefore focus on reducing physical and perceptual barriers, improving connections and creating inclusive environments that accommodate multiple cultural and recreational practices.

2.2 ACCESSIBILITY IN COMMUNAL SPACES

The concept of accessibility in communal landscapes emphasises that people must be able to reach, enter and comfortably use shared spaces regardless of age, gender, physical ability or social background (Carmona et al, 2010). In post-conflict contexts, where mobility has long been restricted by military zones, damaged infrastructure and social mistrust, improving accessibility becomes a precondition for re-establishing everyday routines and re-connecting fragmented communities (UN-Habitat, 2015). Accessibility is not limited to physical entry; it also includes barrier-free circulation, clear wayfinding, visual openness, perceived safety and the availability of basic amenities such as seating, shade and sanitary facilities When communal places such as beaches, temple precincts and waterfronts are redesigned to enhance walkability, public transport connections, inclusive pathways and universally accessible edges, they support more frequent and diverse patterns of use and encourage co-presence among different social groups (Madanipour, 2013). Research on Sri Lankan public spaces indicates that upgraded access routes, improved coastal edges and refurbished religious precincts are associated with higher levels of user satisfaction and more inclusive visitation, particularly in regions recovering from conflict (Rajapaksha, 2016).

Thus, within post-conflict Jaffna, accessibility in communal spaces operates as both a design parameter and a social goal, enabling restored landscapes to function as everyday infrastructures that reconnect people, place and movement.

2.3 INTEGRATING THEORY AND PRACTICE

A combination of theoretical perspectives and global experiences offers several key lessons that can be applied to Jaffna's communal landscapes, particularly in the Northern Province. First, design matters: thoughtful physical interventions such as seating, paths, lighting, shade and clearly legible routes enhance comfort and everyday usability, while also increasing the experiential value of public spaces and encouraging regular use across different user groups (Rad, 2020). Cultural anchoring is equally important, as monumental structures, sacred zones and ritual pathways embed these landscapes in local traditions, linking spatial form to collective memory and the reorganisation of post-conflict cultural landscapes (Alkhateeb, 2023). At the same time, inclusivity and accessibility must be prioritised so that people of different ethnicities, ages, genders and abilities feel equally entitled and able to use these sites, which requires sensitivity to privacy, cultural norms and everyday safety in the design of communal areas (Obeidat et al., 2021). Community engagement in restoration and management strengthens ownership, pride and stewardship, reinforcing social capital and civic participation around shared spaces (Lai et al., 2023). Finally, these landscapes function as repositories of communal memory and everyday interaction, allowing communities to process difficult histories while building new patterns of coexistence and belonging in ordinary settings (Umakaran, 2018). Applied to KKS Beach and Keerimalai Sacred Water Springs, these insights suggest that well-planned, culturally grounded and participatory interventions can materially improve accessibility while supporting rich layers of social meaning and use in post-war Jaffna.

2.4 GAPS IN LITERATURE

Regardless of these observations, the literature is currently concentrated on memorials and high-profile heritage sites, leaving a vacuum in the literature on more mundane communal places of public interest such as beaches and sacred springs particularly in the context of war affected areas of Sri Lanka. While there is a substantial body of theoretical work on post-conflict public space, heritage landscapes and inclusive design, there is a paucity of empirical studies that explicitly relate landscape restoration to different dimensions of accessibility, including physical, visual, social and perceived access. In particular, few studies examine how post-conflict landscape interventions in everyday communal spaces affect patterns of use, inclusiveness of different user groups and people's ability to re-approach and re-occupy formerly restricted areas. This research addresses these gaps by focusing on ordinary yet symbolically rich communal sites, and by integrating rigorous mixed-methods data with in-depth case studies, thereby contributing both theoretical and applied knowledge to the field of accessibility-oriented landscape architecture in post-conflict settings.

Table 1: Selected Parameter Set According to the Literature Review

Parameter	Sub Parameter	Definition of the parameter
Landscape Quality	**Circulation & edge design**	The layout and condition of paths, walkways, steps and boundaries (edges) that organize how people move through and along the site.
	Amenities & comfort	The presence and quality of physical facilities that support comfortable use of the space, such as seating, shade, lighting, waste bins and usable gathering areas.
	Heritage form & spatial character	The way built and natural elements, especially heritage structures and landscape features, are arranged to create a culturally recognizable and coherent setting.
User Accessibility	**Perceived ease of access & movement**	Users' own assessment of how easy it is to reach the site and move within it, including entry, circulation and wayfinding.
	User diversity	The range of different user groups who are able to and actually do use the place, in terms of age, gender, ethnicity, visitor status and livelihood.
	Frequency & pattern of use	How often people visit and for what types of activities, indicating the degree to which the space is accessible and integrated into every day and ritual routines.

3. Research Methodology

3.1 RESEARCH APPROACH

The research design adopts a mixed-methods approach that integrates quantitative and qualitative techniques to develop a comprehensive understanding of how landscape restoration influences landscape quality in post-war Jaffna. In parallel, the same mixed-methods framework is applied to examine user accessibility.

3.2 CASE STUDY SELECTION

Purposely from Jaffna, two locations were chosen on the basis of their cultural, social and spatial attributes:

1. Kankesanthurai (KKS) Beach - a landscape that has traditionally been linked to livelihoods, recreational and social activities. It had been restored with harbour stabilization, installation of seating and shade, and community-driven environmental projects.
2. Keerimalai Sacred Water Springs- the cultural and spiritual heritage site associated with purification and curing rituals of Tamil Hinduism. The restoration used temple architecture, bathing tanks, ritual pathways and landscape enhancement.

The above sites were chosen on the basis of three criteria:

- Pre-war and wartime historical and cultural importance.
- Post-war preservation that actively engaged nearby communities or NGO assistance.
- Great possibilities of encouraging inter-ethnic and intergenerational accessibility and communication.

The case study approach enables the in-depth research of site-specific dynamics as well as providing transferrable insights to other post-conflict situations.

3.3 DATA COLLECTION METHODS

3.3.1 Landscape Quality

Data collection for assessing landscape quality combined surveys, interviews and field observations at both KKS Beach and Keerimalai Sacred Water Springs. Structured questionnaires were administered to 30 participants, including local residents, tourists, volunteers and community leaders, with items addressing perceptions of scenic character, cleanliness and maintenance, comfort and adequacy of amenities (seating, shade, lighting, sanitary facilities), and overall environmental and cultural quality of the restored settings. Semi-structured interviews were conducted with six key informants ; two fishermen at KKS Beach, one temple volunteer and one religious leader at Keerimalai, and two young volunteers involved in site maintenance and event organisation to obtain detailed accounts of how the physical form, facilities and atmosphere of the sites have changed over time and how these changes are evaluated in terms of visual appeal, comfort and cultural authenticity. Four weeks of systematic field observation supplemented these accounts, recording the condition and use of benches, walkways, lighting, planting, signage and other physical elements, while photographic documentation provided visual records of the material outcomes of restoration at both locations.

3.3.2 User Accessibility

The same three methods were used to investigate user accessibility. Within the structured survey, Likert-scale questions explored the frequency and purpose of visits, perceived ease of reaching the sites, clarity and continuity of circulation routes, perceived safety, and the suitability of paths and facilities for different age groups and physical abilities. Demographic questions on age, gender, ethnicity and displacement history enabled comparison of accessibility experiences across user sub-groups. Interviews with the six key informants elicited narratives of displacement and return, changes in the possibility of accessing the coast and sacred springs, everyday routes taken to the sites, and perceived barriers or improvements affecting different user groups. During the four-week field observation period, patterns of arrival and departure, dominant access points, movement flows, and the ways in which people of different ages and backgrounds navigated paths, thresholds and edges were systematically recorded. Photographs were used alongside written notes to document access routes, entrances, ramps, steps, edges and areas of congestion or obstruction, thereby linking observed movement behaviour with the physical structure of accessibility at each site.

3.4 SAMPLING STRATEGY

Representation was achieved through a purposive sampling strategy by:

- Age groups
- Gender
- Ethnicity
- Displacement

This method was used to ensure that both historically marginalized and majority groups were captured in the research and those directly afflicted by war induced displacement. Although purposive sampling is not statistically representative of the whole population, it is the most suitable sampling method when the case study pertains to particular social and cultural processes (Patton, 2015).

3.5 DATA ANALYSIS PROCEDURES

3.5.1 Quantitative Analysis.

Descriptive statistics (frequency, mean and standard deviation) were used to summarise patterns of site use, perceptions of accessibility and levels of emotional attachment. Reliability analysis confirmed strong internal consistency of the Likert-scale items using Cronbach's alpha. Principal Component Analysis (PCA) identified two key components emotional attachment and community engagement which together explained a substantial proportion of the total variance and

revealed the latent factors underpinning accessibility related perceptions. Regression analysis examined the predictive relationship between landscape quality, accessibility and overall satisfaction, with a high coefficient of determination illustrating the statistical contribution of design and access to reconciliation outcomes. Finally, group comparisons using ANOVA and t-tests assessed differences in perceptions across age, gender and displacement history, revealing significant variation particularly among different age groups.

3.5.2 Qualitative Analysis:
Thematic coding was conducted to analyse interview transcripts and observation notes, generating core themes related to social interaction, sense of belonging, cultural continuity and reconciliation. Triangulation across surveys, interviews and field observations strengthened the validity of interpretations, helping to minimise bias and increase the reliability of the findings. Selected illustrative quotations were incorporated into the analysis to provide contextual richness, giving voice to participants' subjective experiences of attachment, interaction and cultural meaning within the restored landscapes.

3.5.3 *Landscape Design Quality*
Landscape design quality was analysed using both quantitative and qualitative techniques. Survey items on amenities, cleanliness, maintenance, visual character and overall environmental comfort were summarised using descriptive statistics, and scale reliability was checked with Cronbach's alpha. Principal Component Analysis (PCA) was used to group related variables into broader dimensions of design quality. Interview transcripts and field notes were then thematically coded to identify recurring assessments of atmosphere, aesthetics, material condition and cultural authenticity, which were used to interpret and deepen the statistical patterns.

3.5.4 *User Accessibility*
User accessibility was examined through survey questions on frequency and purpose of visits, ease of reaching the sites, clarity of routes, perceived safety and suitability for different age groups and abilities. Descriptive statistics and reliability tests were applied to these items, while PCA was used to identify key components of accessibility such as physical access, legibility and safety. Group comparisons (e.g., across age, gender and displacement history) explored how different users experienced access. Qualitative coding of interviews and observations captured narratives of approaching, entering and moving through the sites, perceived barriers and facilitators, and feelings of welcome or constraint, providing context for the quantitative findings.

3.5.5 *Overall Analysis and Integration*
Overall analysis integrated the design-quality and accessibility components to understand their combined influence on users' evaluations of the sites. Regression models were used to test how the PCA-derived factors of landscape quality and accessibility predicted overall satisfaction and related outcomes. Thematic patterns that cut across both domains such as comfort, safety, inclusiveness and cultural resonance were identified in the qualitative material and compared with survey and observational data. Triangulation of all three sources strengthened validity, allowing numerical trends to be read alongside lived experiences and producing a coherent, multi-layered interpretation of the restored landscapes.

3.6 SCOPE AND LIMITATIONS
This study focuses on two restored communal landscapes in the Jaffna city region Kankesanthurai (KKS) Beach and Keerimalai Sacred Water Springs as illustrative case studies to examine how post-conflict landscape restoration enhances physical, visual and perceived accessibility, and how changes in design quality relate to user satisfaction, patterns of use and emotional connection. The scope is therefore intentionally bounded to heritage-based coastal and sacred settings, analysed through a mixed-methods approach that combines structured surveys, key informant interviews, field observations and photographic documentation to capture both measurable accessibility indicators and lived user experiences.

At the same time, several limitations must be acknowledged: the purposive sampling strategy and relatively small sample (30 survey participants and six interviewees) mean that the findings are not statistically representative of all users or of the wider Northern Province; the focus on only two sites restricts the transferability of results to other types of communal spaces such as markets, parks or streets; the cross-sectional design provides only a temporal snapshot rather than long-term evidence of changing accessibility patterns and the reliance on self-reported perceptions may introduce subjective bias. Furthermore, the study does not systematically analyse broader policy, transport or economic factors that also shape access, nor does it fully incorporate the perspectives of all institutional actors involved in planning and management. These limitations suggest that the conclusions should be read as context-sensitive insights into how carefully restored landscapes can function as accessible communal infrastructures in post-war Jaffna, rather than as universally generalisable findings.

4. Findings and Discussion

4.1 LANDSCAPE DESIGN QUALITY AND PHYSICAL IMPROVEMENTS
The landscape restoration of both the KKS Beach and the Keerimalai Sacred Water Springs showed great improvement in both design and functionality as well as cultural authenticity. KKS Beach has been fully refurbished including stabilizing the harbour, fitting shaded seating, walkways, waste disposal units, and better lighting. Keerimalai Sacred Water Springs gave

emphasis on recuperating religious and ritual areas. Rebuilding involved temple buildings, ritual bathing pools, and gardens built with lawns and shade trees and rock walkways.

4.1.1 Circulation and edge design

At both sites, the existing spatial structure and recent improvements have increased the legibility and comfort of circulation, though in distinct ways. At KKS Beach, movement is organised primarily along a long, linear strip framed by the breakwater and harbour structures on one side and an open sandy beach with palm trees on the other, creating a clear coastal corridor that visitors use for walking, sitting and viewing the sea. Access is channelled via approach roads and paths from the settlement and harbour area, which together function as informal promenades rather than a single engineered walkway. Users' descriptions emphasise strolling along the sand, moving between fishing activity zones and quieter recreation areas, and lingering at vantage points, suggesting that circulation is intuitively guided by the simple linear geometry of the shoreline and the visible distinction between the working harbour edge and the family-oriented bathing area.

At Keerimalai Sacred Water Springs, circulation is structured more formally by the configuration of the bathing tanks, steps and temple precinct. The natural spring is enclosed within masonry tanks whose waters are separated from the adjacent sea only by stone walls, with stone steps around the inner edges allowing bathers to descend into the water. Separate pools for men and women, together with changing areas and shaded resting spaces, organise movement into a clear sequence from the approach road, through the temple forecourt, towards dedicated preparation zones and finally down to the water level. In spatial terms, this stepped, tank-based layout produces recognisable zones of arrival, threshold and immersion, so that both regular pilgrims and occasional visitors can readily understand how to enter, move through and use the sacred landscape. Together, the two case studies illustrate how circulation and edge treatments whether through a simple linear beach-harbour interface or a more formally articulated tank and temple complex shape safe movement, orientation and the experiential quality of the coastal edges.

4.1.2 Amenities, comfort and services

Restoration and upgrading efforts at both sites have also improved amenities and basic services, with direct implications for user comfort. At KKS Beach, the provision of basic beach infrastructure such as changing cabins, showers, toilets, umbrellas, together with small beach bars and snack outlets supports longer stays and makes the shoreline attractive for families with children, older visitors and leisure seekers, who now experience the beach as a clean, reasonably serviced environment rather than a purely working coastal edge. Survey responses from this study reflected generally high satisfaction with cleanliness, shallow and safe bathing conditions, and the availability of essential facilities, while observations recorded frequent use of seating, shaded areas and informal play spaces by mixed age groups. At Keerimalai Sacred Water Springs, amenities are more modest but closely tied to the ritual use of the site: separate bathing tanks for men and women, changing rooms, basic washroom facilities and shaded resting areas around the pools together provide dignified conditions for pilgrims to change, wait and accompany relatives. Visitors commonly described the setting as peaceful and spiritually significant but noted that comfort still depends on simple provisions such as shelter from sun, places to sit along the stepped edges and adequate maintenance. Field observations in this study confirmed steady use of these facilities, especially by elderly devotees and families during peak bathing times, indicating that even relatively basic upgrades in amenities are closely linked to the practical usability and experiential quality of both landscapes.

4.1.3 Heritage form and spatial character

Figure 1: Spatial Analysis of KKS Beach
(Source -Google Earth, Edited By -Author)

Figure 2: Spatial Analysis of Keerimalai Sacred Water Springs Area.
(Source -Google Earth, Edited By -Author)

In both case studies, landscape quality is shaped not only by infrastructure but also by the way heritage elements and natural features are composed into a coherent spatial character. At KKS Beach, the restored harbour edge, planted coconut lines and open sands retain the working-coast identity while presenting a more ordered, visually pleasing foreground to the sea. Community-led planting and clean-up initiatives have reinforced this character, fostering a sense of local ownership. At Keerimalai, the reconstruction of temple buildings, ritual bathing pools, shrines, gardens and shaded courtyards has re-established the site's sacred atmosphere. Interviewees described walking along the rebuilt temple paths as a "homecoming", emphasising how architectural continuity and landscape structuring reconnect contemporary worshippers with ancestral practices. Users consistently interpreted these heritage forms as signs of cultural continuity and authenticity rather than generic beautification, indicating that design decisions have successfully aligned physical improvements with the historical identity of each site.

4.2 ACCESSIBILITY AND USABILITY

Availability became one of the key issues that could lead to reconciliation and inclusion. The KKS Beach was accessed by 90% of the respondents through public transport and pedestrian friendly routes thus making it easily accessible to them. Accessibility in Keerimalai Sacred Water Springs was reported to be 85% and there were some stairs and rough paths that elderly or differently abled visitors had challenges in reaching the site. The participants have mentioned that the better connectivity helped not only physical access but symbolic reintegration.

"In the war we were not able to see the sea. Now I can walk here with my children and everyone has this space in common." – Returning resident, 42

Increased accessibility facilitated more varied social interactions and helped sustain a variety of recreational, ritual and communal activity. They both served as multi-purpose landscapes, serving everyday activities, recreational purposes, and rituals, thereby solidifying their importance in the rebuilding of a community after the conflict.

Figure 3: Accessibility in KKS Beach Area
(Source -Google Earth, Edited By -Author)

Figure 4: Accessibility in Keerimalai Sacred Water Springs Area
(Source -Google Earth, Edited By -Author)

4.2.1 Perceived ease of access and movement

User feedback indicates that restoration has substantially improved perceived ease of access and internal movement, though with some remaining constraints. Majority of the respondents reported that KKS Beach is now straightforward to reach via public transport and walkable connections from surrounding neighbourhoods, with the main access routes and internal footpaths perceived as safe and easy to navigate. In contrast, Keerimalai is also generally viewed as reachable, but elderly and differently abled visitors reported difficulties associated with stairs and uneven or sloping approaches around the springs. These differences highlight how circulation upgrades and surfacing choices translate directly into perceived accessibility: where paths are continuous, gradients are moderate and edges are clearly articulated, visitors experience the sites as easy to enter and move through; where steps or rough tracks remain, barriers to access persist for more vulnerable users.

4.2.2 User diversity

Patterns of use demonstrate that both landscapes now attract a wide diversity of users, reflecting improved access across social and demographic boundaries. KKS Beach is frequented by local residents, displaced returnees, Tamil communities, Sinhalese visitors and international tourists, as well as active fishing communities. Activities range from livelihood-related fishing and vending to family outings, sports and informal socialising, with younger and older users sharing the same promenades, seating areas and shoreline. At Keerimalai, the user profile is more overtly ritual-based but still highly diverse: Tamil and Sinhalese pilgrims, NGO visitors, local residents and domestic tourists gather for religious bathing, prayer, festivals and associated social activities. Graphical analyses of ethnic and age distributions at both sites show a broad mix of groups, suggesting that the combination of improved access routes, inclusive spatial layouts and culturally legible design has made these landscapes welcoming to multiple constituencies rather than being associated with a single community alone.

4.2.3 Frequency and pattern of use

Frequent visitation and varied activity patterns further confirm that restored landscapes function as accessible everyday settings, rather than occasional destinations. Respondents at KKS described visiting regularly for fishing and socialising, with field observations documenting repeated use across weekdays and weekends for walking, sitting, playing games and conducting livelihood activities. Keerimalai exhibits a different but complementary pattern: regular weekly visits for ritual bathing and prayer, with major peaks in use during annual festivals and auspicious days. These patterns indicate that improved access and comfort have embedded both sites into the routine and ritual calendars of diverse users. KKS operates as a multi-functional social and economic hub, while Keerimalai serves as a key node of spiritual practice and cultural continuity. In both cases, the frequency and regularity of visitation suggest that accessibility is not only nominal but actively realised in everyday and cyclical practice.

4.3 ACCESSIBILITY LEADING TO SOCIAL INTERACTION AND COMMUNITY ENGAGEMENT

The rebuilding of these sites has clearly encouraged lively social interaction and reconciliation-oriented encounters. At KKS Beach, a range of recreational activities such as volleyball and fishing competitions, beach clean-up campaigns, and informal social gatherings created frequent opportunities for people to meet and mingle. Youth volunteers played a particularly active role in organising events, bridging generational gaps, and supporting wider community integration. Spontaneous interactions between different groups were commonly observed, with displaced returnees, local Tamil residents, and Sinhalese visitors sharing the space amicably. As one university student explained, people from different ethnic backgrounds now meet, talk, play games and exchange stories at the beach, which they saw as a small but meaningful step toward getting to know one another.

Keerimalai Sacred Water Springs similarly supported inter-ethnic communication, though more strongly through culturally rooted rituals. Tamil, Sinhalese and NGO pilgrims participated together in prayers, festivals and temple maintenance. Field observations indicated that the site facilitated both structured and unstructured encounters across social groups, allowing reconciliation to unfold at multiple social levels. Interviewees repeatedly highlighted how shared rituals fostered unity, empathy and mutual respect. A temple volunteer in his late thirties noted that people from many villages come together during festivals to cook, pray and clean the temple as a single community.

Taken together, these findings underscore the role of restored landscapes as generators of social capital spaces that nurture trust, dialogue and positive cross group perceptions.

Survey results show that 43.3% of respondents reported visiting KKS Beach once a week, mainly to fish and socialise, with residents, visitors and fishing communities together forming a diverse user base that underscores the beach's dual role as both a social and economic centre. Similarly, approximately 40% of respondents indicated weekly visits to Keerimalai Sacred Water Springs, primarily for religious and ritual purposes, with attendance peaking during annual festivals, highlighting the site's continuing importance for spiritual practice and cultural continuity. These regular use patterns at both locations underline their significance as accessible communal landscapes, where improved paths, approaches and basic facilities have made it easier for different groups to reach, enter and comfortably use the sites. In this way, KKS functions as

an everyday social and livelihood hub, while Keerimalai operates as a key ritual node within the wider cultural and religious life of the Jaffna region.

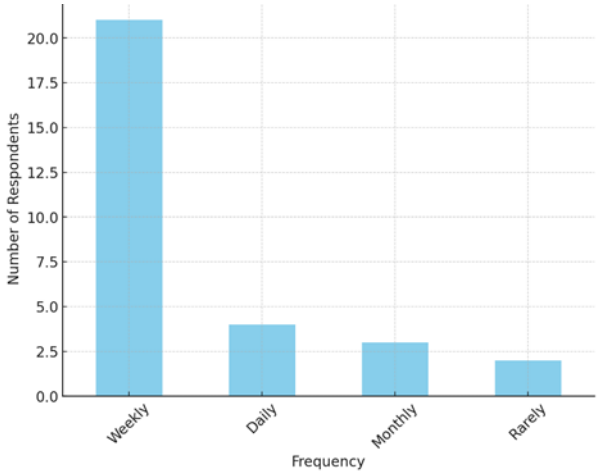

Figure 5: Visit Frequency Noticed from Both Places
(Source - Author)

4.4 QUANTITATIVE ANALYSIS

Reliability analysis produced a Cronbach's alpha of 0.970, indicating very high internal consistency among the survey items describing user accessibility, satisfaction and perceived landscape quality. Principal Component Analysis (PCA) extracted two key components, interpreted as landscape design quality and user accessibility, which together explained 92.87% of the total variance, suggesting that these latent factors are the main dimensions structuring users' evaluations of the sites. Regression analysis further showed that overall satisfaction was significantly predicted by the combined effects of design quality and accessibility ($R^2 = 0.828$), demonstrating that physical improvements and the ease with which users can reach, enter and move through the spaces are strongly associated with their satisfaction and related social–emotional responses. Group comparisons using ANOVA revealed significant age-based differences in patterns of use and perception ($F = 10.24$, $p < 0.05$): younger participants (18–25) tended to prioritise recreational use and ease of movement, while older respondents placed greater emphasis on ritual continuity, cultural continuity and comfort in using the sites. Differences between genders were non-significant, indicating broadly inclusive participation and comparable accessibility experiences for male and female users.

4.5 DIVERSITY OF USERS

The two sites attracted a wide range of users. KKS Beach drew local residents, displaced returnees, Sinhalese visitors and international tourists, while Keerimalai brought together multi-ethnic pilgrims and domestic visitors.

Across both locations, physical and cultural design elements such as shaded gathering areas, ritual pathways and flexible open spaces facilitated interaction across ethnic, age and social boundaries. This inclusivity of space is central to reconciliation: by providing neutral arenas where people participate in shared activities, the sites help to strengthen community cohesion and reduce social isolation.

Figure 6: Users in Keerimalai Sacred Water Springs Area

Figure 7: Users in KKS Beach Area

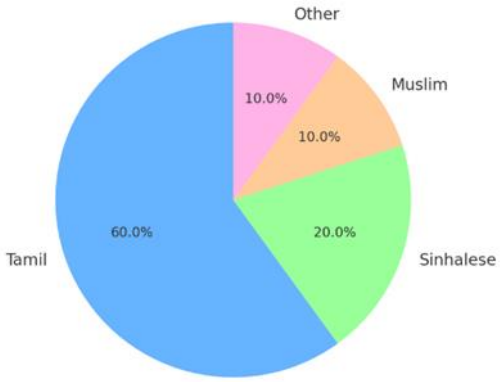

Figure 8: Total Ethnic Distribution of Both Places
(Source - Author)

Survey and observational evidence show that both sites now accommodate a wide diversity of users in terms of ethnicity and age. As the results, 60% of respondents identified as Tamil, 20% as Sinhalese, 10% as Muslim and 10% as belonging to other ethnic groups, indicating that the combined user profile of KKS Beach and Keerimalai Sacred Water Springs is distinctly multi-ethnic. At KKS Beach, this mix includes local residents, Tamil communities and domestic and international tourists, with activities such as walking, fishing, socialising and informal play being used by both younger and older people. At Keerimalai, the temple precinct similarly hosts pilgrims, local residents and visitors from varied cultural backgrounds, particularly during religious events and festivals, when people of different ages share the same bathing tanks, courtyards and shaded resting areas. The presence of such multi-ethnic and multi-generational user groups reflected in the distribution suggests that improved paths, access points and shared facilities have made these landscapes more inclusive and accessible, supporting everyday social interaction and cultural exchange within common communal settings.

4.6 CROSS-CASE COMPARISON
Although the two sites studied, the mechanisms were different:

- KKS Beach: It is mainly recreational and livelihood-based and allows social interactions and inter-generational conversations.
- Keerimalai Sacred Water Springs: This is mainly ritual and heritage based, and thus encourages organized cultural contact, solid identity formation, spiritual attachment.

Although they are different, the two sites demonstrate that landscape restoration can contribute to physical, social, and cultural aspects of reconciliation in tandem. The combination of heritage, usability and accessibility was critical towards the creation of emotional and social results.

4.7 RECOMMENDATIONS
For KKS Beach, the main practical need is to make the everyday user experience safer and more comfortable without killing its working-coast character. This means: turning the sandy / informal paths into a clearer, gently sloping promenade that prams, elders and people with mobility issues can actually use; adding more shaded seating, toilets and changing spaces close to the busiest access points; and tidying up the conflict zone where boats, vehicles and families currently mix by lightly zoning working areas and family recreation areas with surfaces, pillars and simple signs rather than heavy barriers. Better wayfinding from the bus/train stops and a couple of clear main entrances would tackle the real problem many visitors face now: not knowing exactly where to go, where it's safe to walk, or where basic facilities are.

For Keerimalai Sacred Water Springs, the key issue is that the traditional stepped tanks and uneven paths are visually pleasing but hard for elderly and less mobile visitors. Practical fixes include adding a few carefully placed ramps and handrails at selected entries to the tanks, resurfacing the worst trip-hazard spots, and creating shaded resting platforms near level changes so people can pause without blocking circulation. Because festivals bring big crowds, the site also needs a realistic plan for temporary extra toilets, wash points, drinking water and basic queue management, so the place stays clean and dignified at peak times. Low-key information boards in Tamil, Sinhala and English can quietly guide behaviour without turning the temple into a tourist display. Across both sites, the most important overarching action is to make these upgrades in partnership with temple authorities, fishermen and local residents so that accessibility, cleanliness and safety are shared responsibilities, not one-off projects that fade once the contractor leaves.

5. Conclusion

This study examined how landscape restoration at Kankesanthurai (KKS) Beach and Keerimalai Sacred Water Springs has enhanced the user accessibility of communal spaces in post-war Jaffna, demonstrating that these interventions do more than

upgrade physical environments: they re-open previously restricted coastal and sacred landscapes to a wider range of users and uses.

Theoretically, the findings underscore accessibility as a core spatial parameter that links design quality, usability and inclusivity with emotional attachment and community engagement, complementing place-attachment perspectives by highlighting how barrier-free, legible and welcoming environments support stronger person–place bonds in ordinary coastal and sacred settings, not only in iconic heritage sites. A comprehensive literature review identified circulation and edge design, amenities and comfort, heritage form, and spatial character as key landscape quality parameters. Correspondingly, perceived ease of access and movement, user diversity, and frequency and patterns of use were selected as user accessibility parameters.

Using a mixed-methods approach, data on landscape quality and user accessibility were gathered through observations, measured drawings, structured surveys, interviews, and photographic documentation. Spatial data were analysed through spatial mapping techniques, while user accessibility was examined using movement mapping, demographic analysis, and user behaviour analysis.

The study on re-establishment of KKS Beach and Keerimalai Sacred Water Springs demonstrates that restored landscapes can function as powerful instruments for improving accessibility in everyday communal life. When these sites are carefully reconfigured through physical restoration, cultural preservation and community involvement, they do more than upgrade infrastructure: they open up previously restricted or underused areas, support a wider range of users and activities, and make it easier for people of different ages, abilities and backgrounds to reach, enter and comfortably use shared spaces. The findings show that post-war recovery is not only political or economic but also spatial and cultural, mediated through the concrete places people inhabit, visit and move through. A focus on inclusive design, safe and legible circulation, and the integration of heritage elements makes the study action-oriented, offering planners, architects and policymakers' practical guidance on how to enhance accessibility in coastal and sacred landscapes. In this sense, landscape design does not merely act as passive backdrop to social life; they actively shape patterns of access, movement and encounter. The recreated settings of KKS Beach and Keerimalai in post-war Jaffna illustrate how well-designed, culturally grounded and accessible environments can foster everyday use, a sense of belonging and more equitable enjoyment of communal spaces.

DIRECTIONS FOR FUTURE RESEARCH

The research opens several avenues for future inquiry on accessibility in communal landscapes. First, comparative studies within Sri Lanka and across other post-conflict or marginalised contexts could help distinguish between universal and context-specific ways in which landscape restoration enhances physical, visual and social accessibility in beaches, sacred springs and other everyday public spaces. Second, longitudinal research that tracks visitor experiences, mobility patterns and perceived ease of access over time would shed light on the durability of accessibility outcomes and how changing infrastructure, tourism dynamics or environmental conditions influence who can reach and use these sites. Third, there is scope to explore how national and local policy frameworks might more systematically integrate accessibility-oriented, participatory and heritage-sensitive landscape interventions into coastal and cultural planning systems. Fourth, incorporating the perspectives of additional stakeholders such as government agencies, non-governmental organisations, transport authorities and NGO groups could provide deeper insight into how access improvements are prioritised, funded and governed, and how responsibilities for maintenance are shared. Finally, future work could examine the use of technological tools including GIS mapping, spatial network analysis, accessibility modelling and participatory digital platforms to support the planning, monitoring and evaluation of restored landscapes, with a particular focus on identifying access gaps, optimising connections and ensuring that design decisions translate into genuinely inclusive and user-friendly communal environments.

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