Place and Smell:
A GIS Visualization of the Smellscape in Kandy City

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Introduction

Urban environments like Kandy, Sri Lanka, are filled with a wide range of smells arising from religious rituals, street food vendors, markets, vegetation, and even urban infrastructure. For locals, these smells become part of daily life, embedded in cultural and personal memories. For foreigners, however, these same smells might carry entirely new meanings, evoke curiosity, or even create discomfort. Understanding how people, especially foreigners, perceive and react to the smells of Kandy provides important insights into how urban spaces are experienced, navigated, and emotionally connected.

Despite the increasing recognition of the senses in shaping place experiences, research into smellscapes remains limited, especially in urban studies. Globally, only a few researchers have begun to explore how smell shapes urban life and cultural identities (e.g., Henshaw, 2014; Drozdzewski et al., 2016; Porteous, 1985), and even fewer have attempted to map these sensory experiences using Geographic Information Systems (GIS) (e.g., Henshaw et al., 2018; Stewart et al., 2020). Drawing on Schafer's (1977) notion of soundscapes, Porteous (1985) introduced the concept of smellscapes to describe how odors shape the sensory and spatial experience of environments. Smellscapes are composed of distinct odor zones that overlap, transition, and sometimes clash, forming a complex spatial tapestry that individuals interpret both consciously and subconsciously (Porteous, 2006).

Smells act as spatial-emotional intermediaries, forging connections between people, places, and cultural practices (Henshaw, 2013). Hoover (2009) and Henshaw (2014) argue that urban smellscapes are not merely physical phenomena but also cultural constructs shaped by social norms, religious rituals, and historical contexts. Smell thus forms part of what Henshaw (2013) terms the "triangle of smell, place, and emotion," highlighting its role in forging cultural identities and influencing human behavior in urban spaces. In Sri Lanka, and particularly in Kandy, no systematic research exists that combines smellscapes, human emotional responses, and spatial analysis. This represents a significant gap in both academic knowledge and practical urban planning.

Meanwhile, GIS has become a fundamental tool in urban and geographical research, primarily for mapping physical features, socio-economic patterns, and environmental data. However, it's used to represent and analyze subjective, sensory experiences like smell remains almost untouched. There is growing interest in how GIS can be expanded to include human perceptions, emotions, and cultural experiences, moving beyond its traditional applications into more qualitative areas of human geography. Integrating qualitative research methods with GIS is not only methodologically innovative but also necessary to capture the complex ways people interact with places. In that context, this research aims to explore that very integration. By combining qualitative methods such as interviews, discussions, and participatory mapping with spatial analysis in GIS, the study seeks to investigate how smell influences human-place relationships in Kandy.

Objectives

The primary objective of this research is to assess the spatial pattern of distribution of distinct smells within specific locations in Kandy. Thus, this study aims at two research questions.

Research Questions

- RQ1: What are the distinct smells identifiable in specific locations in Kandy City?
- RQ2: How are these smells distributed spatially across over the city?

This study moves beyond simple identification (RQ1) and mapping (RQ2) to explore the subjective experience of the urban environment. A central aim is to investigate the perceptions and emotional responses (e.g., curiosity, comfort, discomfort) evoked by Kandy's smells, paying particular attention to the experiences of foreigners as highlighted in the research gap.

Methodology

Sampling and Data Collection

The research focused on a 600 m buffer zone around the Kandy City Centre, covering the Temple of the Tooth Relic, Kandy Lake, Kandy Market, Dalada Veediya, and adjoining green and residential areas. This boundary captures Kandy's most active sensory zones and major cultural landmarks.

This research employed a mixed-methods approach to systematically capture both the quantitative distribution and the qualitative richness of Kandy's smellscapes. The data collection strategy was multi-layered, beginning with site selection. Through detailed preliminary field observations, fifty sampling points were deliberately chosen. These points were not random; they were strategically selected to represent the city's diverse olfactory contexts, ensuring a comprehensive sample that included religious

sites, bustling food streets, transport hubs, serene green spaces, and areas along the water's edge.

The core of the in-situ fieldwork was conducted through five 'smellwalks'. A group of ten participants, carefully balanced between locals and foreigners to capture different cultural and memory-based perceptions, navigated routes connecting these sampling points. During these walks, participants acted as sensory recorders, documenting their real-time experiences. For each dominant smell identified (e.g., floral, food, waste, exhaust), they recorded its perceived intensity on a 1-to-10 scale and logged associated colors, emotional responses, and any personal memories or cultural links the smell evoked.

To supplement this rich, geolocated sensory data, the study also deployed eighty structured questionnaires and ten semi-structured interviews. This component was designed to gather broader insights into the emotional, cultural, and spatial perceptions of smell across a larger population, providing deep qualitative context to the patterns identified during the smellwalks.

GIS Spatial Analysis

Following the data collection phase, all qualitative and quantitative data were digitized and integrated into ArcGIS Pro for rigorous spatial analysis. The first step involved transforming the discrete data from the fifty sampling points into continuous surfaces using Kriging interpolation. This geostatistical technique modeled the likely smell intensity across the entire study area, creating a predictive map of olfactory strength.

To pinpoint specific areas of high sensory impact, Kernel Density Estimation was applied. This method visualized 'clusters' or concentrations of strong smells, allowing for the identification of the most potent olfactory locations.

Moving beyond mere intensity, the analysis sought to map the quality of the smells. Using the participant data on pleasant and unpleasant emotional associations, a Hot Spot Analysis (Getis-Ord Gi)* was conducted. This statistical analysis identified statistically significant spatial clusters of positive (pleasant) and negative (unpleasant) smell zones, revealing the city's "olfactory hotspots" with statistical confidence.

Finally, to understand the spatial influence of these zones, Buffer and Overlap Analysis was performed. By creating 50-meter and 100-meter zones around pleasant and unpleasant hotspots, this analysis mapped their reach and, crucially, identified areas of sensory conflict where pleasant-only and unpleasant-only zones overlapped.

Methodological limitations were documented throughout the study. Field notes taken during the smellwalks recorded contextual challenges and unexpected observations. Participant feedback was gathered to understand difficulties they faced with sensory tasks, such as sensory fatigue. Technical and environmental factors, including weather conditions affecting smell detection and potential instrument limitations, were also systematically recorded.

Results and Discussion

Mapping Kandy's Olfactory Landscape

The data collected from the 50 sampling locations and subsequent smellwalks revealed a complex and highly varied olfactory landscape within Kandy.

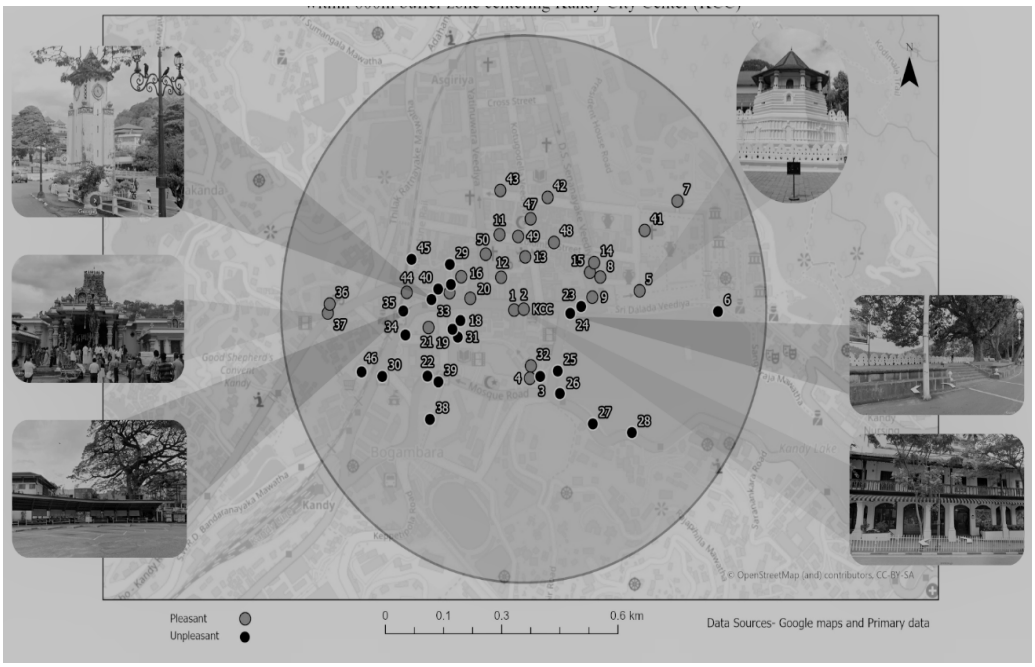
No	Place/People and values	Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	Person 7	Person 8	Person 9	Person 10	Dominant Smell	Smell Type	Intensity %
1	Devon Bakers (Front)	Bakery-8	Bakery-7	Cake-7	Bakery- 9	Bakery-8	Bakery-7	Bakery-7	Bakery-8	Food-9	Bakery-8	Bakery	Pleasant	78
2	KCC (Inside)	AC-7	AC -7	Fresh- 8	AC-8	AC-9	Perfume-8	AC-8	AC - 7	AC - 8	AC -9	AC	Pleasant	79
3	Sahas Uyana_1	Bad -7	Waste -8	Fish -7	Bad -6	Toilet-7	Bad- 5	PW-8	Bad - 6	Fish-7	PW-7	Bad	Unpleasant	68
4	Sahas Uyana_2	Food -7	Food-8	Food - 6	Food -8	Food - 8	Food-9	Food-8	Food -7	Food-9	Food-7	Food	Pleasant	77
5	Dalada Maligawa_1 (Maha Maluwa)	Flower-6	Fresh-7	Fresh -6	SS-7	Fresh-5	Neutral -5	Fresh-6	SS- 7	SS-6	Fresh-5	Fresh	Pleasant	66
6	Dalada Maligawa_2 (Ulpan geya)	SW-5	CF-6	Owt-7	SW-6	SW-7	CF-6	SW-7	SW- 6	SW-7	CF-7	SW	Unplasant	64
7	Dalada Maligawa_3(Vishnu Dewalaya)	SS-6	SS-7	Flower- 6	SS-8	SS-7	SS-9	SS-8	SS-7	SS-6	Flower-7	SS	Pleasant	71
8	Dalada Maligawa_4(Flower street)	Flower-7	Flower-8	Flower-7	Flower-6	Flower-8	Flower-5	Flower-4	SS-7	Flower-5	SS-3	Flower	Pleasant	60
9	Queens Hotel	Food-3	Bad -4	Food-5	Food-4	CF-3	Food-2	CF-2	Neutral-2	Neutral -2	Food-2	Food	Pleasant	29
10	Ali Mudukkuwa Entrance	Food-2	Food-3	Bad-4	Food-1	Food-2	Bad-3	Bad-2	Food-2	Food-3	Food-2	Food	Pleasant	24
11	Bowatta Shop	HM-7	HM-8	HM-7	HM-6	HM-7	HM-8	HM-7	HM-7	HM-8	HM-7	HM	Pleasant	72
12	Castle street	Cloths-5	Food-6	Cloths-4	Cloths-3	Plastic-3	Food-5	Cloths-2	Cloths-4	Cloths-3	Food-6	Cloths	Pleasant	41
13	Katharagama Dewalaya	SS-7	SS-8	Fruits-6	SS-7	SS-7	SS-6	Fruits-7	SS-5	SS-6	SS-5	SS	Pleasant	64
14	Java Laungch	Coffee-3	Coffee-4	Coffee-3	Coffee-2	Bakery-2	Coffee-2	AC-6	AC-6	Coffee-2	Bakery-3	Coffee	Pleasant	33
15	Balaji Dosai	Food- 7	Food-7	Food-6	Food-7	Food-5	Food-6	Food-6	Food-5	Food-7	Food-6	Food	Pleasant	62
16	Yoosufia Eating House	Food-8	Food-8	Food-8	Food-7	Food-6	Food-7	Food-8	Food-7	Food-8	Food-7	Food	Pleasant	66
17	Ali Mudukkuwa middle	Bad-4	Books-5	Spices-4	Neutral-3	SW-6	Bad-3	Bad-5	Bad-2	Neutral-4	Bad-2	Bad	Unpleasant	38
18	George E. de Silva Park	Garbage-5	CF-4	Bad-5	Toilet-4	Garbage -6	Gargabe -7	Garbage -6	Bad-6	CF-3	Garbage -7	Garbage	Unpleasant	53
19	Torrington Bodhiya	Toilet-3	Garbage-4	Garbage -5	Bad-6	Bad-5	Garbage -3	Garbage -5	Bad-5	Garbage -6	Garbage -7	Garbage	Unpleasant	49
20	Sinhala Jathika Hotel	Food-5	Food-6	Food-5	Food-5	Food-5	Food-5	Food-6	Food-4	Food-4	Food-6	Food	Pleasant	51
21	Market Main entrance	Fruits-6	Fruits-7	Fruits-5	Bad-2	Fruits-5	Fruits-4	Fruits-5	Fruits-3	Fruits-2	Bad-3	Fruits	Pleasant	36
22	HB Udurawana Mawatha	Garbage -7	CF-8	Fishy-8	Garbage -8	Garbage -8	Fishy-9	Fishy -8	Fishy -8	Fishy -7	Fishy-8	Fishy	Unpleasant	79
23	Lake round 1	CF-3	CF-3	CF-4	Fishy-3	CF-3	CF-2	CF-2	Fishy-5	Fishy -4	CF-3	CF	Unpleasant	62
24	Lake round 2	CF-2	CF-2	CF-2	CF-1	Fishy-3	CF-2	Fishy-2	CF-2	CF-3	CF-1	CF	Unpleasant	20
25	Lake round 3	Waste-2	Toilet-3	Toilet-2	Waste-2	Toilte-2	CF-2	Toilet-2	Toilet-3	CF-2	CF-2	Toilet	Unpleasant	22
26	Lake round 4	Fishy-3	Fishy-2	CF-2	Fishy-4	Fishy-3	CF-2	CF-1	CF-2	Fishy-1	Fishy-2	Fishy	Unpleasant	22
27	Lake round 5	Fishy-4	Fishy-5	SW-5	Fishy -6	Fishy-5	Fishy-5	SW-4	Fishy-4	Fishy-3	SW-5	Fishy	Unpleasant	46
28	Lake round 6	SW-5	Fishy-6	Fishy-5	Fishy-4	Fishy-4	SW-3	SW-2	Fishy-3	Fishy-4	Fishy-3	Fishy	Unpleasant	39
29	Yatinuwara Patu Mawatha	SW-6	Garbage-5	SW-7	SW-7	SW-7	Bad-5	SW-6	SW-7	SW-5	Garbage-5	SW	Unpleasant	60
30	Kandy Intesity bus stop	Bad-4	ES-6	Dust-7	Garbage-4	ES-7	ES-8	ES-7	ES-6	ES_6	ES-6	ES	Unpleasant	61
31	Mahakanda bus stop	Garbage-5	Garbage-4	Bad-5	Tyres-4	Garbage-3	Beatle Spit-2	ES-4	Bad-5	Garbage-3	Bad-4	Garbage	Unpleasant	39
32	KCC entrance (Near Car park)	AC-6	AC-7	AC-6	AC-6	AC-7	AC-7	AC-7	AC-8	AC-6	AC-6	AC	Pleasant	66
33	Clock tower	Dust-5	Garbage-5	Garbage-4	Garbage-4	Toilet-3	Beatle Spit-3	Toilet-2	Neutral-4	Neutral-3	Garbage-3	Garbage	Unpleasant	36
34	Bodhiya Near market	ES-5	ES-4	Fruits-3	Dust-3	ES-5	ES-4	ES-4	Dust-2	ES-3	ES-4	ES	Unpleasant	37
35	Bus stand near Clock tower	Toilte-5	Toilet-6	Garbage-7	Garbage-6	Garbage-8	Garbage-7	Garbage-8	Garbage-8	Toilet-7	Toilet-7	Garbage	Unpleasant	69
36	Pulleyar Kovil_1	Neutral-6	Flower-5	Folwer-4	Flower-4	Flower-3	SS-4	Flower-3	SS-5	Neutrat-2	Neutral-3	Flower	Pleasant	39
37	Pulleyai Kovil_2	Food-4	Flower-4	Flower-3	ES -5	Neutral-5	Flower-5	Food-5	Food-4	Food-5	Neutral-5	Food	Pleasant	45
38	Bogambara Prison Park	Bad-5	Garbage -4	Garbage -3	CF-5	CF-6	Toilet-4	Garbage -4	Garbage-3	Garbage -3	CF-4	Garbage	Unpleasant	41
39	Bogambara Public Toilet	Toilet-6	Toilet-6	Toilet-7	Garbage-5	Toilet-6	CF-2	CF-4	Toilet-5	Toilet-7	Toilet-7	Toilet	Unpleasant	55
40	BOC_Kandy	Bad-6	Bad-5	Garbage-5	Bad-5	Neutral-5	Garbage-4	Neutral-4	Bad-6	Bad-5	Garbage-5	Bad	Unpleasant	50
41	St.Paul's Church	Neutral-4	Neutral-3	SS-5	SS-4	Neutral-3	SS-3	SS-5	Neutral-4	Neutral-3	Neutral -2	Neutral	Pleasant	36
42	Raja Veediya_1	HW-5	HW-6	Industrial-5	HW-6	Paint-5	Industrial-4	Industrial-6	HW-7	Neutral-3	Neutral-5	Hadware	Pleasant	52
43	Raja Veediya_2	AC-4	Neutral-3	Fresh-4	Neutral-2	Neutral-3	AC-3	AC-4	Neutral-2	Neutral-2	Neutral-3	Neutral	Pleasant	30
44	Kandy Tourist Police	Neutral-2	Neutral-2	Neutral-4	Neutral-2	Neutral-3	Neutral-3	Neutral-1	Neutral-2	Neutral-3	Neutral-2	Neutral	Pleasant	24
45	Wadugodapitiya Mawatha	Industrial-4	Bad-3	Dust-4	Industrial-3	Industrial-3	Neutral-3	Oil- 5	Bad-3	Industrial-4	Neutral-2	Industrial	Unpleasant	34
46	Kandy Municipal Shopping Complex	Bad-3	Food-2	Cloths-4	Food-2	Bad-3	Bad-2	Bad-2	Bad-2	Cloths-3	Cloths-3	Bad	Unpleasant	26
47	Kotugodella Weediya	Food-6	Food-7	Plastic-5	Food-5	Plastic-3	Plastic-4	Food-4	Food-5	Food-5	Food-5	Food	Pleasant	49
48	Colombo street 1	Grocery-5	Oil-4	Grocery-6	Food-5	Grocery-5	Grocery-6	Food-7	Oil-5	Grocery-6	Grocery-4	Grocery	Pleasant	53
49	Colombo Street 2	Fruits-4	Food-5	Food-4	Fruits-4	Veg-4	Food-3	Veg-3	Fruits-3	Fruits-2	Fruits-3	Fruits	Pleasant	35
50	Yatinuwara Weediya	Neutral-5	AC- 6	Neutral-4	Neutral-3	AC-5	AC-4	AC-3	Neutral-3	Neutral-4	Neutral-2	Neutral	Pleasant	39

(CF- Crows Feces, ES- Exhaust Smell, AC- Air Condition, SW- Stale water)

Table 1: Selected sample locations, dominant smell types and intensity values of smells.

As summarized in *Table 1*, participant consensus varied by location; some sites prompted near-universal agreement on smell type and intensity, while others, particularly those with a mix of odors, reflected a much broader range of subjective perceptions.

To transition this rich, qualitative data into a format suitable for spatial analysis, a crucial classification step was undertaken. Each location's dominant, most frequently reported smell was categorized as either 'pleasant' (e.g., food, bakery, floral, incense) or 'unpleasant' (e.g., garbage, sewage, exhaust fumes, stale water). This binary classification, while a simplification of the nuanced sensory experience, provided a robust framework for quantitatively mapping the city's positive and negative sensory zones. This process resulted in 27 locations being classified as 'pleasant' and 23 as 'unpleasant', setting the stage for a detailed GIS-based investigation *(Map 1)*.

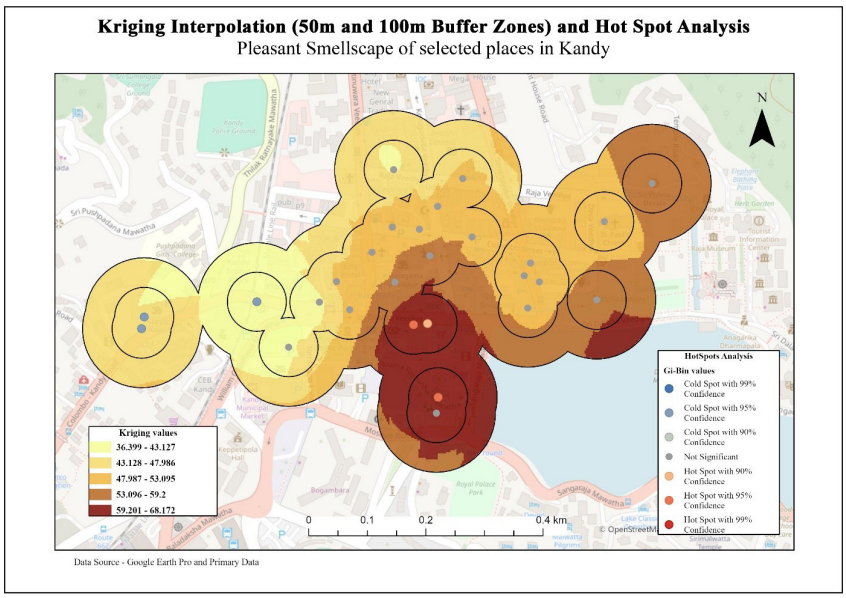


Map 1: Study area and sample locations. Source: Author.

Kriging Interpolation: Modeling the Intensity of Urban Smellscapes

To move beyond 50 discrete points and visualize the city-wide sensory experience, Kriging interpolation was employed. This geostatistical technique is powerful because it estimates the spatial variation of smell intensity across the entire study area, creating a continuous, predictive 'smell intensity map' based on the intensity values (1-10 scale) provided by participants at the sampling points. This analysis was conducted separately for the pleasant and unpleasant location datasets.

For pleasant smells, the resulting interpolated intensity values ranged from 36.399 to 68.172. These values were then classified into five categories using the natural breaks (Jenks) method, which identifies natural groupings within the data. The output map *(Map 2)* clearly illustrates that the highest intensity pleasant smells are not randomly distributed.



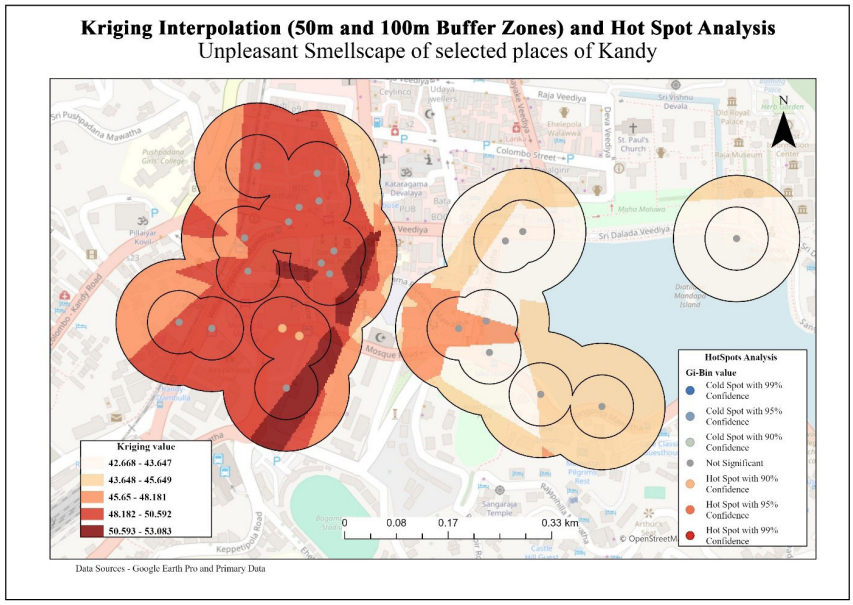
Map 2: Kriging interpolation and Hot Spot Analysis on Pleasant smell locations. Source: Author.

They are highly concentrated near key points of attraction and leisure, such as the Kandy City Centre, popular food courts, bakeries, and significant religious sites like the Temple of the Tooth Relic. From these peaks, the pleasant smell intensity gradually diminishes, extending with lower values into adjacent quieter markets, commercial streets, and more congested, traffic-dominated areas.

For unpleasant smells, the interpolated values ranged from 42.668 to 53.083. The *map 03* generated from this data shows a starkly different, yet equally clear, spatial logic. The areas with the highest unpleasant smell intensity correspond directly to points of infrastructural stress and environmental neglect. These include heavily congested vehicle zones choked with exhaust, improper drainage paths near the central market, and sections of the Kandy Lake round where participants consistently reported “stale water” and “fishy” smells.

The contrast between these two maps is significant. It suggests a form of de facto sensory zoning within Kandy. Pleasant smells are strongly tied to religious, recreational, and modern commercial functions. Conversely, unpleasant smells cluster

tightly around aging infrastructure, high-traffic bottlenecks (*Ali Mudukkuwa*), market sanitation issues (Kandy Market), and poorly managed environmental areas. This sensory division has profound implications for the urban experience, shaping how people navigate, perceive, and emotionally connect with different parts of the city.



Map 3: Kriging interpolation and Hot Spot Analysis on Unpleasant smell locations. Source: Author.

Hot Spot Analysis (Getis-Ord Gi): Identifying Statistically Significant Clusters*

While the Kriging maps show where intensity is high or low, the Hot Spot Analysis (Getis-Ord Gi)* goes a step further. It determines if the observed spatial patterns are statistically significant that is, whether high-intensity values truly cluster together (a "hot spot") or if low-intensity values cluster together (a "cold spot"). This analysis was crucial for identifying with statistical confidence the most consistently positive and negative zones in the city.

The analysis for pleasant smells revealed a localized pattern. No 99% confidence hot spots were found. However, 95% and 90% confidence hot spots were identified, primarily in the southern and southeastern parts of the study area. These locations, which include clusters of food outlets, bakeries, and recreational zones, align perfectly with the high-intensity areas identified in the Kriging analysis, confirming them as statistically significant zones of pleasant odor.

This pattern, the presence of 90% and 95% hot spots but the absence of 99% "super-clusters," is itself a key finding. It indicates that while pleasant smells are a strong,

consistent feature of these specific urban functions, they are not overwhelmingly concentrated across the wider city.

Conversely, the analysis also revealed that the majority of other points registered as 95% confidence cold spots. This suggests that much of the study area consistently lacks strong positive odors. This pattern reflects a moderately polarized smellscape: positive olfactory experiences are strongly clustered around specific, highly active urban functions, but remain weaker or more diffused in institutional, residential, or transitional zones.

The hot spot analysis for unpleasant smells told a similar story of localization. Again, no 99% confidence hot spots were found. A few 95% confidence hot spots did appear, corresponding to localized problem zones (like poor infrastructure and heavy traffic) that had high Kriging values.

Significantly, all other points in the study area registered as either "not significant" or as 95% confidence cold spots. This finding is highly illuminating. It suggests that while Kandy has undeniable "problem zones," the city as a whole is not dominated by severe, widespread olfactory discomfort. The unpleasant odors, while intense where they occur, are spatially limited and do not form large, contiguous zones of negative sensory experience. This underscores the localized, rather than systemic, nature of the city's negative smellscape.

Kernel Density Estimation (KDE): Mapping Olfactory Concentration

Finally, Kernel Density Estimation (KDE) was applied to offer a different perspective. Unlike Kriging (which maps intensity) or Hot Spot Analysis (which maps statistical clustering of intensity), KDE maps the spatial concentration or frequency of smell occurrences. In essence, it shows where pleasant or unpleasant smell sources are most densely packed together.

For pleasant smells, density values ranged from 0.001 to 74.230. The highest KDE values were found in areas where numerous pleasant smell sources overlap, such as commercial streets lined with food outlets, bakeries, and religious sites. These high-density zones effectively create "ribbons" of positive sensory experience along key leisure and commercial corridors, contributing positively to the city's vibrancy and pedestrians' emotional connection to place.

For unpleasant smells, the density values ranged dramatically higher, from 0.001 to 491.403. This much higher maximum value is a critical finding. It indicates that

while pleasant smell sources are moderately dispersed, unpleasant smell sources are intensely clustered in very specific "problem areas." The highest KDE values signal repeated, persistent, and overlapping unpleasant odors, pinpointing locations like bus stands, waste dumps, specific drainage paths, and congested intersections. These peaks reflect acute, localized environmental issues that require highly targeted intervention.

Together, these three GIS analyses paint a comprehensive picture. The Kriging interpolation created a "sensory zoning" map based on intensity. The Hot Spot analysis confirmed that these zones are statistically significant but highly localized, with neither pleasant nor unpleasant smells dominating the entire city. Finally, the KDE analysis revealed the nature of these clusters: pleasant smells are moderately dense, creating positive "ribbons," while unpleasant smells are intensely concentrated in specific, localized "hotspots," highlighting precise areas for urban management to enhance Kandy's overall urban experience.

Conclusion

This study confirms that Kandy's olfactory landscape is not random but is structured by a clear "sensory zoning": pleasant smells (food, floral, incense) are spatially tied to recreational, religious, and commercial hubs, while unpleasant smells (exhaust, waste, sewage) are concentrated at "infrastructural stress points" like transport nodes and market drains.

More importantly, the GIS analysis revealed that Kandy's smellscape is highly localized. The Hot Spot and Kernel Density analyses showed that negative odors are not a widespread, systemic issue. Instead, they are intensely clustered in specific, well-defined "problem zones" (e.g., bus stands, waste dumps) with a much higher density than the more dispersed "ribbons" of pleasant smells. This spatial distinction provides a nuanced map of the urban sensory experience. By translating emotions, memories, and perceptions into tangible spatial data, this research fills a significant gap in Sri Lankan urban studies and sensory geography.

Ultimately, this study moves beyond a simple inventory of smells. It provides an "emotional map" of Kandy, offering a new, evidence-based tool for urban planners. The findings empower a human-centric approach to urban design, allowing for targeted interventions to mitigate specific negative hotspots and preserve the positive olfactory experiences that are integral to Kandy's unique cultural identity. This mixed-methods model is highly replicable for other cities seeking to understand their own invisible, yet powerful, smellscapes.

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