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Exploring Public Perception of Eco-Stress in Pakistan: A Qualitative Analysis through Focus Group Discussions

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Abstract

Environmental degradation and climate-related challenges have led to increasing psychological and emotional responses among populations worldwide, a phenomenon commonly referred to as eco-stress. This study explores the public perception of eco-stress in Pakistan, where climate change impacts—such as rising temperatures, flooding, and resource scarcity—have become increasingly severe. Using a qualitative approach, this research employed focus group discussions (FGDs) conducted across diverse socio-economic and geographic settings to capture a broad spectrum of public sentiment. The findings reveal that while awareness of environmental issues is growing, there exists a wide disparity in understanding the psychological impacts of ecological decline. Participants expressed feelings of anxiety, helplessness, and frustration, particularly among youth and rural communities directly affected by environmental stressors. Moreover, the study found a strong linkage between eco-stress and perceived governmental inaction or lack of community-level resilience strategies. The research contributes to the emerging field of environmental psychology in the Global South and underscores the need for integrative policy measures that address not only the physical but also the emotional dimensions of climate change in Pakistan.

Keywords: *Eco-stress, Environmental Psychology, Built Environment, Climate Change, Urban Stressors, Thematic Analysis*

Introduction

The term “environment” is defined diversely across disciplines, encompassing non-genetic influences (Boffetta et al., 2007), complex environmental systems (Weyns et al., 2007), and

ecological variables like air, water, and species interactions (Al-Kandari, 1994; Ackerly, 2003; Pöyry et al., 2008). In psychology, environment includes both physical surroundings and social structures that impact development and identity (Meagher, 2020; Kryžanowski, 2015). Environmental stress emerges when environmental demands exceed available resources for coping, manifesting physiologically and behaviorally, and is a major contributor to depression and altered neural functioning, especially within the mPFC (De Groot, 2019; Myers et al., 2014). Environmental influences (physical, familial, social, cultural) interact with individual vulnerabilities to shape mental health outcomes (Bronfenbrenner, 1979; Tsuang et al., 2004). Socioeconomic and psychosocial stressors, trauma, and toxic exposures further lead to psychopathological risks (Lorant et al., 2003; Kendler et al., 1999). Stressors range from natural disasters to crowded cities their effects are influenced by how resilient a person is and the support they get from others. Natural environments, including virtual simulations, promote well-being by enhancing cognitive, emotional, and immune functioning (Haahtela, 2019; Wells & Phalen, 2018). Built environments influence behavior and creativity through design, physical arrangements, and natural integration (Dúll, 2020; Timperio et al., 2020; Blomberg & Kallio, 2022). Health and mortality are significantly shaped by housing quality, air pollution, and physical activity levels (Evans, 2003; Molinsky & Forsyth, 2018; Pinter-Wollman et al., 2018; Samitz et al., 2011). Home aesthetics and parental support directly influence psychological stability (Graham et al., 2015). Similarly, workplace design affects mental health and well-being, with natural materials like wood enhancing satisfaction, comfort, and focus (Lindberg et al., 2018; Kim & de Dear, 2012; Kellert, 2008; Viholainen et al., 2021).

Environmental stress, also known as eco-stress, refers to the psychological and physiological strain induced by adverse environmental conditions (Wingfield, 2013). This concept has gathered increasing attention as environmental challenges become more prevalent due to urbanization, climate change, and global socio-economic issues (Faraniza, 2021). Eco-stress encompasses the impact of environmental factors that disrupt an individual's ability to maintain psychological and physical well-being (Nurse et al., 2010). These stressors can be classified into several categories, including physical, natural, built, social, economic, domestic, professional, and educational environments (Senanayake et al., 2020). Each of these domains contributes uniquely to the stress experienced by individuals, leading to varied outcomes depending on the specific circumstances and individual vulnerabilities.

The perception of environmental stress, or eco-stress, varies considerably around the globe, shaped by diverse cultural, socioeconomic, and environmental contexts. While the recognition of environmental stress as a significant factor affecting well-being is growing globally, cultural differences influence how eco-stress is experienced, understood, and addressed. In some cultures, particularly in industrialized nations, eco-stress is often associated with issues like urbanization, air pollution, and climate change. In contrast, in developing or low-income countries, the focus may be on the immediate consequences of environmental disasters, economic stressors, and inadequate infrastructure (Lal & Santos, 2018). This divergence in perceptions highlights the cultural and environmental factors that determine how eco-stress is conceptualized and responded.

In Western cultures, particularly in Europe and North America, eco-stress has been increasingly recognized as a significant concern due to growing awareness of environmental issues such as

climate change, pollution, and habitat destruction. A study found that many individuals in these regions express a increased sense of anxiety related to environmental degradation, with concerns about global warming and its potential impact on future generations (Cosh et al., 2024). This anxiety, often referred to as "eco-anxiety," is amplified by the media's portrayal of environmental crises and the perception of environmental change as an existential threat (Cosh et al., 2024). In these societies, eco-stress is often linked to both the direct effects of pollution and climate change, as well as the broader social and economic consequences of environmental degradation, such as job loss in industries affected by environmental regulations (Chakrabarty, 2009).

In contrast, many developing countries, particularly those in sub-Saharan Africa and South Asia, the primary sources of eco-stress are tied to direct, observable environmental challenges such as drought, flooding, and the destruction of natural resources essential for subsistence. A study by Nhamo et al. (2020) on climate change adaptation in Africa found that communities in rural areas often perceive environmental stress because of immediate threats to their livelihoods, such as crop failure due to changing rainfall patterns. These communities, while recognizing environmental threats, may not always attribute stress to the same global environmental crises that dominate Western discourse. Instead, they focus more on local environmental challenges and the need for practical solutions to address them, such as improved access to water or soil conservation techniques (Lede et al., 2021).

In East Asia, particularly in China and Japan, the perception of eco-stress is strongly influenced by rapid industrialization, urbanization, and environmental pollution. In China, for instance, severe air pollution has been a persistent issue, leading to widespread concern about the long-term health impacts. As a result, public perception of eco-stress in urban Chinese populations often revolves around pollution-related health risks, with individuals expressing significant worry over the quality of air and water (Han, 2020). In Japan, on the other hand, there is a growing recognition of the psychological impacts of natural disasters, with eco-stress linked to recurring earthquakes and tsunamis. Cultural factors, such as collectivism and a deep respect for nature, may influence how individuals in these countries perceive and cope with eco-stress (Oramus, 2023).

In Latin America, environmental stress is often tied to issues of environmental justice and socio-economic inequality. In countries like Brazil, where deforestation and destruction of the Amazon rainforest have reached critical levels, public perception of eco-stress is closely linked to concerns over biodiversity loss and its impact on indigenous communities (Brandão et al., 2021). Here, environmental stress is often viewed through the lens of social and environmental activism, with many individuals perceiving eco-stress not only as an environmental issue but also as one of equity and social justice (Adger et al., 2003). Indigenous populations in these regions, for instance, may experience heightened eco-stress due to the loss of their ancestral lands, the destruction of ecosystems, and the direct threats posed by climate change.

Globally, public perceptions of eco-stress are also shaped by different levels of governmental action and environmental education. In Scandinavian countries (region of Northern Europe encompassing Norway, Sweden, and Denmark) where environmental policies and sustainability practices are highly prioritized, there tends to be a more proactive public engagement with eco-

stress, with individuals showing high levels of environmental awareness and readiness to engage in mitigation strategies (Carlsson-Kanyama & Lindén, 2007). However, in regions where environmental policies are weak or where economic development takes priority, individuals may be less aware of or less concerned about the environmental factors contributing to their stress, focusing instead on immediate and tangible challenges such as job insecurity or access to resources.

In relation to the public perception on Eco-stress, there were no earlier studies in Pakistani culture that could have provided insights into the public perception of eco-stress, particularly in relation to the unique environmental, social, and cultural challenges faced by the population. Given Pakistan's vulnerability to climate change, including frequent natural disasters like floods, droughts, and heatwaves, as well as rapid urbanization and environmental degradation (Malik et al., 2012; Nadeem et al., 2022), it was crucial to explore how these factors impact the mental health and well-being of individuals. The absence of localized research induced the initiation of the current study to fill this significant gap in literature. The current study was aimed at exploring public perception of Pakistanis on Eco-stress. This qualitative exploration was achieved through focus group discussions.

Objectives

This study aimed to identify and thematically classify the range of eco-stressors experienced by individuals in urban environments, with an emphasis on psychosocial, infrastructural, and ecological dimensions.

Background

The rapid urbanization and ongoing ecological transformations have intensified environmental stressors (commonly termed *eco-stressors*) which significantly affect individuals' psychological and physical well-being. Despite growing recognition of their importance, the multidimensional nature of eco-stress remains underexplored in contemporary literature.

Method

Research Design

This study employed a qualitative research design to explore the public perception of eco-stress among the Pakistani population. Qualitative method was chosen because it allows an in-depth understanding of the subjective experiences and perceptions of individuals, which is particularly important when examining a complex and culturally specific phenomenon such as eco-stress. Specifically, the study utilized focus group discussions (FGDs) to gather rich, detailed data on participants' views, experiences, and responses to environmental stressors in Pakistan. FGDs are particularly suited for exploring perceptions and experiences in a group setting, where participants can interact with one another and discuss the subject matter in depth (Krueger & Casey, 2015).

Participants

The sample for the study was purposively selected to gather a variety of perspectives. Six focus group discussions were conducted, with 10 participants in each group. The total sample size

was 60 participants. To represent diverse groups within the Pakistani population, the participants were divided into three categories:

1. **University Students (n = 20):** Two focus group discussions were conducted with university students from various academic disciplines. This group was chosen because university students are typically more aware of global and local environmental issues, and their perceptions could shed light on how eco-stress is conceptualized by younger generations.
2. **Working Men (n = 20):** Two focus group discussions were held with working men. This group represented individuals engaged in various occupations across different sectors of the economy. The focus on working men was aimed at understanding how eco-stress is perceived in the context of professional life, including the impact of environmental stressors on work performance and daily routines.
3. **Working Women (n = 20):** Two focus group discussions were conducted with working women, representing a variety of professions. This group was selected to explore how gender dynamics and roles might shape perceptions of eco-stress, especially considering that women in Pakistan may face additional stressors related to balancing work, household responsibilities, and environmental challenges.

Participants in each focus group were selected based on specific inclusion criteria: they had to be residents of Pakistan, aged 18-50 years, and able to communicate in either Urdu or English. Participants were excluded if they had prior experience in environmental stress research or if they were unable to attend the scheduled discussion sessions. Participants were recruited through snowball technique. The focus group discussions were conducted online through voice group calls on WhatsApp.

Data Collection Procedure

The data were collected through semi-structured focus group discussions, which lasted between 60 and 90 minutes. The FGDs were moderated by a trained facilitator, who was experienced in conducting qualitative research. The facilitator ensured that all participants had an equal opportunity to share their perspectives, and that the discussion remained focused on the topic of eco-stress.

The FGDs were structured around an interview guide, which included open-ended questions designed to explore participants' perceptions of environmental stressors in Pakistan. In addition to the core questions, participants were encouraged to discuss their personal experiences with eco-stress, share their thoughts on governmental and societal responses to environmental issues, and explore the role of community and family in managing eco-stress. The group discussions allowed participants to build on each other’s responses, providing a rich data set that captured a variety of perspectives.

All discussions were not audio-recorded due to the privacy concerns of participants, and field notes were taken by the moderator and were transcribed for analysis.

Data Analysis

The data from the focus group discussions were analyzed using thematic analysis, which is a widely used method for identifying, analyzing, and reporting patterns (themes) within qualitative data (Braun & Clarke, 2019). The analysis followed the six-step process of thematic analysis: (1) familiarization with the data through reading and re-reading the transcripts, (2) generating initial codes, (3) searching for themes by grouping codes into broader categories, (4) reviewing themes to ensure they accurately represented the data, (5) defining and naming themes, and (6) writing the report.

The thematic analysis was conducted inductively, meaning that the themes were derived from the data itself rather than being imposed based on pre-existing theoretical frameworks. This approach allowed the researchers to identify novel insights into the public perception of eco-stress in Pakistan.

To ensure the validity and reliability of the findings, the analysis was conducted by two independent researchers who cross-checked the identified themes. Any discrepancies in coding were resolved through discussion and consensus. Additionally, member checking was performed by returning the summarized themes to a subset of participants for feedback, ensuring that the interpretation of the data accurately reflected their experiences and views.

Ethical Considerations

Ethical approval for the study was obtained from Ethics Committee of Fatima Jinnah Women University. Informed consent was obtained from all participants, who were made aware of the purpose of the study, their right to withdraw at any time, and the confidentiality of their responses. Participants were also assured that their personal information would not be disclosed, and that the data would be anonymized in the final report. The discussions were conducted in a respectful and non-coercive manner, and participants were encouraged to share their opinions freely. Artificial Intelligence (ChatGPT) was employed to enhance the linguistic quality of this manuscript and to assist in drafting a conceptual figure.

Results

Overview of Identified Eco-Stressors

The analysis of focus group discussions included a comprehensive array of 124 unique eco-stressors, reflecting a broad spectrum of environmental, infrastructural, psychosocial, and climatic concerns. Frequencies of references to each stressor ranged from 23.33% to 89.33%, highlighting both common and context-specific environmental challenges.

The most frequently cited eco-stressors included *Building Aesthetics* (89.33%), *Preparation Stress* (88.67%), *Building Accessibility* (87.33%), *Access to Nature* (86.00%), *Environmental Impact* (86.00%), *Erosion* (85.33%), *Blizzards* (85.33%), *Zoning Regulations* (83.33%), and *Bicycle Infrastructure* (83.33%). These high-frequency responses signify that not only physical environmental conditions but also aesthetic, regulatory, and lifestyle factors are salient in the lived experiences of participants.

On the other hand, less frequently mentioned yet significant eco-stressors included *Environmental Degradation* (27.33%), *Water Contamination* (26.67%), and *Poor Air Quality*

(26.00%), suggesting that while these issues are recognized, they may either be less immediate or more normalized in participants' settings.

Thematic Development

Through an inductive coding and thematic analysis approach, the 124 eco-stressors were synthesized into 22 sub-themes, which were further grouped under four overarching themes (Table 2). These themes and sub-themes reflect the systemic interrelation among various environmental stressors.

1. **Built Environment**

   This theme encapsulated sub-themes related to *Housing and Living Conditions*, *Public and Community Spaces*, *Aesthetics and Design*, *Cycling and Walkability*, *Lighting Conditions*, *Construction and Infrastructure*, *Traffic and Transportation Issues*, *Utility and Amenities*, *Overcrowding and Urban Density*, and *Safety and Environmental Risks*. These categories underscored the impact of urban planning and design on residents' environmental stress, highlighting the centrality of infrastructural adequacy and environmental harmony in daily life.

2. **Climate Change**

   Sub-themes under this category included *Temperature Extremes and Climate Change*, *Air Quality and Pollution*, and *Environmental Impact on Wildlife*. These stressors illustrated both the perceptual and physical consequences of shifting climate patterns, with particular concern for urban heat islands, increased allergen exposure, and disruptions to local ecosystems.

3. **Natural Disasters**

   Participants expressed significant concerns regarding the community's resilience to emergencies. This theme integrated sub-themes such as *Emergency and Disaster Response* and *Natural Disasters*, which encompassed stressors like flooding, earthquakes, hurricanes, and tsunamis—events that not only disrupt infrastructure but also undermine psychological security and community cohesion.

4. **Environmental Damages**

   The final theme grouped sub-themes concerning *Waste Management and Environmental Cleanliness*, *Economic and Property Concerns*, *Water Access and Quality*, *Pests and Allergens*, *Green Spaces and Environmental Degradation*, *Noise Pollution* and *Health Risks and Impacts*. The integration of economic and ecological aspects within a single theme reflected the interconnectedness between environmental degradation and socio-economic vulnerabilities, particularly within marginalized communities. Participants

also emphasized the importance of maintaining clean, green, and quiet environments as crucial for psychological well-being and community satisfaction

Visual Representation

As depicted in Figure 1, the sub-themes and their respective themes were organized into a conceptual model that reflects their interconnectedness. This hierarchical structure provides a holistic understanding of environmental stressors and allows for future scale development, policy formulation, and targeted psychosocial interventions.

Discussion

The present study aimed to explore the spectrum of environmental stressors—termed *eco-stressors*—affecting individuals in contemporary urban settings, and to thematically categorize these based on focus group discussions. The findings revealed a wide array of stress-inducing environmental factors, which were synthesized into four overarching themes: *Built Environment*, *Climate Change*, *Natural Disasters*, and *Environmental Damages*. These themes reflect the multifaceted and cumulative nature of eco-stress and align closely with contemporary literature on environmental psychology, public health, and urban ecology.

Eco-Stressors in the Built Environment

The built environment emerged as the most complex and expansive source of eco-stress, encompassing housing and living conditions, public and community spaces, aesthetic and design elements, lighting, infrastructure, traffic congestion, walkability, overcrowding and urban density, and access to utilities. Consistent with prior findings (Evans, 2003; Beemer et al., 2019), this study emphasizes how structural features of the urban landscape profoundly shape individual and collective psychosocial experiences. For example, inadequate housing, poor architectural design, limited green spaces, and inefficient public transportation exacerbate perceptions of entrapment, isolation, and vulnerability. Moreover, studies have shown that crowded living spaces and insufficient access to green areas can increase risks of anxiety and depression (Sharghi et al., 2018; Chen et al., 2024). Overcrowding and urban density were identified as significant contributors to mental disorders, echoing findings by Heng et al. (2017) and Zhang et al. (2023).

Walkability and cycling infrastructure, highlighted by participants as essential components of stress mitigation, are supported by prior findings demonstrating their positive effects on physical and mental health (Boakye et al., 2023; Xiao et al., 2020). Similarly, poor lighting (both natural and artificial) has been linked to fatigue, poor mood regulation, and decreased productivity (Belikov & Zhurbenko, 2022), a finding echoed in the current dataset.

Climate Change as a Contemporary Stressor

Climate change featured prominently in the discussions, highlighting its status as a chronic, escalating, and prevalent source of eco-stress. Participants noted frequent temperature extremes, declining air quality, and deteriorating environmental hygiene. These stressors mirror findings in climate health literature, which connect rising global temperatures and air pollution to respiratory illnesses, sleep disturbances, and cardiovascular disorders (Ebi & Hess, 2020; Filho

et al., 2022; D'Amato et al., 2020). Additionally, lack of access to clean water and environmental cleanliness have been established as significant stressors, particularly in low-income settings (Leveque et al., 2021; Zhao et al., 2022).

Importantly, climate-induced stress is not only physiological but also deeply psychological. Fear of future environmental instability, uncertainty regarding resource availability, and the visible degradation of natural habitats contribute to a psychological condition often termed "climate anxiety" (Whitmarsh et al., 2022) a phenomenon increasingly documented in recent psychological research.

Natural Disasters and Psychosocial Trauma

Natural disasters formed another dominant theme, reinforcing the significant mental health burden these events impose on individuals and communities. Participants expressed concerns related to flooding, earthquakes, hurricanes, and other extreme events, as well as the disruption they cause in daily life. These findings resonate with existing evidence that links disaster exposure to post-traumatic stress disorder, anxiety, and long-term psychological distress, particularly among children, older adults, and economically disadvantaged populations (Zhou et al., 2018; Prete et al., 2022).

Furthermore, the need for effective emergency and disaster response systems was highlighted, suggesting a demand for both infrastructural preparedness and psychosocial support mechanisms. Vulnerable groups such as the elderly, the disabled, and the socioeconomically marginalized face disproportionate impacts, reinforcing the call for targeted resilience-building initiatives.

Environmental Damages and Urban Pathology

The final theme, *Environmental Damages*, outlined a cluster of stressors associated with both ecological degradation and socio-economic vulnerabilities. Similarly, poor air quality and pollution remain persistent threats to both physical and psychological health, especially in densely populated urban zones (Liu, 2021).

Another noteworthy dimension within this theme is the psychological impact of environmental degradation on wildlife and green spaces. This not only reflects ecological concerns but also reveals an underlying biophilic need humans' intrinsic desire to connect with nature (Batool & Hussain, 2016; Twumasi et al., 2020). Disruptions to these natural connections may erode psychological resilience and life satisfaction.

Property-related concerns, such as declining housing affordability, infrastructural damage, and the perceived threat to economic stability, further compound eco-stress (Leucci, 2022). These financial stressors often intersect with environmental vulnerabilities, creating a compounded burden of stress that affects individuals' ability to cope.

Integration with Broader Contexts

Eco-stress, as revealed through this thematic analysis, is a deeply systemic phenomenon that cuts across environmental, economic, social, and psychological domains. The results align with

the biopsychosocial model, suggesting that environmental factors (when interwoven with personal and contextual vulnerabilities) can precipitate a range of psychological difficulties including anxiety, depression, insomnia, and cognitive fatigue.

The built, natural, physical, and economic environments interact in complex ways to shape individual experiences of stress. Social factors such as community cohesion, exposure to violence, and lack of social support were all implicitly referenced, suggesting that eco-stress is not purely environmental but also profoundly social. Moreover, the findings underscore the need for a multisectoral approach to eco-stress mitigation, integrating urban planning, mental health services, environmental policy, and social welfare systems.

Implications and Future Directions

These findings offer several important implications. First, urban planners and public health officials must consider eco-stress in designing and regulating the urban environment. Second, climate adaptation policies should incorporate psychological resilience as a key indicator of community well-being. Third, future research must explore the interactive effects of eco-stressors across diverse populations, particularly marginalized and climate-sensitive communities. Finally, the development of targeted assessments and interventions (both structural and psychological) can help buffer the harmful effects of environmental stressors.

Results

The four major themes included: (1) *Built Environment*, encompassing stressors such as housing quality, infrastructure, traffic congestion, and lighting; (2) *Climate Change*, involving temperature extremes, air pollution, and water scarcity; (3) *Natural Disasters*, including floods, hurricanes, and disaster preparedness stress; and (4) *Environmental Damages*, covering overcrowding, economic instability, loss of biodiversity, and green space degradation. The results highlight the interaction between physical, natural, and built environments in shaping eco-stress.

Conclusions

Eco-stress is a multifactorial construct rooted in diverse environmental conditions that interplay with socio-economic vulnerabilities. Addressing eco-stress requires integrating different approaches, combining urban planning, environmental policy, and mental health interventions. This study contributes to the growing discourse on ecological determinants of health and emphasizes the need for systemic reforms to promote mentally healthy and sustainable urban living.

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Tables and Figures

Table 1: Codes retrieved from the focus group discussions

Sr.	Eco-Stressor	F	%
1	Waste Management	14	24.00
2	Traffic Congestion	28	46.67

3	Environmental Noise	14	23.33
4	Unsanitary Conditions	32	52.67
5	Hazardous Materials	34	56.00
6	Noise Pollution	31	51.33
7	Temperature Extremes	42	69.33
8	Noise from Construction	34	56.67
9	Overcrowding	24	40.67
10	Air Pollution	20	34.00
11	Water Access	17	28.00
12	Noise Sensitivity	28	46.00
13	Ventilation	20	34.00
14	Poor Air Quality	16	26.00
15	Lack of Privacy	20	32.67
16	Access to Clean Air	28	47.33
17	Exposure to Environmental Toxins	18	30.00
18	Environmental Cleanliness	24	40.00
19	Green Space Maintenance	22	37.33
20	Waste Disposal	33	54.67
21	Water Quality	22	36.00
22	Lack of Greenery	26	43.33
23	Environmental Degradation	16	27.33
24	Natural Disaster Risk	30	50.00
25	Urban Density	24	40.00
26	Crowded Living Spaces	18	29.33
27	Allergens	26	44.00
28	Green Space Accessibility	34	57.33
29	Extreme Heat	19	32.00
30	Climate Change	20	34.00
31	Public Transportation Quality	22	36.00
32	Environmental Safety	22	36.67
33	Air Freshness	23	38.67
34	Extreme Weather	32	54.00
35	Earthquakes	38	63.33
36	Pest Infestations	24	40.67
37	Inadequate Access to Green Spaces	25	42.00
38	Building Maintenance	20	33.33
39	Flood Risk	33	54.67
40	Loss of Utilities	26	44.00
41	Noise Pollution	19	31.33
42	Lighting Conditions	24	40.00

43	Natural Light	20	34.00
44	Emergency Evacuations	21	34.67
45	Drought	46	76.00
46	Water Contamination	16	26.67
47	Visual Pollution	20	32.67
48	Unpredictability	30	49.33
49	Infrastructure Damage	40	66.67
50	Transportation Disruptions	34	56.67
51	Climate Change	30	50.67
52	Food Supply Disruptions	44	74.00
53	Traffic Flow	28	46.00
54	Air Quality	37	61.33
55	Health Risks	30	50.00
56	Economic Impact	35	58.00
57	Shelter Concerns	24	39.33
58	Landslides	30	50.00
59	Communication Breakdowns	26	44.00
60	Psychological Impact	26	44.00
61	Tsunamis	28	46.00
62	Community Displacement	32	54.00
63	Street Lighting	28	47.33
64	Safety	28	46.00
65	Hurricanes/Typhoons	38	63.33
66	Infrastructure	40	66.67
67	Construction Activity	38	64.00
68	Pollution Levels	40	67.33
69	Infrastructure Upgrades	43	71.33
70	Dust Storms	38	64.00
71	Environmental Degradation	37	62.00
72	Public Transportation Accessibility	38	63.33
73	Impact on Wildlife	36	60.67
74	Residential Density	31	51.33
75	Recovery Efforts	24	40.67
76	Tornadoes	32	54.00
77	Utility Services	31	52.00
78	Avalanches	35	58.00
79	Lightning Storms	22	36.67
80	Flooding	38	64.00
81	Access to Amenities	38	64.00
82	Cyclones	37	62.00

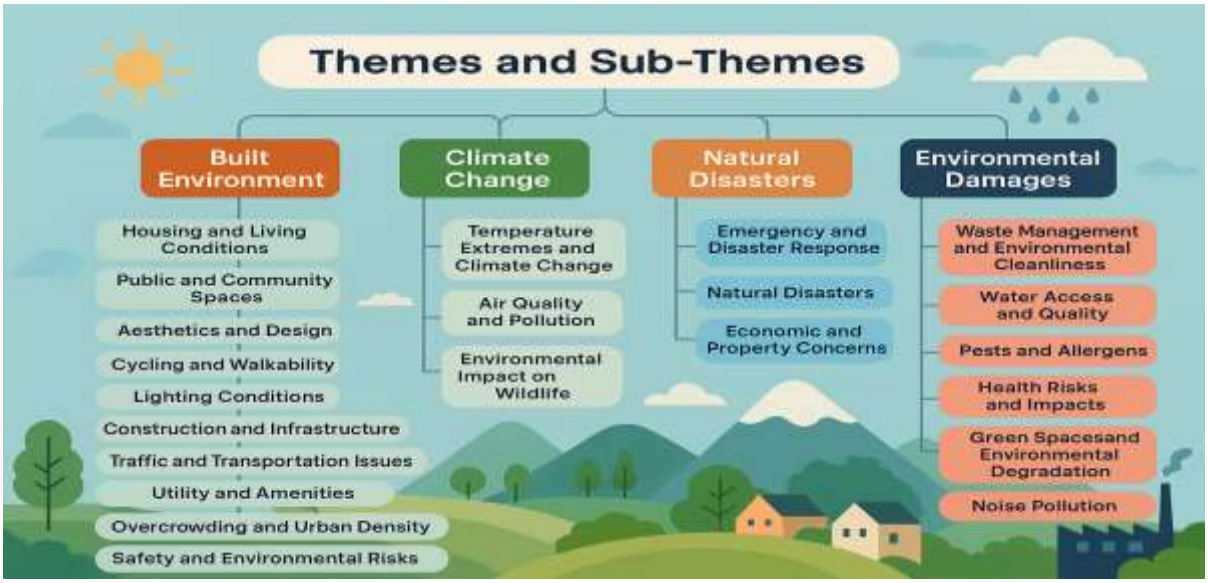
83	Building Maintenance	36	60.00
84	Green Building Practices	39	64.67
85	Wildfires	48	80.67
86	Sandstorms	49	81.33
87	Erosion	51	85.33
88	Public Health Facilities	44	73.33
89	Technology Infrastructure	47	78.00
90	Hailstorms	41	68.67
91	Blizzards	51	85.33
92	Emergency Services Access	46	76.67
93	Access to Nature	52	86.00
94	Public Spaces	49	81.33
95	Public Transit Reliability	46	77.33
96	Preparation Stress	53	88.67
97	Environmental Impact	52	86.00
98	Urban Sprawl	41	68.00
99	Furniture and Layout	44	74.00
100	Volcanic Eruptions	46	76.00
101	Property Values	47	78.00
102	Building Accessibility	52	87.33
103	Building Aesthetics	54	89.33
104	Insurance Issues	49	82.00
105	Building Density	50	82.67
106	Air Quality	47	78.00
107	Home Aesthetics	43	72.00
108	Commercial Facilities	43	72.00
109	Housing Affordability	49	82.00
110	Residential Stability	46	76.67
111	Home Renovations	40	66.67
112	Community Cohesion	47	78.67
113	Parking Availability	45	74.67
114	Heavy Rain	46	76.00
115	Community Spaces	49	81.33
116	Space Constraints	46	76.00
117	Architectural Design	49	82.00
118	Bicycle Infrastructure	50	83.33
119	Walkability	46	76.00
120	Historical Preservation	47	78.67
121	Severe Cold	46	76.67
122	Zoning Regulations	50	83.33

123	Housing Quality	48	80.67
124	Urban Design	47	78.00

Table 2: Themes developed through codes

Sr.	Sub-themes	Themes
1	Housing and Living Conditions	Built Environment
2	Public and Community Spaces	
3	Aesthetics and Design	
4	Cycling and Walkability	
5	Lighting Conditions	
6	Construction and Infrastructure	
7	Traffic and Transportation Issues	
8	Utility and Amenities	
9	Overcrowding and Urban Density	
10	Safety and Environmental Risks	
11	Temperature Extremes and Climate Change	Climate Change
12	Air Quality and Pollution	
13	Environmental Impact on Wildlife	
14	Emergency and Disaster Response	Natural Disasters
15	Natural Disasters	
16	Economic and Property Concerns	Environmental Damages
17	Water Access and Quality	
18	Pests and Allergens	
19	Health Risks and Impacts	
20	Green Spaces and Environmental Degradation	
21	Noise Pollution	
22	Waste Management and Environmental Cleanliness	

Figure 1: Sub-themes and major themes


Themes and Sub-Themes
Built Environment
Housing and Living Conditions
Public and Community Spaces
Aesthetics and Design
Cycling and Walkability
Lighting Conditions
Construction and Infrastructure
Traffic and Transportation Issues
Utility and Amenities
Overcrowding and Urban Density
Safety and Environmental Risks
Climate Change
Temperature Extremes and Climate Change
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Environmental Impact on Wildlife
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Economic and Property Concerns
Environmental Damages
Waste Management and Environmental Cleanliness
Water Access and Quality
Pests and Allergens
Health Risks and Impacts
Green Spacesand Environmental Degradation
Noise Pollution