EMERALD POINTS

# VISUAL POLLUTION: CONCEPTS, PRACTICES AND MANAGEMENT FRAMEWORK

RAHEEL NAWAZ
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## Concepts, Practices and Management Framework

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INVESTOR IN PEOPLE

*To Daniyal, life wouldn't mean much without you!*

(Professor Raheel Nawaz)

*To late Professor Ghulam Abbas Anjum, my first research mentor who encouraged me to pursue visual pollution research*

(Dr Khydija Wakil)

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# QUOTATION

*We have eyes, and we're looking at stuff all the time, all day long, and I just think that whatever our eyes touch should be beautiful, tasteful, appealing, and important. We need to emphasise the responsibility that designers and illustrators have towards the people they create things for; Whether it's a coffee cup, or a poster, or a book illustration, or a typeface, it has to be designed in such a way that it is not trashy, and doesn't pollute your eyes. We have so much pollution out in the air. Our eyes are being polluted. We have visual pollution out there, and I have a very strong sense about that.*

*Eric Carl (2014)*

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# LIST OF ACRONYMS

| | |
|---|---|
| AHP | Analytical Hierarchy Process |
| AI | Artificial Intelligence |
| CDG | City District Government |
| DHA | Defence Housing Authority |
| GDP | Gross Domestic Product |
| GIS | Geographic Information System |
| HDI | Human Development Index |
| IT | Information Technology |
| KML | Keyhole Markup Language |
| ODK | Open Data Kit |
| OSM | Open Street Maps |
| QSPM | Quantitative Strategic Planning Matrix |
| RDA | Rawalpindi Development Authority |
| SWOT | Strengths, Weaknesses, Opportunities, Threats |
| TMA | Tehsil Municipal Administration |
| UK | United Kingdom |
| USA | United States of America |
| VIA | Visual Impact Assessment |
| VP | Visual Pollution |
| VPA | Visual Pollution Assessment |
| VPI | Visual Pollution Index |
| VPO | Visual Pollution Object |

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# ABOUT THE AUTHORS

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# 1

# VISUAL POLLUTION: A NEW ADDITION TO THE POLLUTION FORMS

## 1. INTRODUCTION

In published English literature, the first appearance of the term 'visual pollution' can be traced back to the early twentieth century, when it was introduced to highlight the secondary impacts of man-made interventions. In the late 1960s, the United States declared visual pollution as one of the most significant environmental problems of the era. Almost 60 years ago, Maclurcan published 'visual pollution' which focuses on the importance of visual aesthetics in ensuring urbanity and sanity within the built environments (Maclurcan, 1973). He illustrated his point of view by using the scenario of an ideal urban community with serene visual surroundings which subsequently loses its visual appeal due to the ugliness of visual pollution. He highlighted the exponentially changing identity of urban spaces and the plethora of issues resulting from dramatic trends towards urbanisation. Maclurcan characterised his fears about difficulties in handling visual elements in the environment as one of the most frightening prospects of future urban lives and hypothesised that visual pollution could have severe psychological implications on the population. He went on to argue that social and psychological problems such as trauma, depression, unfriendliness, suspicion and anxiety were increasing due to the spread of ugliness in the man-made environment. Maclurcan uses the lifecycle of flowers as a metaphor for all organisms, including humans, animals, aquatic lives, trees, plants and birds. The duration of this lifecycle may be shortened or prolonged according to the quality of life within its ecosystems. In particular, the interactions of the population of a location are the mirror of its man-made environment. He proposed serious concerns about the decay of the urban visual environment, with which its inhabitants are complacently accustomed.

In addition, he reflected on limitations related to the realisation, acceptance, quantification and management of visual pollution. He warned that delays in controlling, managing and regularising visual pollution could result in a physical and psychological catastrophe. Although he could not forecast 'how' this disaster would potentially play out, 60 years later, we can see the footprints of his concerns.

Building on the aforementioned argument, this chapter documents the realities and of how visual pollution has affected urban spaces since the publication of Maclurcan's work. We argue that the ugliness of ungoverned visual pollution has become a monster, which has swallowed the aesthetics of the built environment, and investigate whether the miseries of urban dwellers have increased due to the unchecked onslaught of visual pollution. Macluran's visual projections of disturbing skylines flooded by outdoor advertisements, monotonous building designs, destruction of the natural landscape, over-crowding of concrete jungles and littering etc. have proven to be accurate, and many of the problems, which first manifested themselves years ago in developed countries, are now equally affecting developing countries.

It is essential at this point to define the key concepts used within discussions of visual pollution, which include the *environment*, *aesthetics*, *front-stage* and *back-stage* of a city. The term 'environment' refers to the combination of physical objects, natural features, humans and their reverse reflection on social interactions of its inhabitants (Douglas, 1983). The environment is not a unidirectional phenomenon consisting only of natural and man-made features; rather, it additionally entails the counter-response of inhabitants to these features, in terms of psychosocial behaviour, mental maps, associations, memories and attachments to the surroundings. In this context, the term, 'front-stage of the city' refers to the set of all visual elements that city dwellers experience and which may influence them. These include the streets, poles, buildings, scenes, commercial areas, outdoor advertisements and billboards, as well as natural resources like rivers and forests.

In contrast, the term 'back-stage of the city' refers to the dwellers' behaviours, social life, walkability and interactions with the front-stage. Consequently, the term 'urban aesthetics' is not only limited to beautiful, grand or unique buildings (Fig. 1). Rather, it is the collective impression of the degree to which a space brings harmony, blending, culture, identity and association to its population. The term also encompasses the overall liveability of the city spaces.

The remainder of this chapter serves to set the scene for discussing the subject of visual pollution. In particular, it helps to answer a number of basic questions such as: What is visual pollution? How does it affect urban

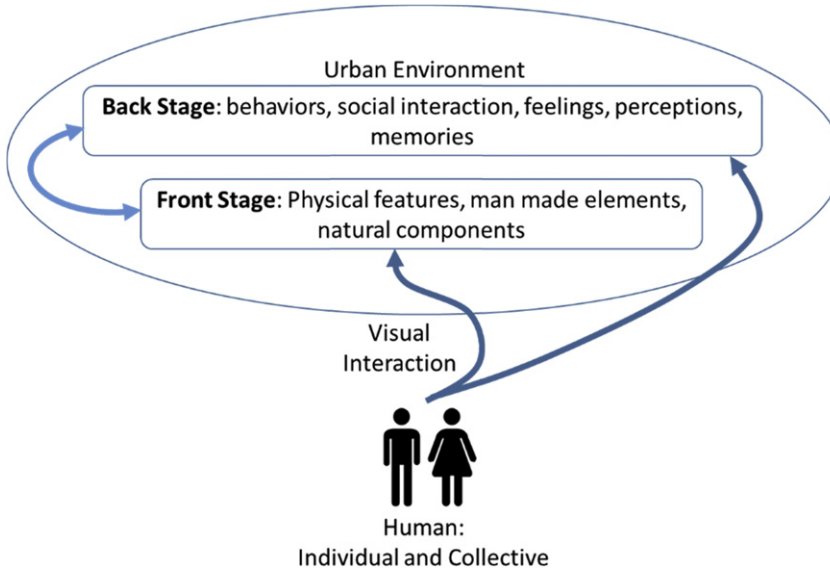


**Fig. 1. Human Interaction with Urban Environments.**

environments? What are key elements of visual pollution? Why is it important to manage it in systematic ways? How do we address its management? The answers to these questions serve to highlight the importance of the Sustainable Development Goals (SDGs), particularly SDG 11 (Caprotti et al., 2017; UN-Habitat, 2018; Vaidya & Chatterji, 2020), which emphasises the importance of making cities safe, inclusive, resilient and liveable. We discuss the evolution of the concept of visual pollution, its subjectivity, qualitativeness and challenges of defining universal terms. We also discuss the relationship between residents and their surroundings, and how they affect each other. Finally, we explore the elements of visual pollution, including the visual pollutant objects, their characteristics and relationship to different geographic and cultural settings.

## 1.1 Urban Aesthetics, Harmony and Balance of the Built Environment

The inhabitants of a built environment constitute its central elements; they walk in the city's streets, they observe and experience the surroundings, and they reflect upon these observations and experiences. Their perceptions of the front-stage of their neighbourhood in turn influence the back-stage because social values are affected by the physical and built environment. For instance, if the inhabitants view beauty, they will pass on positive impressions.

Conversely, if they perceive ugliness in their environment, they will pass on negative impressions. The values of coherence, legibility, order and aesthetics of the living environment as perceived by its population have been discussed at length by urban planners, urban designers, psychologists and architects (Nasar, 1988).

Research has shown that all components of the living environment are interlinked with residents as they transmit messages and energy (positive or negative) to their receivers. The urban theories of environment and semiology have quoted such effects repeatedly. Since the mid-twentieth century, the discussion about urban aesthetics has not only been limited to the beauty of a city but has also generated a discussion beyond the city's physical appearance. This paradigm shift has repositioned city entities as messengers of meaning, placing value on their traditions and producing connectivity to their culture. The city has been recognised as a source of identity, with which its residents feel connected. This positioning acknowledges that human beings are 'symbol mongers', and their perceptions are based on the images they observe from their surroundings. Subsequently, these images transform into symbols in their brains and ultimately, a meaning is imparted to them that registers the character and memory about a particular environment (Mennan, 2009; Portella, 2014).

In the early twentieth century, Gestalt's theory of perception and cognition was developed to state that 'the whole is different from the sum of the parts' (Mennan, 2009). According to this, the things that human eyes see in their surroundings make memories. Human eyes 'read' the information around them, and the visual sensors in the human body transmit to the brain, which ultimately builds their memory of a particular public space (Portella, 2007). The principles of perception and cognition explain the relation between the visual character of physical objects in the built environment and human memories of them. These principles have been characterised as *continuation, similarity, closure, proximity* and *figure* (Condly, 2003).

There began to be a realisation that urban planning must move beyond a consideration of the physical structures alone and instead must take into account the diverse elements that affect the residents of an urban environment. Professionals, urban planners and psychologists inferred that all elements of a neighbourhood present images to residents or passers-by. The new body of knowledge became known as symbology, which considers the importance of order and coherence in the urban environment (Langer, 1953).

Regarding the earlier discussion, the move towards aesthetic value, identity and three-dimensional character of a city was initiated during the twentieth

century (Xiangzhan, 2008a). For the majority of the twentieth century, Anglo American art philosophy brought out the highest intellectual and creative inputs. However, concerns about environmental aesthetics were acknowledged and raised in the second half of the 1960s. Beardsley introduced the concept of aesthetic justice of the city in 1982 (Hastaoglou-Martinidis, 2011; Mattila, 2016; Mowla, 2011).

As a result, town planning practices were reviewed to incorporate the artistic principles of civic and public art (arte publica) that advocates for 'genuine art of space' all across Europe. Camillo Sitte insisted on transforming the engineering behaviour of town planning towards the aesthetics and beauty of public spaces (Hastaoglou-Martinidis, 2011). Other practitioners of the time were also involved in the debate and recommended similar modifications to the urban environment. These practitioners included Charles Buls in Belgium; Raymond Unwin and Thomas Mawson in England; and Werner Hegemann, Albert Brinckmann and Hermann Jansen in Germany (Hastaoglou-Martinidis, 2011).

Later, in the 1960s, Kevin Lynch introduced the micro and macro perspectives of city aesthetics in his famous book, *The Image of the City* (Lynch, 1960). He characterised the visual qualities of cities in terms of their legibility, structure, identity and imageability. He divided the physical city environment into five categories, i.e. districts, pathways, edges, buildings and nodes. These categories are the anchor points of visual stimuli experienced by the population, allowing them to build memories by reflecting upon the culture, identity and character of a place, rather than seeing them as mere structures of plaster and other materials.

In the last quarter of the twentieth century, many other concepts of urban aesthetics were introduced in the context of the broader function of urban environment, such as aesthetic justice by Beardsley, 1982 (refashioning of the city), human-scale development, walkability and sensory arrangements of the city (Beardsley, 1982; Mattila, 2016; Stamps, 2000; Xiangzhan, 2008b).

The above discussion reveals that urban planning practices and environmental perceptions have continuously evolved. The liveable spaces are now expected to be more than a complex net of lines and multi-options. The quality and life of cities and urban environments are evaluated against beauty, order, visual appeal, cleanliness, aesthetics, sustainability, safety and resilience. Therefore, the design and mutual coordination of physical infrastructures in the built environment are pivot points to engrave hard and soft agendas of sustainable urban places.

## 1.2 Urban Environments and Sustainable Development Goals

Aesthetics, also known as the philosophical study of beauty and taste, investigates beauty and symmetry as the natural instinct of humans (Kelly, 1998; Kieran, 2005; Townsend, 1997). All living objects, including humans, plants, animals and birds, have an innate preference towards beauty and cleanliness. Evidence of this in humans is observable as far back as the ancient Indus civilisation, which was designed on a grid-iron pattern. This was a huge development, consisting of 1,500 big and small cities, each having a uniform system of urban planning in which even the house and brick weight, size was standardised. Covered drainage and underground storm/sullage water systems were also introduced (Mishra, 2014). It is one of the basic human rights to see the beauty around them, just like the rights of good food, clean air, education (Johnson, Symonides, & Unesco, 1998; Morsink, 1999). Accordingly, it can be safely concluded that visual appeal, discipline and beauty are biological impulses of humans, whose imprints can be charted across human history.

Referring to the definitions introduced earlier, living places (either urban or rural) can be viewed as environments in which the inhabitants, physical objects/structures, natural features and visual elements are the 'ingredients that interact with one another'. Among these elements, cities cannot be designated as static objects, since their character is constantly changing; this is due to a plethora of push-and-pull factors such as migration, degradation, change of economy, infrastructure demands, technology inclusion, disasters and pandemics. The latter half of the twentieth century has witnessed a vast escalation in urbanisation trends. In 1900, only 10% of the world's population was urban. However, within a period of 40 years during the latter half of the twentieth century (1950–1990), the urban population increased from 200 million to over 2 billion. i.e. a ten-fold increase. Furthermore, it is estimated that two-thirds (68%) of the world population will be urbanised by 2050. Therefore, the current era is known as the Anthropocene and urban age (Anderson, Okereke, Rudd, & Parnell, 2013). Although urban population growth has directly contributed towards to the growth in the global gross domestic product (estimated 85% GDP), this growth also poses threats and challenges to healthy urban environments. The rapid population shift from rural to urban, alongside rapid urbanisation, has transformed urban areas into consumerist giants. The rapid increase in the number of urban inhabitants is leading to greater use of resources, greater generation of waste and, as a result, larger amounts of pollution (Hakiminejad, 2018).

Over time, concerns about the quality of life in cities have been increasing. In response to this, the United Nations has established a dedicated goal

concerning the quality of settlements. The SDG 11 aims to make cities and human settlements inclusive, safe, resilient and sustainable by 2030. This agenda has been endorsed by a total of 193 countries around the globe (Devisscher, Konijnendijk, Nesbitt, Lenhart, & Salbitano, 2020; United Nations, 2015; Sachs, Kroll, Lafortune, Fuller, & Woelm, 2022). The ever-increasing rural–urban migration has shifted the frame of urban governance and introduced the SDGs. Visual aesthetics, as a whole, is a rarely considered aspect of urban planning, even though it constitutes an important means of achieving safe and liveable cities (Russell, 2018).

Similarly, while cognition theory advocates for simple and clean surroundings, the overcrowded visual display of information creates disorientation, visual chaos and is difficult to digest. It has been argued that enhanced visual quality of space is related to increases in the safety and behaviour of residents, and to better communities at a larger scale (Amin, 2002; Portella, 2014). In short, a visually clutter-free, harmonious and uniform environment is a key factor in ensuring sustainable communities.

## 1.3 The Emergence of Visual Pollution: A Historical Perspective

The word 'pollution' emerged in old French and originates from the Latin term 'polluere' that means 'to soil or defile'. Noah Webster's first dictionary defined pollution in terms of five different categories: general, religious, Jewish economy and medicine. All of these definitions collectively viewed pollution as different ways in which human activities can affect their lives and/or their environment. Air and water pollution were first acknowledged after the Industrial Revolution, which was also the initial trigger for urbanisation. In response to the challenges of rapid rural–urban migration during the nineteenth century, US laws discussed both types of pollution, due to their harmful influences on the human environment. Visual and light pollution were generally acknowledged within the same period (Nagle et al., 2009). However, the larger number of references to air and water pollution in the literature before the twentieth century (Nagle et al., 2009) indicate that visual pollution was explored later. It primarily emerged and began to be researched in the mid-twentieth century. In the 1970s, a number of new pollution types were recognised and accepted. For example, several laws and treaties on noise pollution were introduced in this decade.

Initially, the treatment of visual pollution was aimed at combatting the nuisance and proliferation of outdoor advertisements (e.g., billboards, hoardings and commercial signage), which began to emerge in the developed world in the 1960s. Rapid globalisation quickly accelerated the spread of ideas

and consequently, there was an increase in the volume of these advertisements. In response to this, many rules, acts and policies were introduced to protect, preserve and enhance the urban visual environment (Wakil, Hussnain, Tahir, & Naeem, 2016). An example was the Highway Beautification Act of 1965, which resulted in four states in the United States (Vermont, Alaska, Hawaii and Maine) banning billboards in the second half of the twentieth century. This subsequently led to a rise in levels of awareness about visual pollution across different countries. Various communities began to raising concerns by demanding visual improvements in their environments, while governments responded by showcasing their mitigative actions. In parallel to this, researchers and professionals determined that an urban environment cannot be deemed acceptable merely because it contains several grand and colossal structures; aesthetics should not be limited to the presence of certain types of buildings, but instead should be focussed on ensuring that the environment as a whole is visually appealing to inhabitants, since this acts as a positive source of energy. This point of view is clearly explained in *The Image of the City* (Lynch, 1960).

Furthermore, William Hudson established an Advisory Committee on the Aesthetics of Major Engineering Structures, which was the first initiative of its kind (Maclurcan, 1973). It led to the visual pollution of outdoor advertisements being recognised as a specific issue and consequently, local authorities, urban and town municipal committees had the mandate for its control and management under amenity and public safety principles (Wakil, Hussnain, Waheed, & Naeem, 2016). Later, a paradigm shift was observed in terms of the regularisation of outdoor advertisements, which introduced public–private partnerships and consciousness about the content of these advertisements. Approaches to controlling visual pollution therefore began by attempting to improve the collective visual aesthetics of the living environment.

Despite the introduction of these measures, the proliferation of outdoor advertisements continued to exert a negative impact on visual aesthetics in different parts of the world until the end of the twentieth century and thus became a crucial issue to address. The debate began in the print media, in which McMahon constituted a prominent voice. In particular, debates surrounding billboards and hoardings extended beyond the narrow focus on their marketing use, and also considered their impact in terms of the principles of visual perception of space and urban aesthetics. This debate was taken seriously by many countries and resulted in the introduction of a range of legislative solutions, including the South African manual for outdoor advertising control 1998, the UK clutter code, the transport corridor outdoor advertising and signage guidelines, New South Wales, Australia etc. Likewise, Finland,