

Visual Pollution of the Banks of the Tigris River in Baghdad City Capital of Iraq

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Abstracts

The study titled "Visual Pollution of the Tigris Riverbanks in Baghdad City" consists of two main sections: the first section is dedicated to the theoretical framework, while the second section covers the practical aspect (field study). Specific areas of Baghdad were selected for this study due to the widespread presence of solid waste along the riverbanks. The importance of the study lies in the fact that visual pollution is one of the dangerous types of pollution that affects both human health and the environment. The study concluded that visual pollution along the Tigris River banks results from the impact of human activities spread linearly along the river, and the lack of environmental awareness among residents has negatively affected the river environment through the disposal of household and construction waste and the discharge of untreated wastewater from sewage treatment plants. The research recommends the importance of strict monitoring of human activities near the river, imposing financial penalties on violators of environmental standards, and working on rehabilitating and developing the riverbanks to make them attractive environments for residents, turning them into tourist and recreational areas that serve the city.

Keywords: Visual Pollution, Environmental Landscape, Human Activities, Household Waste, Baghdad City.

Introduction

The Tigris River represents the lifeline of the city of Baghdad and a tourist and entertainment interface that attracts residents to enjoy the natural beauty of the river. However, the banks of the Tigris River suffer from neglect, environmental deterioration, and the spread of solid waste of various types (construction household, and stagnant ponds of sewage), which distort the natural and aesthetic view of the river and reflects an unhealthy and uncivilized phenomenon, which is called (visual pollution).

The research problem was posed in the form of a question: Did the uses of the land extending along the banks of the Tigris River contribute to the spread of solid waste and the occurrence of visual pollution?

The hypothesis is of Article summarized as follows: The spread of land uses on the Tigris River and the lack of environmental awareness among residents had a negative impact, leading to visual distortion on its banks.

The study aims to:

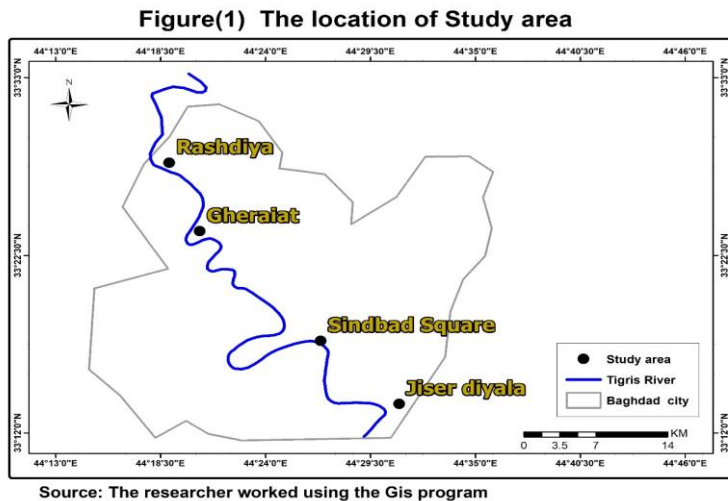
1. Highlighting the distortion of the environmental landscape of the banks of the Tigris River in the city of Baghdad.
2. Addressing the spread of solid waste, which has been increasing over time, and urging relevant government institutions to combat it or limit its spread.
3. Working to raise environmental awareness among residents in the city of Baghdad in order to preserve the Tigris River from visual pollution.

The importance of the study comes from the fact that visual pollution is one of the types of environmental pollutants that have health effects on humans and causes distortion of the natural landscape of the river. The Tigris River is considered the lifeline of the city of Baghdad and an important natural resource that must be preserved.

As for the structure of the research, the study was conducted by presenting two sections:

- 1- The first section - which is related to the theoretical framework - discussed some concepts of visual pollution, the method of measuring it, and the reasons for its appearance.
- 2- The second topic: - It is concerned with the practical aspect, as the field study was adopted to obtain information through observation, as no official data was available from the government agencies related to the subject of the research. Visually polluted areas were selected after identifying them in the field, and the (ARC GIS) program was used to produce Maps, and through analysis, conclusions and recommendations were drawn.

Boundaries of the study area: The Tigris River extends in the city of Baghdad for a distance of (145) km, starting north from (Tarmiya Bridge) and ending south (500 m before Al-Khajiya station) (Ministry of Water Resources 2024), near Wasit Governorate. Four areas were chosen through which it passes. It includes the river, starting from the north of the city of Baghdad to its south, as these areas represent sites for research samples, and these areas are - (Al-Rashidiya, (Sinbad Square) near Al-Zafaraniya, Diyala Bridge area, Al-Kurayat area) as shown in Map No. (1).



2. The concept of visual pollution, its measurement, and its causes-

First: The concept of visual pollution:

Visual pollution: - It is a term given to everything that harms a person's eyesight by viewing ugly views, or that distort the aesthetic appearance of the city in terms of the lack of homogeneity and consistency in the general environmental form of the city (Al-Jubouri, 2022).

It is also known as the term given to unattractive manufactured visual elements, landscapes, or anything else that a person does not feel comfortable looking at (Sudeepta, 2017).

Second: Measuring visual pollution:

There is no measurement for visual pollution as there is for other pollutants using precise technological devices. Instead, it is measured through the human eye, relying on the sensory perception of individuals and their specific reactions. A beautiful scene generates psychological comfort in humans, while an ugly scene disturbs the observer and arouses negative feelings, leading to psychological discomfort. For example, the accumulation of waste and construction debris in the streets represents a common case of visual pollution in the city, reflecting a negative state in society (Al-Zaidi, 2013).

Third: Causes of Visual Pollution: Visual pollution occurs due to many interrelated reasons, with some leading to others. The most important of these include: (Al-Mashhadani, 2016).

1. Economic reasons: This factor plays an important role in the emergence or disappearance of visual pollution in cities, because the vast difference in the economic and living situation between developed countries with strong economies and developing countries with weak economies imposes a different environmental reality depending on the material capabilities. This factor applies to Neighbourhoods of one city as well.

2. Administrative reasons: This appears through the decisions taken by some governmental and local institutions and bodies, which directly and indirectly lead to an increase in the rate of visual pollution of the urban environment, especially those related to changing land uses in some areas of cities, such as the decision to change the land uses of residential streets to Commercial, and on the other hand, the absence or weakness of legislation and regulations that limit visual pollution.

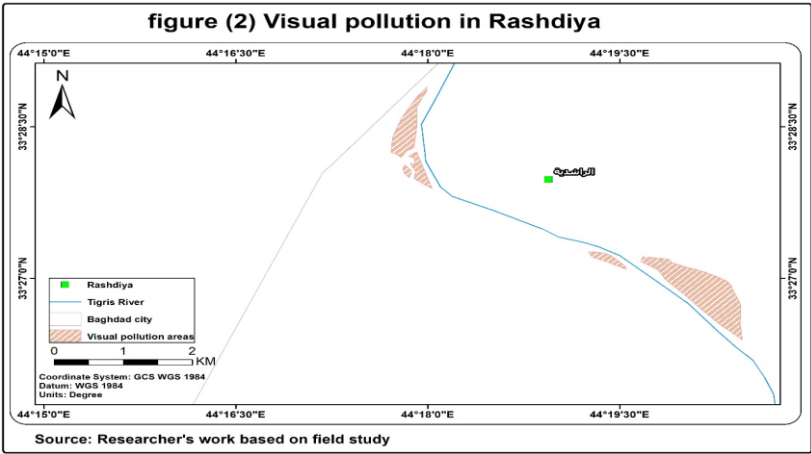
3. Social and cultural reasons: - represented by wrong social behaviours and the deterioration of the level of public taste. The behaviours of some members of society have clear effects on the urban environment, with the low level of culture and education, especially environmental culture.

3. Field study:

- Spatial distribution of visual pollution on the banks of the Tigris River in Baghdad:

The spatial distribution of samples in the study area was chosen through a field study, and the observation method was relied upon to monitor areas of visual pollution due to the lack of official data by the competent government agencies.

First: Visual pollution in the Rashidiya area: The Rashidiya area represents an agricultural area and district in the north of Baghdad Governorate (Wikipedia 2024). The Rashidiya area is adjacent to the Tigris River along its extension, so it represents great importance in terms of the environmental aspect of the river, as shown in Map No. (2).



Through the field study, it was revealed that residential units extend in a continuous strip on the banks of the Tigris River, which constitutes a source of visual pollution of the riverbanks due to the loss of the urban landscape of the river as a natural resource in the city, as shown in Picture No. (1).



Photo No. (1) taken by the researcher on 11/12/2024

In addition to the accumulation of household waste directly on the banks of the river, where municipal services are not available because it is within rural areas, and in order to get rid of this waste, it is thrown on the banks of the river. As shown in the following picture No. (3,2,4,5):

Second: Visual pollution in the Al-Krayat area: It is one of the areas affiliated with the Adhamiya District in Baghdad, which is distinguished by its location overlooking the Tigris River. Due to urban sprawl, many of the agricultural lands in it have been converted to residential use. We note that there are two types of visual pollution in the area, which are:



**Picture No(5,4,3) .
Visual pollution
appears on the banks of
the Tigris River in the
Rashidiya area
Taken on 10/15/2024-
At the time: 12 p.m**



**Photo No. (2)
shows the nature
of the area - taken
on 10/15/2024 - at
the time: 12 p.m.**

Extending sewage pipes that pump directly, continuously, and without treatment into the waters of the Tigris River, which led to a distortion of the river’s urban landscape and contamination of the river’s environment, as its water is contaminated and causes many diseases to the population, in addition to the accumulation of sediments as a result of the presence of this wastewater, as shown in Picture No. (6).

Photo No. (2)
taken by the
researcher on
2/10/2024



Picture No. (6) shows the area turning into a swamp as a result of sewage being dumped in the Kuryaat area and its effect on causing visual pollution.

2. Accumulation of household waste on the banks of the river, randomly and over long distances along the length of the river, as a result of the transformation of land uses from agricultural to residential, and the lack of environmental awareness on the part of residents, considering it a natural resource and that its pollution is harmful to them. As shown in pictures No. (9,8,7) below:

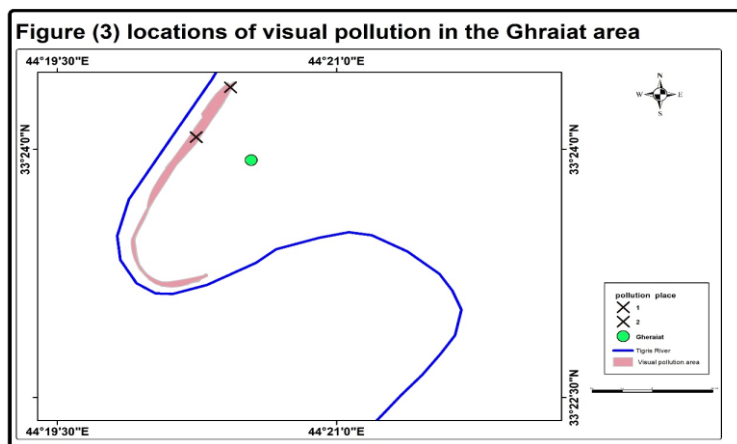


Picture
No. 7, 8
and 9
The date
the photo
was taken



Accumulation of household waste on the banks of the Tigris River in the Al-Qurayat area.

Map No. (3) shows the visual pollution area extending along the river, which suffers from the accumulation of household waste and the presence of polluted swamps resulting from throwing untreated wastewater directly into the river.

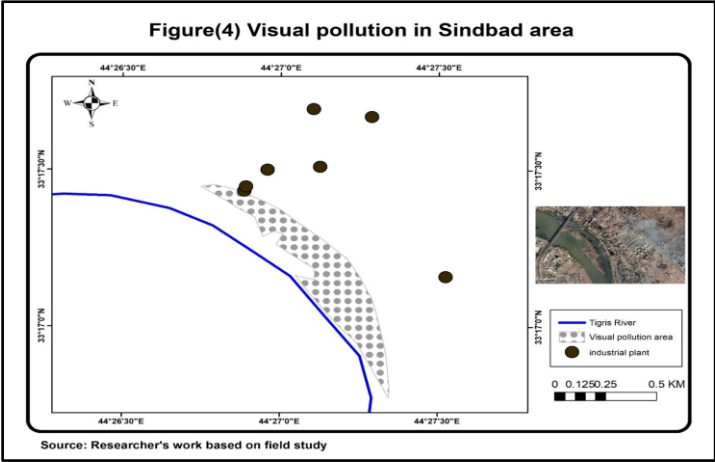


Source: The researcher's work based on the field study

Third: Visual Pollution of Sinbad Square: This square is located near the Zafaraniya area and near the Great Baghdad Bridge. This area includes many industrial uses, most notably (South Baghdad-2 Gas Power Station, General Company for Vegetable Oils, General Company for Food Products). There are many industrial facilities in this area (Researcher, 2024), and the most prominent visual pollutants are:

1. Disposal of industrial waste on the riverbanks due to the proximity to the Tigris River, especially the presence of industrial water discharge pipes directly into the river with heavy flow. This has led to the accumulation of sediments and the formation of islands that distort the view of the riverbanks in this area, in addition to the emission of foul odours due to the polluting gases harmful to the residents' health and reaching the nearby residential areas (Salih A. L. M. et al., 2018). This has resulted in severe environmental pollution (Researcher, 2024), as shown in the following photos (10, 11, 12).

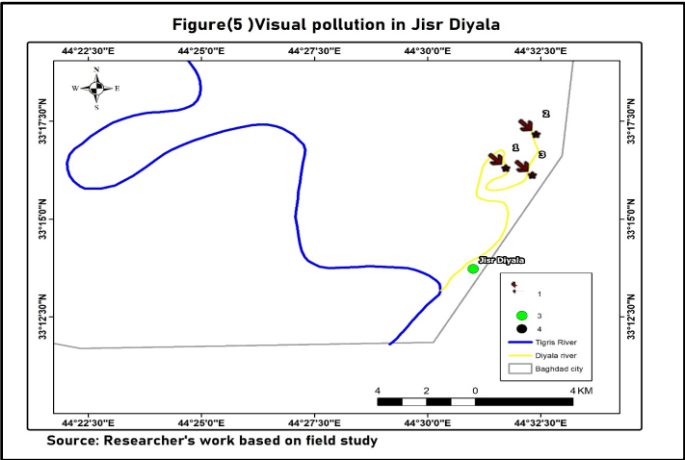
2. Solid waste is different, as plastic and paper waste and solid cans are spread along the banks of the Tigris River near this industrial area. As shown in Picture No. (14, 13), and as Map No. (4) shows the area of visual pollution in this area.



Fourth: Visual Pollution of the Diyala Bridge Area:

This area is one of the districts of Baghdad city and is located to the southeast of it, at the point where the Diyala River meets the Tigris River, one of its tributaries (Wikipedia, 2024). Many economic activities are spread in this area and near the river. Through the field study, the sources of visual pollution in this area varied, and they are:

1. Wastewater in the Diyala River: Visual observation revealed a high level of pollution in the Diyala River waters, where wastewater is discharged from residential units and industrial establishments in the area into the Diyala River. Since it is a tributary of the Tigris River, this water will flow into the Tigris River. Additionally, sewage from the Rustamiya station is discharged into this river, making it a source of pollution for the Tigris River due to its direct connection. This leads to the accumulation of swamps on the riverbanks, resulting in visual pollution along the riverbanks, as shown in the following photos (15-16).



2- It is clear from Map No. (5) and through observation in the field study that there are a number of pipes for the Rustamiya station that pours its water into the Diyala River, causing a high rate of pollution in it, in addition to the accumulation of household waste and construction materials in this area, which extends along the river. As shown in pictures No. (18,17).

5- Throwing construction waste on the banks of the river, randomly and in different areas, as shown in pictures No. (19, 18, 17).

Conclusions and Recommendations:

First: Conclusions:

1. Visual pollution on the banks of the Tigris River represents a significant danger, harming the environment, human health, and the river's aesthetic value, diminishing its importance as a natural resource.
2. The banks of the Tigris River are neglected by Baghdad Municipality, Baghdad Provincial Council, the Ministry of Water Resources, the Baghdad Environment Directorate, and other related governmental entities.
3. There is a lack of official data on visual pollution, which hinders researchers from obtaining accurate results to propose appropriate recommendations to address this growing problem.
4. Visual pollution on the riverbanks occurs due to the spread and diversity of human activities.
5. There is a lack of environmental awareness among residents near the river, with little understanding of the health and psychological harm caused by dumping household and other waste on the riverbanks.
6. There is a lack of government oversight of areas adjacent to the riverbanks by relevant authorities, such as Baghdad Municipality or the Ministry of Environment, leading to environmental violations.
7. There is a lack of stringent regulatory measures and enforcement against industrial establishments that violate environmental standards, with insufficient imposition of fines to protect the river environment from pollution.

Second: Recommendations:

1. Restrict the use of the Tigris River banks for land uses with human activities that could harm the river environment in the future.
2. Enhance oversight by relevant authorities to preserve the river environment as a natural resource that benefits the residents of Baghdad and other cities along its course in our beloved country.

3. Conduct environmental awareness campaigns for Baghdad residents through educational and health institutions and media to inform citizens about the importance of maintaining the river environment and avoiding waste disposal in it.
4. Organize regular volunteer campaigns by governmental and non-governmental entities, involving the community to make river environment preservation a community effort where citizens play a crucial role in protecting the river from pollution.
5. Install signs near the riverbanks as informational boards to inform citizens and residents near the river about the importance of preserving it and the dangers of irresponsible behaviour.
6. Increase oversight of government institutions located near the river, impose significant fines on violating industrial establishments, and enforce penalties for non-compliance with environmental standards.
7. Support projects to rehabilitate the banks of the Tigris River in the study areas and all regions overlooking the river, making them natural environments that provide psychological comfort and enjoyment of the natural scenery.

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