Parkification of Disturbed Landscapes:
Uncovering the Process of Transforming Post-Industrial Sites into Urban Parks at Ruseifa, Jordan

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Kawthar Alrayyan

ABSTRACT

In 2020, following over 35 years of abandonment, the local authority of Jordan made a major decision to transform three post-industrial sites simultaneously within Ruseifa city into urban public parks, namely the Pepsi Pond site, the Phosphate Ore Hills site, and the Phosphate Old Mines & Administration Building site. These transformative processes, known as “Parkification,” not only represent a significant shift in how post-industrial sites are treated but also reflect an unprecedented approach for these sites in Jordan. Therefore, this dissertation has traced and analyzed the parkification processes integral to this transformation as benchmarks for developing post-industrial sites.

To unravel the parkification processes, key drivers behind parkification, and perception of stakeholders & decision-makers towards post-industrial sites in Ruseifa, three research questions were examined: 1) How do decision-makers and other development influences Ruseifa view and treat post-industrial sites in Ruseifa city? 2) What are the parkification processes transforming post-industrial sites into parks in Ruseifa? and 3) What are the compelling issues of post-industrial sites, and how do the parkification processes address them?

The research employed a two-phase, multi-method qualitative approach, utilizing several data collection methods. It involved gathering secondary data, conducting site visits and case studies, and conducting semi-structured interviews with key players engaged in the parkification projects at the case study sites. Thematic and content analyses were employed, followed by comparative analysis to conceptualize and analyze the transformation processes.

The findings highlighted the unique characteristics of each process, identifying three distinct parkification approaches transforming post-industrial sites in Ruseifa. Key driving factors were uncovered by examining the landscape pattern, mechanism of transformation, dynamic interactions among key players, and varying perceptions involved in the parkification processes. The findings also analyzed the parkification approaches within the decision-making processes, contextualizing them as a tool, strategy, or intention.

The study’s results contribute to a broader understanding of decision-making processes for developing post-industrial sites in Jordan and their transformation into public parks. It provides a framework to evaluate transformation processes on disturbed sites that can be utilized in improving post-industrial planning and preservation. Moreover, this study adds a valuable contribution to Ruseifa, documenting the transformation process of these parkification projects and shedding light on post-industrial sites and their development in Jordan.
In 2020, after more than 35 years of neglect, local authorities in Jordan made a significant decision to repurpose three long-abandoned industrial sites in Ruseifa city into public parks. This process of transformation, known as “parkification,” marks a monumental shift in how these neglected spaces are perceived and utilized. This dissertation explores and analyzes the transformative journey of these post-industrial sites, serving as a benchmark for future developments.

Through a series of investigations, the study addresses three key questions: How are decision-makers and influencers in Ruseifa approaching and treating these abandoned sites? What specific processes are involved in transforming these sites into public parks? And finally, how do these processes address the challenges associated with post-industrial sites?

Using a comprehensive qualitative approach, the research combines secondary data analysis, on-site observations, case studies, and interviews with key stakeholders. By examining the patterns, mechanisms, and interactions driving the transformation processes, the study identifies three distinct approaches to transforming post-industrial sites into urban parks in Ruseifa.

The findings reveal insights into the driving factors behind these transformations and the diverse perspectives shaping decision-making. Additionally, the study contextualizes parkification as a tool, a strategy, or an intention, highlighting its role in revitalizing neglected spaces.

This research contributes to a deeper understanding of decision-making processes related to post-industrial development in Jordan and developing countries, offering a valuable framework for future planning and preservation efforts. Furthermore, it documents the journey of these parkification projects, shedding light on the evolution of post-industrial landscapes in Jordan and their potential for sustainable development.
To Mazin Alrayyan & Suhad Alkutob...

My incredible dad and beloved mom, without whom I wouldn't be the woman I am today. Your love and support have shaped me into who I am, and I am forever grateful…

إلى مازن الریّان وسوهاد القطب...

أبي الرائع وأمي الحبيبة، اللذين كنانا ومازالا حاضرين بجانبي بثبات، من دونهما لم أكن الإمرأة التي أنا عليها اليوم. حبكم ودعمكم شكل هويتي، وأنا ممتنة للأبد…
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Embarking on this academic journey during a global pandemic and devastating wars while navigating the challenges of being an international student living alone would not have been possible without the unwavering support of my family and friends.

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ABBREVIATIONS

NGO Non-Governmental Organization
TICCIH The International Committee for the Conservation of the Industrial Heritage
UNESCO The United Nations Educational, Scientific and Cultural Organization
MedLiHer Mediterranean Living Heritage
RSCN The Royal Society for the Conservation of Nature
ICH Intangible Cultural Heritage
GAM Greater Amman Municipality
MoEnv Ministry of Environment
MoLA Ministry of Local Administration
WAJ Water Authority of Jordan
RHC Royal Hashemite Court
MoPW Ministry of Public Works
JPMC Jordan Phosphate Mine Company
DoA Department of Antiquity
EBRD European Bank for Reconstruction and Development
MoI Ministry of Interior
RSCN Royal Society for the Conservation of Nature
MoE Ministry of Energy
MoA Ministry of Agriculture
MoT Ministry of Tourism
MoC Ministry of Culture
MoW Ministry of Water
<table>
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<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
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<tr>
<td>MoPA</td>
<td>Ministry of Planning Affairs</td>
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<tr>
<td>CSNACH</td>
<td>Center for the Study of Natural and Cultural Heritage</td>
</tr>
<tr>
<td>AECOM</td>
<td>Architecture, Engineering, Construction, Operations, and Management</td>
</tr>
<tr>
<td>UNRWA</td>
<td>United Nations Relief and Works Agency</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UDP</td>
<td>Urban Development Program</td>
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### DEFINITIONS

**Disturbed landscape:** Areas that have experienced significant alterations or disruptions, often due to industrial activities, leading to changes in their natural state or landscape.

**Post-Industrial Landscape:** The altered physical environment of areas that were previously designated for industrial activities encompasses changes in the terrain and use of the landscape, incorporating post-industrial sites. In this study, it implies not only tangible alterations but also includes intangible elements that contribute to its recognition as an industrial landscape.

**Post-Industrial Sites:** Sites that were previously used for industrial purposes or bear the imprint of past industrial activities but have since been ceased and closed, often resulting in abandoned structures, and altered landscape.

**Industrial Heritage:** The cultural, historical, and physical remnants of past industrial activities, including structures, artifacts, and landscapes, considered valuable for preservation, and understanding the industrial history of a region.

**Parkification:** The process of transforming disused or post-industrial sites into urban parks, involving environmental rehabilitation, landscaping, and repurposing for public use. Moreover, it describes the intention of changing the current use of a site into a governmentally owned and operated park.

**Urban Park:** An open space within an urban area that is designated for recreational, cultural, and environmental purposes, providing greenery and leisure opportunities for residents.
Decision-Making Process: The series of steps and considerations involved in making choices or reaching conclusions, often in the context of governance, planning, or development.
CHAPTER ONE: INTRODUCTION

1.1 Introduction

Ruseifa, a city in Jordan strategically located between Amman and Zarqa, features the Zarqa River passing through its agricultural terraces and urban areas, making it an attractive city for urban development. However, the city’s trajectory changed with the discovery of phosphate, altering its urban future and landscape. Once renowned for apricot orchards, parks, and lush riverbanks, Ruseifa became the center of Jordan’s national phosphate mining industry, a shift that unfolded in the 1930s.

Following this discovery, underground mining commenced, and various industrial structures were established in the city’s center and outskirts. Initially, these mining excavations didn’t significantly impact the city; instead, they attracted more development projects due to rapid industrial growth and increased urban sprawl.

In the 1950s, open-cast mining began on a large scale, reshaping the city’s landscape and terrains and negatively affecting the residents’ health and environmental issues. The absence of a comprehensive master plan facilitated the creation of many industrial sites scattered within the city.

Later, in the 1980s, the depletion of phosphate reserves, a shift towards mining in the southern region resulted in the closure of Ruseifa phosphate mine sites. Concurrently, growing concerns from the public towards environmental issues and the establishment of the Ministry of Environment have led other industries to either minimize operations or relocate due to adverse impacts on air quality, public health, and the environment in Ruseifa.

Consequently, more post-industrial sites emerged, scattered throughout the urban center and the southeastern part of the city. The persistent absence of a cohesive strategy to address these
post-industrial sites has spanned almost four decades. The inconsistent actions towards developing these sites have often left a substantial portion of them subject to displacement, degradation, and erosion, as in the case of the abandoned Phosphate Old Mines & Administration Building site (AlRayyan et al., 2019). These unmanaged industrial remains and structures have negatively affected their surroundings and residents’ quality of life environmentally, socially, aesthetically, and spatially, contributing to the challenges posed by these sites.

Likewise, many industrial sites across Jordan have been closed, relocated, or demolished, causing vast and unmanaged post-industrial sites. What distinguishes these post-industrial sites in Ruseifa from those in other Jordanian cities is their interconnected and contiguous nature, creating a unified landscape that can be easily traced through its composition, pattern, and physical historical transformation.

Therefore, despite the negative impact of abandoned post-industrial sites on Ruseifa city, these sites are considered an integral part of the city’s industrial heritage that should be acknowledged (AlRayyan et al., 2019; M. Jamhawi et al., 2021; Jarrar & Jaradat, 2022; Obeidat & Miqdady, 2021).

Efforts to reclaim post-industrial sites in Ruseifa city have been initiated by concerned locals and stakeholders; however, none have materialized. Not until recently, in 2020, the local government of Jordan started development projects to rehabilitate three abandoned post-industrial sites in Ruseifa.

They have decided to transform these post-industrial sites in Ruseifa into urban public parks: 1) the Pepsi Pond site, 2) the Phosphate Ore Hills site, and 3) the Phosphate Old Mines & Administration Building site. One project is still under construction; the second is completed and open to the public as of 2023, and the third is postponed.
Converting a formerly used site and area into a designed public park is commonly referred to as “Parkification” (Berg & Stenbro, 2015). This term describes the intention of changing the current use of a site into a governmentally owned and operated park (Zhou, 2022). This term will be used throughout this study to describe the actions taken by decision-makers for the three-case study sites in Ruseifa.

While the parkification of post-industrial sites is not a new concept globally, it represents a precedent approach for these sites in Jordan. Therefore, it was necessary to examine, unpack, and document these parkification projects and their processes as a benchmark for developing post-industrial sites in Ruseifa.

This study is not focusing on the urban parks per se but on understanding the processes concerning the parkification projects in post-industrial sites, particularly in a developing country such as Jordan.

The decision for parkification in these disturbed sites calls for further exploration of the compelling issues related to post-industrial sites and how they are addressed in the parkification projects. It involved investigating the events, processes, and key players that framed the logic behind the decision to transform these sites.

To achieve this, the three mentioned sites were chosen as cases for this study. Each site is being transformed into urban parks, namely the Pepsi Pond Park, the Environmental Park, and the Geo-heritage Park. Knowing that each site, as a post-industrial site, has its unique character, attributes, and qualities to consider for any decision of change, the study uncovered the process leading to the decision of parkification for each site separately.

By comparing these processes, the study illustrated the parkification within the general decision-making processes and driving factors involved in the transformation of each site.
1.2 Importance of the Study

The importance of this study comes from the need to understand the complexity of these disturbed sites and their development approaches through the transformation modalities and factors that led to the decision to reuse the site, or in this case, the erasure of industrial traces and transform them into parks.

Decisions made by government officials, private sector actors, or community members can have a significant impact on the future of these landscapes, including whether they are preserved, repurposed, or left to decay (Murillo Camacho et al., 2022).

Focusing on the decision-making processes is important when studying the transformation of post-industrial landscapes because it helps us understand the underlying influences, key players’ intent, and power dynamics that shaped the outcome of such transformations (Luís Loures & Burley, 2012).

Another important aspect of this study comes from the lack of a formal definition or use for the term “post-industrial landscape” in the governmental Jordanian context, which leads to various meanings or interpretations for these sites by decision-makers in Jordan. It also resulted in the absence of fixed or clear approaches to how to deal with these sites.

Therefore, this study recognizes these sites as post-industrial landscapes. Moreover, understanding and illustrating the processes leading to landscape change in post-industrial sites will give more sense to their present form and the general attitudes toward managing post-industrial sites in Jordan and their landscape transformation.

This knowledge can inform policies and planning strategies that better prioritize the protection and revitalization of post-industrial landscapes to benefit local communities and the wider environment.
The results of this study contribute to the existing literature on recognizing the post-industrial landscapes in Ruseifa and understanding their transformation approaches, mainly the unprecedented act of parkification to transform disturbed sites into urban parks and their processes.

Moreover, it offers new perspectives on the implications of current approaches towards developing post-industrial sites. It provides crucial insights into the decision-making process and the rationale behind transforming these sites into urban parks.

In addition, this study provides an applicable framework to examine the transformation processes of post-industrial sites and provides the layers of evaluation towards these transformative sites. Importantly, this type of study addressing the landscape transformation of post-industrial sites and their processes has not been conducted in Jordan or the Arab region.

Therefore, this dissertation fills a knowledge gap by uncovering the processes of parkification for post-industrial sites in Ruseifa City and considering it benchmarks for future development.

1.3 Research Study Area & Case Sites

Three post-industrial sites in Ruseifa were chosen as case studies to unpack and analyze the parkification processes. These sites were selected in light of their simultaneous transformation into urban parks in 2020, as they had remained abandoned and unmanaged for the past four decades.

The three sites are located within an approximate 0.5-mile distance from each other and have shared similar implications from previous industrial activities. Their transformation significantly impacted the city’s landscape, environmental context, and residents’ satisfaction during their industrial operation. The impact continued even after the cessation of industrial activities.
These sites, as illustrated in Figure 1.1, are:

Site 1) the Pepsi Pond site,

Site 2) the Phosphate Ore Hills site and

Site 3) the Phosphate Old Mines & Administration Building site.

![Figure 1.1: Site map for the three selected post-industrial sites in Ruseifa City, Jordan. Site 1: Pepsi Pond; Site 2: Phosphate Ore Hills; Site 3: Phosphate Old Mines & Administration Building. Illustrated by Author, 2023.](image)

Site 1, known as the Pepsi Pond site, refers to the lagoon resulting from the blockage of the accumulated phosphate remains for the natural water flow towards the Zarqa River. Following that, the Pepsi factory used to clean their bottles in the water pond and dump their industrial waste. The Parkification project on this site is proposed as a second phase of the restoration project aimed at restoring the natural Wadi and lagoon area.

Site 2, the Phosphate Ore Hills site, witnesses the conversion of 75 dunums (7.5 hectares) from the 1795 (179.5 hectares) total site area into the Environmental Park. It is part of a larger-scale rehabilitation project launched in 2020 to reclaim the post-industrial site and rehabilitate the land by restoring the original ground level before the phosphate mining activities and doing soil
remediation. The existing accumulated phosphate hills on site have been relocated, and all open mine pits were covered, removing the traces of the mining activities. The project adopted a greening and afforestation strategy, which included the parkification project as a central component of this strategy. The Environmental Park is completed and opened to the public.

Site 3, the Phosphate Old Mines & Administration Building site, was proposed to be transformed into a Geo-heritage Park. The main goal of the parkification project is to preserve the industrial heritage of the site and its architectural buildings, including the silo, the water tower, and old mines that go back to the 1930s. The site and heritage buildings belong to the Jordan Phosphate Mine Company (JPMC) and the founders’ family, Kawar. Due to several factors, the project has been postponed, and the company donated the site and the buildings to the Ministry of Culture (MoC) to complete the project and add a cultural center. The Park project is still in the preliminary phase with no implementation plans; the site elements are deteriorating.

1.4 Aims and Goals of Dissertation

This dissertation aims to comprehensively explore the multifaceted aspects of post-industrial sites in Ruseifa, Jordan, by uncovering the parkification processes of transforming post-industrial sites in Ruseifa into urban parks. To achieve this, the dissertation is set to accomplish four primary goals:

1. Develop an understanding of the meaning and value of post-industrial sites as perceived by decision-makers, experts, and stakeholders of Ruseifa City.

This goal aims to explore the perceptions and attitudes of various stakeholders towards post-industrial sites. Understanding how these sites are viewed regarding their significance, potential, and challenges is crucial. Furthermore, the study aims to recognize Ruseifa’s industrial heritage and claim these as post-industrial sites.
2. Unpacking the transformation process of post-industrial sites into urban parks in Ruseifa and investigating the primary drivers, key players, events, and strategies that have led to the landscape change of post-industrial sites into urban parks.

This goal delves into the transformation process, seeking to understand the mechanisms of transformation, landscape patterns of transformed sites, and the relationship dynamics of stakeholders involved in converting post-industrial sites into urban parks. By analyzing driving factors, events, players, and strategies, the research can offer a comprehensive view of the transformation process. It also aims to understand the role of local government and decision-makers in shaping the landscape and the transformation of post-industrial sites and their narrative.

3. Exploring the compelling issues of post-industrial sites influencing the decision of parkification and examining the role of parkification in addressing these compelling issues.

This goal focuses on the specific approach of parkification, its relation to post-industrial sites, and the impact of this decision on the transformation process. It also assesses the role of parkification in addressing the compelling issues of these sites. This analysis can shed light on the role of planning strategies and decision-makers in shaping the outcome.

4. Developing an evaluation framework to examine the transformation processes of post-industrial sites in Jordan.

This goal has been developed during the study and after the data collection. The framework was generated in reference to the research questions and theoretical construct.

Additionally, the study offers a comprehensive overview of the three selected post-industrial sites, effectively contextualizing them within the broader landscape of Ruseifa and its surroundings.
Significantly, this research underscores the importance of documenting the transformation process, making it a central contribution to the study. This dual focus of analyzing and documenting the process is a central contribution of this research by stating the compelling issues of these sites and identifying the factors influencing the decision-making process.

1.5 Dissertation Questions

Three main research questions outline this study are:

1) How do decision-makers and other development influences in Ruseifa view and treat post-industrial sites in Ruseifa city?

2) What are the parkification processes transforming post-industrial sites into parks in Ruseifa?

3) What are the compelling issues of post-industrial sites, and how do the parkification processes address them?

1.6 Methodology of the Study

To address the research questions, this study utilized a multi-method research design to investigate the decision-making processes for the parkification projects transforming post-industrial sites into public parks in Ruseifa.

This qualitative multi-method research incorporated multiple methods to enable a comparative case study analysis, aiming for a comprehensive understanding of the events, processes, stakeholders, and narratives that contributed to the decision-making process of transforming these sites.

To achieve this, the study comprises two main phases: the preparatory phase, which included a three-month preliminary research visit to Ruseifa in June 2022, and the empirical phase, which involved data collection at the selected sites. In the preparatory phase, following the site
visit, the three distinct post-industrial sites were chosen as the primary case studies for this research. Subsequently, the research questions were formulated, and a preliminary list of key players was developed. During the Empirical phase, a second research visit to Ruseifa was conducted in January 2023 for data collection.

The study involved gathering and analyzing qualitative data using various qualitative methods from multiple sources to gain a deeper understanding of the research topic. It employed semi-structured interviews and content synthesis of secondary data, including formal and governmental documents, policies, reports, maps, newspaper articles, TV interviews, digital news sites, and other available data resources associated with these sites in Ruseifa and the parkification projects. The interviews were conducted with representatives from local government, municipal institutions, and primary players in the parkification process at the three different post-industrial sites.

A chain referral (snowball) sampling method was utilized to recruit participants for the study, including decision-makers, stakeholders, and experts within the study area boundary of Ruseifa City. However, to ensure easy access to these participants, a gatekeeper was accompanied to facilitate the recruitment process. The research also employed a third site visit in June 2023 to obtain more data related to post-industrial sites and ongoing parkification projects.

The study utilized thematic analysis of the interviews, content analysis of documents, and comparative case-study analysis:

- **Thematic analysis** for the semi-structured interviews was conducted. The targeted participants were representatives of local government and municipal institutions, experts, and stakeholders associated with the parkification of post-industrial sites within the study area boundary of Ruseifa city.
- The study also employed **content analysis** of institutional and governmental documents, policies, and other available data resources associated with these three sites in Ruseifa City to identify the compelling issues, policies, and decisions made for these sites.

- **A comparative case study analysis of** the processes was conducted to evaluate the processes that led to parkification. Focusing on three case study areas in order, the analysis illustrated and contextualized the parkification within the decision-making processes involved in the transformation of each park.

This multi-method qualitative research allowed the researcher to gather rich, detailed, and nuanced data about the sites, process, and decision-makers' perceptions of the parkification process and landscape transformation of post-industrial sites.

Moreover, it captures a broader range of perspectives, contextual factors, and nuances of the research topic (Hunter & Brewer, 2016). It allowed the researcher to triangulate and compare the results of the different sources to establish credibility and ensure consistency in the results. Integrating multiple qualitative methods in a multi-method research design enhanced the reliability and validity of the findings.

### 1.7 Theoretical Approach

To examine the process of parkification of post-industrial sites, this dissertation draws on literature from three main fields of study: post-industrial & cultural landscape, landscape transformation approaches, and understanding the decision-making process. The literature encompasses three key dimensions: understanding the meaning, exploring landscape transformation approaches, and process.
The literature defines and elucidates the core concept of this study, the post-industrial landscapes, and delves into the nuances and intricacies of such sites across diverse meanings, contexts and settings employing a cultural landscape perspective.

The literature synthesizes the Parkification within the various approaches that have shaped landscape transformation in post-industrial sites, providing a comprehensive backdrop. By linking these approaches, the literature establishes a connection between parkification and overarching strategies, offering a broader summary of aims, motives, and inherent limitations.

Building upon this synthesis, the study navigates through diverse processes associated with parkification, culminating in the formulation of a robust theoretical framework. This framework was used to evaluate the transformation processes of parkification. It introduced structured layers to evaluate the process of parkification in post-industrial sites.

Lastly, the literature critically explores diverse decision-making processes, unraveling their implications in the development of post-industrial sites across varied settings. This multidimensional approach equips the study with a holistic understanding of the complexities inherent in the parkification of post-industrial landscapes.

1.8 Evaluation Framework

Building on the foundation of the three research questions and theoretical construct, this study has devised an evaluation framework to systematically analyze the parkification processes, as depicted in Figure 1.2.

The framework provides a three stages structure for assessing the transformation process. Aligned with the first research question, the first stage of the framework mandates obtaining insights into the general perceptions of decision-makers and stakeholders regarding post-industrial
sites, forming the initial layer of process assessment. It involves a preliminary comprehension of the compelling issues associated with post-industrial sites and their impact.

![Diagram](image)

**Figure 1.2:** Transformation Process Evaluation Framework of the Study. Illustrated by author, 2023.

Expanding on the second research question, the second stage assesses the process of parkification, exploring four primary layers: landscape patterns of the site, the mechanism of transformation, encompassing parkification, and the power dynamics and relationship nature among key players and stakeholders associated with the site and process. In addition, a layer of perception of key players towards the parkification decision.

The third stage of evaluation scrutinizes the driving factors of the parkification decision, formulating the third research question. At this stage, the compelling issues of the site that the process addressed were also studied.

Through a comprehensive understanding of these layers, the conceptualization, and contextualization of the process, one can gain valuable insights into the overall process,
encompassing perceptions and understanding process layers of pattern, mechanism, and dynamics while effectively addressing the compelling issues of the site.

1.9 Researcher Background & Motivations

My motivation for this research stems from my academic career at the German Jordanian University, where I engaged in landscape-oriented and community-based research in Jordan. Drawing on my background in landscape architecture, I collaborated on multi-disciplinary projects with various stakeholders and experts, focusing mainly on preserving post-industrial sites in Jordan, notably in Ruseifa city. These projects, initiated by Non-Governmental Organizations (NGOs) and community institutions, aimed to enhance the built environment around post-industrial sites through innovative proposals.

One notable project centered on the Phosphate Old Mine and Administration Building site at Ruseifa. In 2014, the Center for the Study of Natural and Cultural Heritage (CSNACH) at the German Jordanian University (GJU) formed a team of experts to propose a development project for this site in Ruseifa.

The project involved a proposal to transform the site into a geo-heritage park and present it to various stakeholders, including Ruseifa Municipality, the Ministry of Environment (MoEnv), the Ministry of Tourism (MoT), and many others. Despite the comprehensive study developed by geology, architecture, and building preservation experts, the project faced challenges due to insufficient funding, preventing its progression.

The project triggered a series of meetings with governmental entities, stakeholders, and potential funding organizations to obtain approval and garner government attention and support to preserve the site, acknowledged for its historical and industrial heritage significance. The decision-
making process was marked by complexity, a lack of collaboration among involved entities, and a dearth of precedent cases to guide decisions.

Unfortunately, inadequate funding led to the project being put on hold. Adding to the complexity, an infrastructure project initiated three months later to construct a road adjacent to the site and a gas station without prior notification resulted in disruptions and alterations to the landscape. From this, I have learned a lot about decision-making processes in Jordan and the implications of such projects for the community.

A beneficial outcome of the project was the mapping and documentation of the site in Ruseifa, which was stored in the Department of Antiquities (DoA) archives for future planning. This project emphasized the need for further research to document and acknowledge post-industrial sites in Jordan and across the Arab World. The lack of transparency in the process, coupled with inadequate management policies and recognition of the site's significance, had a detrimental effect on the current state of these sites.

The profound experience from this project deepened my passion for cultural and post-industrial landscapes, inspiring a dedicated pursuit to study and explore these sites and their astute management in Jordan. Consequently, this dissertation aims to delve into the multifaceted aspects of post-industrial sites and their management, contributing to the body of knowledge in this critical domain.

1.10 Dissertation Organization

This dissertation consists of nine chapters, as illustrated in Figure 1.3. The first chapter introduces the relevant background, theoretical framework, research motivation, problem statement, and research goals and purpose. It also provides an overview of the research setting, questions, and methodology.
The second chapter delves into the literature reviewed for this study, focusing on post-industrial sites and parkification as a decision-making process for developing post-industrial sites. It explores the role of parkification in developing these sites and highlights their industrial heritage understood within a broader framework of the decision-making processes and landscape transformation.

The third chapter represents the case study areas within the context of Ruseifa. It facilitates the argument that Ruseifa has a distinguished industrial heritage. It also provides background information for the three post-industrial sites and their parkification projects.

The fourth chapter delves into the methods and methodology of this study and the process used to analyze the collected data. It encompasses the study phases within the multi-methods design approach, research questions, the type of qualitative data collected, and research methods:
sampling techniques, code category generation, and methodological limitations arising from the emerged unique process for each.

Chapters five, six, and seven represent the results of the chapters. It is designed to showcase the main findings for each research question. Chapter five will present the revealed perception of stakeholders; Chapter 6 conceptualizes the parkification processes, and Chapter seven describes the compelling issue found in this research.

Chapter eight builds on the three results chapters to discuss the results and formulate the main findings of this study. The study concludes the results and findings in Chapter nine, presenting the limitations, recommendations, and future work for the work.
CHAPTER TWO: TRANSFORMATION & POST-INDUSTRIAL LANDSCAPES

The literature encompasses three key dimensions to understand the parkification process of post-industrial sites: understanding the meaning, exploring landscape transformation approaches, and decision-making process.

Tackling meaning, this literature review begins by defining the main concept of this study, the post-industrial landscape. It delves into the complexities and intricacy of these landscapes across diverse contexts, particularly in Jordan. Employing a cultural landscape perspective highlights the compelling issues associated with these sites and their development projects. It also lists the approaches toward post-industrial development. From this section, it brings a foundational understanding of these sites.

In the following section, the literature synthesizes the landscape transformation concepts and introduces the parkification approaches on post-industrial sites. Literature interlinks landscape transformation with parkification, generates main strategies, and explores the processes responsible for such acts. By linking these approaches, the literature establishes a connection between parkification and overarching strategies, offering a nuanced comprehension of underlying motives, aims, and inherent limitations.

Building upon this synthesis, the study navigates through diverse processes associated with parkification and cultural landscape theory, culminating in formulating a framework to evaluate the processes. This framework introduces layers and stages, providing a structured lens to evaluate transformative actions in post-industrial sites.

Lastly, the literature critically explores diverse decision-making processes, unraveling their implications in developing post-industrial sites across varied settings. This multidimensional
approach equips the study with a holistic understanding of the complexities inherent in the parkification of post-industrial landscapes.

2.1 Meaning: The Post-Industrial Landscape

The concept of a post-industrial landscape involves a broad geographical and socio-economic environment that has undergone significant transformation following the de-industrialization and decline of heavy industry and manufacturing. These landscapes exhibit a diverse range, encompassing brownfields with contaminated soil, former mining sites, closed factories, and abandoned infrastructure modified by economic, social, and political activities over a considerable period of time (Storm, 2014).

Within the broader context of the industrial landscape, post-industrial sites represent specific locations or properties. They are the concrete remnants of the industrial era, including closed factories, decommissioned power plants, and abandoned mines. These sites are recognized by their abandoned, derelict, or underutilized state. These sites are often central to discussions on heritage preservation, environmental remediation, or redevelopment, focusing on each site's unique history, use, and future potential (Gospodini, 2006).

Many undervalue or fail to see its significance, especially with its deterioration, the vast size of post-industrial sites, their unique infrastructure and function, and the pollution and land degradation connected with industrial activity (Chmielewska, 2007).

However, post-industrial landscapes are not limited to physical spaces; they include the economic, social, environmental, and cultural changes in regions once dominated by industrial activities. These changes often manifest in altered employment patterns, urban development, and the overall character of a region featuring a blend of industrial facilities, new types of economic activities, and sometimes urban decay (Rhodes II & Scarlett, 2023).
Generally, the formation of post-industrial sites culminates in three stages: industrialization, de-industrialization, and transformation (Frisch, 1998). The industrialization phase brought about significant changes in land use and urbanization, leading to the creation of industrial centers and the growth of urban settlements.

As industrialization progressed, industrial activities expanded and intensified, resulting in significant transformations in the landscape. This involved clearing extensive areas of land for industrial purposes and altering the natural environment, often resulting in pollution, inefficient waste disposal, and extraction of resources (Storm, 2014).

De-industrialization, the subsequent phase, is characterized by social and economic shifts caused by the removal or reduction of industrial capacity (Jarrar & Jaradat, 2022). This phase witnessed the decline of industrial activities, leading to the emergence of abandoned facilities, deserted mines, and depopulated cities - the beginnings of what are known as post-industrial sites (Rhodes II & Scarlett, 2023).

The transformation stage redefines these post-industrial landscapes that require the involvement of communities, government agencies, and decision-makers in managing these landscapes, considering their historical, cultural, and socio-economic significance (Frisch, 1998).

Three types of post-industrial sites were distinguished by Niall Kirkwood (2003): 1) sites that have historically been part of industrial or manufacturing processes; 2) sites affected by residual industrial activity that has resulted in environmental issues; and 3) sites that have already been reclaimed or altered, where remnants of industrial activity are considered in design proposals and decisions made by actors involved in development decision-making.

Post-industrial landscapes are unlikely to be confined to a single site or place; instead, they spread throughout a wide range of landscapes, from abandoned riverside mills and mountainous
mining waste landfills on the periphery of the town to old railways, scattered factories within residential communities and many that can be found throughout cities (Höfer & Vicenzotti, 2013).

With the spread of the post-industrial sites within urban landscape, more attention was put on these sites and various strategies have been employed to deal with post-industrial sites, ranging from redevelopment, reuse, commemoration and elimination, creating policies that ultimately affect the way transform these sites (B. Plevoets; K. Van Cleempoel, 2011; Bullen & Love, 2011; Chmielewska, 2007; M. Jamhawi et al., 2021; Luís Loures, 2015).

In response to these dynamics, many have seized the opportunity to reclaim post-industrial sites, particularly those that have been abandoned or underutilized, as they provide urban developers and planners with a sustainable alternative to land redevelopment while simultaneously contributing to environmental protection (Cimino, 2009; Oevermann, 2020; Selman, 2004).

They present urban development and revitalization opportunities, providing space for new functions like parks, residential areas, or commercial development. Such transformation contributes significantly to the community’s economic, social, and cultural well-being. Moreover, it influences the spatial character of the cities, land use patterns, urban development, social dynamics, and community identity (Claver et al., 2018).

However, according to how it is perceived, different approaches to dealing with these sites differ (Heatherington, 2017). Various approaches were adopted to redevelop these sites, each with distinct objectives, including but not limited to urban regeneration, historic and cultural preservation, environmental restoration, economic revitalization, parkification, and sustainable urban development ( De Sousa, 2014; Cizler et al., 2015; Kristiánová et al., 2016; Maantay & Maroko, 2018; McNeil & Lange, 2003; Nikolić et al., 2020; Van der Merwe & Rogerson, 2018; Zhang & Taylor, 2020).
Although many of these development approaches align with key challenges in sustainable built environments, dealing with urban sprawl and neighborhood revitalization, post-industrial landscapes remain an undervalued asset for urban redevelopment (Luís Loures & Burley, 2012). They require a better understanding of the specificity of these sites and a suitable management strategy.

Each can be linked directly to the context it belongs to. When an industrial activity is established, it creates a dynamic regional urban economic hub. Sometimes, it occupies strategic sites in urban areas. Recently, the development of technology, transportation, and the discovery or depletion of raw materials helped reshape modern post-industrial landscapes in many regions.

Still, when they become abandoned and obsolete, the industrial landscape loses its vitality, raising regional, economic, spatial, and environmental concerns that lose their connection to the city and society (Cimino, 2009; Bie Plevoets & Van Cleempoel, 2019; Toree et al., 2005).

2.1.1 Complexity of Post-Industrial Landscapes

The post-industrial landscape might be a difficult topic for decision-makers due to many interrelated physical, economic, social, and political factors associated with these sites and their impact on the natural and cultural environment due to the previous industrial activities.

One prominent complex feature of post-industrial landscapes is the unique aesthetic characteristics of the physical industrial elements and the spaces generated by their presence. The aesthetic values can hide or reveal the collective implications of the interwoven struggle in a complex past and the unlimited fantasy futures for the possible developments of post-industrial spaces (Frisch, 1998). Moreover, the immense scale of industrial structures and facilities adds complexity. Governments struggle with formulating a sustainable vision for handling these vast
structures and expansive landscapes, given that they may extend beyond singular locations, sites, or regions.

The distinct characteristics of post-industrial sites have influenced the approaches to their development. These sites often bear abandoned industrial infrastructure, including buildings, machinery, and equipment that serve as tangible reminders of their post-industrial history. Several approaches and frameworks have been devised to effectively preserve them (Chmielewska, 2007). Additionally, due to their unique structures and historical significance, adaptive reuse is a common strategy, repurposing old industrial buildings for new functions and highlighting industrial heritage as a commodity tool for redevelopment (Bodurow, 2003).

Another aspect of complexity is the environmental concerns when dealing with post-industrial sites, as they strongly connect to the earth and intersect with nature. In most cases, post-industrial landscapes resulted in ecological deterioration that requires attention and treatment.

Many perceive these landscapes as important industrial heritage sites; therefore, industrial heritage is another critical complexity. It poses an issue of recognizing historical and cultural value while dealing with other aspects; the memories of places and the people engaged in these industrial processes present the essence and values of these landscapes (Cimino, 2009).

It is associated with industrial heritage, which emerged in response to the widespread destruction of industrial structures and sites, seeking to protect them. It broadened our understanding of heritage to include a more recent past, moving beyond the traditional view of historical preservation (Gross, 1993).

Ongoing efforts have sought to define industrial heritage while recognizing the inherent value of its physical remnant on the landscape. The Nizhny Tagil Charter defines it as “the remnants of industrial culture with historical, technological, social, architectural, or scientific
value” encompassing the processes and social dynamics within these landscapes, as both tangible and intangible elements are deemed of fundamental importance (TICCIH, 2003, p. 2).

While others linked it to cultural values associated with altering the landscape, as described by J. B. Jackson as a “man-made system of spaces imposed in the landscape, functioning and developing to serve a community,” these sites cannot be detached from the cultural tapestry (Jackson, 1997, pp. 304–305). It was also defined as “scars” in the landscape as a reminder of a productive past or a social struggle (Storm, 2014, p. 2).

Therefore, researchers have contributed to evaluating, documenting, and developing remnants of the industrial society, viewing industrial heritage as both a resource and an integral part of collective identity (Högberg, 2011). What was once considered unattractive and deteriorated environments have now transformed into post-industrial landscapes deserving of preservation and acknowledgment. Yet, development initiatives that only paid attention to the physical remnants and ignored the social and cultural aspects have been carrying (Quivik & Quivik, 2000). It requires a strategy to overcome the need for physical remains to distinguish its heritage importance.

Navigating the complexities of post-industrial landscapes as heritage sites lies in the diverse approaches available for developing them, often constrained by profit-driven motives from both private and public sectors. Although the interconnectedness of economic, social, environmental, and cultural dimensions is acknowledged, efforts to rehabilitate industrial buildings and their surroundings, integral to urban settlement creation, remain limited.

The evolution of the industrial heritage concept occurred as scholars and planners recognized these sites’ cultural and historical value (Bowie, 1985; Högberg, 2011; Luis Loures, 2008a). Consequently, it brought unique opportunities to the preservation and examination of these
landscapes, particularly as urban pressures jeopardize the existence of industrial infrastructures (Keil, 2005).

The rationale behind preservation is evident in the role of industrial landscapes as historical witnesses to a location’s cultural, social, and economic evolution. The designating of numerous redeveloped post-industrial sites as “world cultural heritage” has reshaped perceptions of these former industrial landscapes (O’Donnell, 2004). Therefore, efforts to preserve industrial heritage, including safeguarding structures and artifacts and integrating them into redevelopment plans, have gained prominence. In various instances worldwide, these transformed areas have become noteworthy tourist attraction sites (Höfer & Vicenzotti, 2012).

Furthermore, professionals in the realm of industrial heritage preservation predominantly focus on the “how” of managing these landscapes, often overlooking essential questions of “why” preservation matters and “what” expectations and objectives should guide these preservation endeavors (Luis Loures, 2008b, 2008a). This knowledge gap poses challenges in effectively integrating post-industrial heritage considerations into broader urban development initiatives.

2.1.2 Post-Industrial Landscape as Cultural Landscape

The post-industrial landscape is becoming a novel form of cultural landscape (Höfer & Vicenzotti, 2013). They represent a distinct type of cultural landscape often referred to by scholars as vernacular landscapes (Andreychouk, 2015). To address landscape transformation and given the myriad approaches available for dealing with these sites, it proves beneficial to view them not solely through the narrow lens of specific reasons, such as industrial heritage, but rather as an integral part of the broader concept of a cultural landscape.

Melnick offers a comprehensive definition of cultural landscapes as “areas which represent or reflect the patterns of settlement or use of the landscape over a long time, as well as the evolution
of cultural values, norms, and attitudes towards the land. They have evolved from, or exhibit remnants of, earlier known human settlement patterns or land-use practices for an area” (Melnick, 1981, p. 5). In industrial landscapes, the cultural process, driven by industry, profoundly shapes and modifies the landscape (Stuart, 2013).

To consider post-industrial landscapes as cultural landscapes requires acknowledging their historical and socio-cultural significance. It can vary significantly across different cultural contexts. These landscapes, often characterized by abandoned or repurposed industrial sites, carry a rich industrial heritage integral to the broader cultural setting. They provide insights into a region's historical, economic, social, and technological narratives. By incorporating these sites into the broader cultural landscape, we preserve collective memory and identity linked to these spaces while potentially redefining their roles in contemporary urban settings.

Therefore, it is essential to grasp these contexts’ cultural meanings and perceptions before embarking on any redevelopment efforts. Moreover, interpreting and understanding the stories of these sites, including the struggles and contributions to the landscape, play a vital role (Shackel & Palus, 2006).

Earlier research has focused on the physical remnants of industrial and post-industrial landscapes, disregarding industrial landscapes' activities, meanings, and values (Heatherington, 2017; Leary et al., 2000; Mieg & Oevermann, 2014). These industrial remnants within the landscape encompass various features, from architectural to topographical elements to changes in land use patterns. Some remnants, such as operational quarries and mines, are readily visible, while others exist through stories and memories held by the local population. Yet, most studies tended to be descriptive rather than analytical (Cimino, 2009).
Industrial heritage encompasses not only machinery but also the lives, survival, and narratives of workers who resisted exploitation. These spaces, recognized at regional, national, and international levels and preserved by government agencies, serve as places of remembrance and memorialization (Shackel & Palus, 2006).

The International Committee for the Conservation of the Industrial Heritage (TICCIH) underscores their significance due to their architectural, social, technological, and historical values. It advocates for studying, teaching, and preserving these landscapes as cultural heritage (TICCIH, 2003). However, it is worth noting that the recognition is uneven, where most designated industrial sites are concentrated in Europe, Northern America, Asia, and Latin America, with none designated in the Arab region (Falser, 2001).

The shift of meaning in understanding the landscape has influenced this trajectory of recognition. It included viewing the landscape as a product of cultural transformations over time, significantly influencing the perception of many landscapes as worthy of recognition (C. B. Kennedy et al., 1988). Additionally, viewing the landscapes as vernacular, developed by J. B. Jackson and others, further emphasizes the narrative of everyday landscapes and their connection to culture (Jackson, 1984).

Viewing the landscape as a holistic process, including environmental and ecological concerns, necessitates understanding the natural and cultural processes that have shaped the landscape (Makhzoumi, 2002). As Mitchell suggests, this notion of processes underscores the role of production in shaping the landscape, where “obscurity lies in processes of production, capital and circulation, and ultimately power” (Setten & Brown, 2013, p. 423).

Denis Cosgrove has denoted landscape as a way of seeing; “Landscape is not merely the world we see, it is a construction, a composition of that world” (Cosgrove, 1998, p. 13). This
concept connects landscape production to political activities and social power, providing a theoretical framework for understanding human-environment relationships.

In this context, D. Mitchell (1994) further emphasized the symbolic role of landscape as a “syntax of society,” a concept that was coined by Zukin, who contends that landscape connotes a contentious product of society shaped by power dynamics, coercion, and collective resistance (Zukin, 1993). It is an assimilation of Landscape as power that has been studied and researched mainly by Zukin, Hayden, and others (Hayden, 1997; Zukin, 1995). These shifts in understanding cultural landscapes lay the foundation for creating a paradigm.

Building upon Jones’s (2003) work, several cultural landscape paradigms have emerged based on substantial variations in meaning. These paradigms include cultural landscapes as rural, historical evidence, function, human experience, cultural heritage, and natural system. Each of these paradigms can be applied to post-industrial landscapes when considering them as cultural landscapes.

The concept of the cultural landscape is a powerful lens through which we can understand the dynamic interplay between human societies and their environments. It underscores that all landscapes, including post-industrial ones, hold cultural significance that merits exploration and preservation. These cultural landscapes have become valuable resources for various fields, such as cultural heritage, archaeology, and nature conservation. Over time, our understanding of landscapes has evolved from isolated phenomena to essential elements in interpreting our cultural heritage and landscape development (Agnoletti, 2006).

In this context, post-industrial landscapes offer a unique opportunity to examine the legacy of industrialization and its impact on our cultural and environmental heritage. As we continue to study and engage with these landscapes, it is imperative to consider the diverse paradigms that
shape our perceptions, from viewing them as historical evidence to recognizing their roles as natural systems. Embracing these multiple dimensions enriches our understanding of post-industrial landscapes as vital components of our collective past, present, and future.

### 2.1.3 Managing Post-Industrial Sites

Managing post-industrial sites involves two perspectives: heritage conservation and urban redevelopment planning, focusing on “balancing the complexity of heritage sites and coordinating short-, mid-, and long-term processes” (Oevermann, 2020, pp. 157–159).

Universal practices in managing industrial heritage have given rise to several approaches that distinguish these landscapes from other types of landscapes. These approaches range from object-based to value-based, encompassing cultural and natural values (Cimino, 2009, p. 40). A review of the literature describing approaches of management categorizes them as follows:

1) A humanized approach is exemplified by the eco-tourism movement in Europe or tourism development projects (Al-Omari et al., 2019; Khalil & Elgohary, 2020; Xie, 2006).

2) Adaptive reuse strategies, a common approach to industrial landscape, often romanticize industrial ruins and harmoniously integrate them with the industrial heritage landscape (Cantell & Huxtable, 2005; Höfer & Vicenzotti, 2013; M. Jamhawi et al., 2021; B. Plevoets & Van Cleempoel, 2011).

3) The historic urban landscape approach focuses on documenting and mapping the physical and historical social and cultural patterns in relation to nature, although it may lead to the erasure of these landscapes afterward (Bowie, 1985; Chalana, 2012; Shackel & Palus, 2006).
4) Industrial archeology, closely related to cultural landscape studies, involves reports, proposals, plans, site rehabilitation, and the transformation of sites into parks or recreational spaces as a cultural landscape (Hadis et al., 2022).

5) The natural environmental approach may involve removing or rehabilitating any remaining industrial remains to minimize environmental impact.

When implemented, these strategies require diverse criteria that necessitate understanding the site and process. It also calls for a comprehensive interdisciplinary approach that collaborates with various stakeholders, local and community participation frameworks, and disciplines.

Oevermann (2020) has established eight criteria for “good practices” in managing industrial heritage based on UNESCO values, as shown in Figure 2.1. These criteria include (Oevermann, 2020, p. 160):

1) Management: Evaluation of the management system, plan, administrative structure, organizational processes, policies, planning instruments, and monitoring, rooted in legal elements such as general protection laws and conservation policies.

2) Conservation: Assessment of heritage values, structure, and function, exploring diverse possibilities for preservation, enhancement, and adaptation.

3) Reuse: Evaluation of new functions, objectives, structures, and architecture, considering factors like target groups, access, and accessibility involving communities in the assessment.
4) Community Engagement: Focus on initiatives, community contributions, and joint decision-making, recognizing community involvement as integral to heritage and viewing community initiatives and engagement as strategic for long-term and sustainable heritage use and development.

5) Sustainable Development & Climate Change: Emphasis on four dimensions of sustainable development: environmental sustainability, inclusive social development, inclusive economic development, and peace and security, with consideration of mitigation and adaptation at local and global levels.

6) Education: Focus on information and education about heritage sites, including awareness-building through signatures, websites, guided tours, and learning initiatives such as educating disseminators, school co-operations, and youth camps.

7) Urban Development: Recognition of cultural heritage as a driver for urban development, with attention to issues like gentrification, expanding tourism, economic benefits, and multilevel governance considerations.
8) Research: Significance attributed to basic research, evidence and heritage values analysis, and inventories. Evaluation research, including Heritage Impact Assessments (HIA) and research regarding monitoring processes, is considered essential.

These criteria offer a comprehensive framework for evaluating good practices in redevelopment, demonstrating their potential to complement and support each other, although conflicts may arise within these criteria.

2.1.4 Post-Industrial Landscape Discourse in Jordan

In Jordan, the discourse on the post-industrial landscape is intertwined with broader discussions on cultural heritage presented in a particular period of Jordan’s early industrialization connected with the early development of modern Jordan.

A recent study investigating the post-industrial sites in Jordan identified three main approaches employed toward dealing with such sites: demolition, occasional maintenance, and rare examples of conservation and adaptive reuse. However, these strategies primarily focused on architectural structures rather than encompassing the broader landscape (Jarrar & Jaradat, 2022).

The study highlighted the importance of the industrial heritage of these sites, which is connected with the early development of modern Jordan, and has referred to it as “the physical remains of the history of technology and industry as well as power and transportation infrastructure, or places used for social activities related to industry amongst other structures with values from a variety of fields” (Jarrar & Jaradat, 2022, p. 14).

Unfortunately, conservation efforts for these sites are modest and often hindered by privatization, which further marginalizes their importance. The government’s focus on financial returns from new projects, often constructed over old industrial heritage sites, underscores the lack of priority given to preserving Jordan’s modern heritage. Inconsistent actions towards these sites
have often left a substantial portion of these sites subject to displacement, degradation, and erosion, as in the case of the abandoned phosphate mining sites since 1985 (AlRayyan et al., 2019; M. Jamhawi et al., 2021; Jarrar & Jaradat, 2022).

Moreover, these sites are still underrepresented and unrecognized in formal documents, with no definition, legislation, or clear vision for their future development and, in some cases, improperly managed. Despite sporadic attempts to safeguard specific sites, there is a pressing need to appreciate and protect modern industrial heritage in Jordan, requiring a clearer definition, stronger legislative support, and a shift in the prevailing attitudes toward these valuable historical structures (Jarrar & Jaradat, 2022).

There is a dearth of studies that were dedicated to post-industrial landscapes and industrial heritage in Jordan yet were part of cultural heritage studies (AlRayyan et al., 2019; M. Jamhawi et al., 2021; Khafajah & Al Rabady, 2011; Obeidat & Miqdady, 2021).

Cultural heritage studies in the Arab World, as Rami Daher (2021) noted, are fragmented and unbalanced. The study revealed a predominance of research focusing on technical aspects, especially documentation and conservation technologies, and a lack of epistemological and theoretical research exploring the definition, utilization, and preservation of cultural heritage in the Arab region (Daher, 2021, p. 839). Furthermore, that field lacks comprehensive technical terminology, data, analytic tools, and evaluation procedures (F. A. Hassan, 2008).

The ambiguity of terms in Arab countries’ documents and legislation, making it difficult to distinguish between ‘cultural heritage’ and ‘cultural landscape’ in Jordan’s formal and academic literature, further complicates matters. Clarifying these terms is essential for effectively recognizing and preserving cultural heritage sites.
In studies on cultural heritage concerning the Jordanian context, the term ‘cultural landscape’ is often not used explicitly but is implied within the broader scope of cultural heritage research. Earlier studies equated cultural heritage with cultural landscape in theory, though not in practice (Barakat, 2021). These studies often oscillate between focusing on cultural heritage, emphasizing artifacts and archaeological materials, and natural heritage. Synthesizing the current cultural heritage literature in Jordan can be categorized under four primary studies focusing on 1) archaeological landscape, 2) natural heritage, 3) cultural heritage, and 4) landscape of culture.

1) **Archeological heritage studies:** Most studies in this frame focus on analyzing and documenting artifacts and material culture, further developed due to extensive archaeological excavations in Jordan. These studies, concentrating mainly on pre-Ottoman eras, involve conservation and preservation practices like documentation and historical analysis (Maffi, 2009; Santana Quintero et al., 2012). Notable examples include Petra and Wadi Rum, which UNESCO recognizes as heritage sites emphasizing the economic approaches to commodifying history and transforming these sites into tourist attractions (Erin Addison, 2016; UNESCO, 2010, 2011). Once developed, these sites are often isolated from the local community, as in the case of the Umm Qais site, which prioritized Roman heritage over the lived landscape (Porter & Salazar, 2005; Daher, 1999).

Additionally, efforts like heritage tourism in As-Salt City and Jerash integrate archaeological projects for economic development, overseen by the Ministry of Tourism (MoT) and Department of Antiquities (DoA) (Daher, 2005, 2006; Khlaifat, 2019).

2) **Natural heritage studies:** the founded studies focused on preserving Jordan’s natural resources and its heritage (Al-Malabeh et al., 2007; Nigro, 2006). Ababneh’s (2016) study
emphasizes the approaches to preserving natural heritage as opposed to cultural heritage in Jordan. The preservation tactics for natural heritage in Jordan are deeply embedded in the local community, backed by numerous policies and comprehensive planning efforts. Their management, which is more sustainable and integrative, differs from archeological heritage, which is more vulnerable to change (Agnoletti, 2006).

The Royal Society for the Conservation of Nature (RSCN) plays a key role in managing natural resources in Jordan, emphasizing conservation and eco-tourism (Amr et al., 2004). Established in 1966, it collaborates with local organizations and communities to promote eco-tourism, aiming to enhance the socio-economic status of locals. They distinguished several protected areas to safeguard wildlife and endangered species, yielding eco-tourism projects and ultimately promoting the sustainable use of natural resources (Al-Saad, 2017).

3) Cultural heritage studies: The primary focus here is on the cultural value of the landscape linked with the preservation of cultural heritage. Jordanian scholar Rami Daher (2021) critically points out the lack of a precise definition of historic and cultural landscapes in contemporary Jordan. He attributes this to the absence of protective legislation, comprehensive management strategies, and clear intervention guidelines, leading to the neglect and deterioration of cultural landscapes (Daher, 1999). Therefore, he offers a unique view, defining cultural heritage as a “social process through which any human artifact/site can be deliberately invested with memorial function and incorporated in the definition of heritage” (Daher, 2021, p. 839).

Architectural heritage emerges as a sub-category within this category, recognized and conserved as an integral part of Jordan’s modern identity (Al-Asad et al., 1997; Daher,
2013; Rjoub, 2016). Stakeholders, including architects and developers, often promote repurposing heritage buildings for profit, typically targeting affluent demographics (Al-Asad et al., 1997).

Daher (2005) recommended approaches for cultural landscape preservation:” 1) multidisciplinary engagement to comprehend the value for protection, 2) collaboration among various cultural heritage agencies, including academics, activists, and research centers, and 3) community involvement” (Daher, 2021, p. 849).

4) **Landscape of culture studies:** The studies on this topic emphasize the importance of intangible cultural heritage, which includes practices, expressions, and knowledge (UNESCO, 2003, p. 2). The concept of intangible cultural heritage gained prominence in 2003 with UNESCO’s focus on these aspects. Although the Jordanian government is tasked with managing all aspects of cultural heritage, tangible and intangible, inefficiencies in coordination among governmental bodies have led to mismanagement and disconnection of locals from their heritage (Petrillo, 2019).

The Ministry of Culture (MoC) in Jordan established the Department for Intangible Cultural Heritage (ICH) in 2010, though challenges in legislation and documentation persist. A 2009 assessment of their progress by Mediterranean Living Heritage (MedLiHer) identified significant gaps in effective legislation and documentation necessary for ICH protection and management. The lack of studies and inventories underscores the need for better guidance and fostering interest in ICH (MedLiHer, 2009).

The work of Abu-Khafajah & Rababeh (2012) in exploring intangible heritage and narratives at archaeological sites offers a notable example. Their critique of Jordan’s traditional approaches highlights the often-overlooked importance of intangible aspects in
cultural heritage management, pointing out how this oversight hinders engagement between local scholars and communities in archaeological contexts (Abu-Khafajah & Rababeh, 2012).

The post-industrial landscape and industrial heritage have been falling into these four categories, showing scarcity and fragmentation, emphasizing the need for more studies.

2.1.4.1 Challenges Towards Industrial Heritage in Jordan

In contrast to the gradual recognition of industrial heritage in Jordan, especially following the emergence of post-industrial sites across the Kingdom, it is still in the early stages of embracing this concept. While Jordan’s industrial heritage may not be the first topic that comes to mind in the discussions of cultural heritage, its significance is deeply intertwined with geological heritage, archeological findings, and the natural elements associated with its industrial emergence.

Post-Industrial sites in Jordan are scattered across the Kingdom, encompassing urban, rural, and deserted areas. These sites feature mines, aqueducts, industrial towns, canals, railways, bridges, factories, and other elements. Many industries that collapsed have left traces of their heritage, such as the abandoned cement factories in Fuhais and mining sites in Rashadieyah and Mahes, which present contested landscapes due to ownership disputes, landscape alterations, and environmental hazards. The importance of the industrial landscape comes from the need to preserve its history and its role in the evolution of a community and its cultural heritage.

In Jordan, four main approaches to recognizing and preserving industrial heritage include documentation, collaboration with governmental institutions, public awareness, and heritage building reuse (AlRayyan et al., 2019; Daher, 2021; Obeidat & Miqdady, 2021). Unfortunately, the preservation narrative in Jordan often lacks historical context, potentially overlooking post-industrial landscapes.
Challenges in safeguarding the industrial heritage within post-industrial landscapes in developing countries, including Jordan, arise from a complex interplay of economic, social, and environmental factors, contributing to the vulnerability of these historic sites.

Economic pressures often prioritize rapid industrialization and urban development over heritage preservation, diverting resources toward contemporary projects. The significant financial burden associated with restoration, conservation, or adaptive reuse projects further hinders these countries’ ability to allocate funds, posing a significant obstacle to industrial heritage preservation. Despite progress, Jordan is still exploring the potential reuse of these sites, influenced by public perceptions and legal frameworks prioritizing environmental considerations.

In contrast to developed nations with established frameworks guiding the preservation of industrial heritage, developing countries, including Jordan, struggle with the absence of formal definitions and standardized approaches for post-industrial landscapes. Moreover, the lack of universally accepted criteria to determine the significance of post-industrial landscapes complicates the identification of sites worthy of preservation, hindering decision-making processes related to heritage protection. The absence of protective legislation leaves industrial heritage susceptible to neglect, demolition, or incompatible redevelopment, lacking clear guidelines for developers and local authorities.

Additionally, a lack of public awareness about the historical value of post-industrial landscapes contributes to their neglect. Without an informed and engaged public, there is insufficient pressure on authorities to prioritize the preservation of industrial heritage and to collaborate with experts in the field of industrial heritage preservation. The absence of professionals with knowledge and skills impedes the development and implementation of effective conservation strategies.
Addressing these challenges requires a concerted effort to develop comprehensive definitions, legal frameworks, and awareness campaigns tailored to the unique contexts of developing countries. Only through such initiatives can these nations hope to safeguard their industrial heritage within the dynamic landscape of post-industrial transformation.

2.1.5 Summary

- In conclusion, the concept of post-industrial landscapes transcends physical spaces, encapsulating the intricate interplay of economic, social, environmental, and cultural changes that unfold in regions once dominated by industrial activities.
- The complexity of post-industrial landscapes extends beyond their physical attributes to encompass aesthetic, environmental, and cultural dimensions. Navigating the complexities of post-industrial landscapes requires a multifaceted approach to development, acknowledging the interconnectedness of economic, social, environmental, and cultural dimensions.
- The diverse cultural meanings and perceptions associated with post-industrial landscapes, varying across different contexts, underscore the importance of acknowledging their multifaceted significance.
- Recognizing post-industrial landscapes as integral components of cultural landscapes necessitates understanding their historical and socio-cultural contexts.
- The historic urban landscape approach, industrial archaeology, and the natural environmental approach are among the diverse strategies employed in managing post-industrial landscapes. In Jordan, challenges include economic pressures, lack of definitions, and public awareness.
- Perceptions of post-industrial landscapes influence their development and management, with Western studies showing diverse perspectives.
Addressing these challenges requires comprehensive definitions, legal frameworks, and awareness campaigns tailored to developing countries’ contexts.

Bridging knowledge gaps and fostering public engagement are essential for safeguarding industrial heritage within the dynamic landscape of post-industrial transformation.

2.2 Approach: Parkification and Landscape Transformation

The parkification process for post-industrial sites involves converting former industrial areas into urban parks, transforming them into green and public recreational spaces, typically overseen by municipal or governmental authorities (Zhou, 2022). While the term “parkification” is not widely used, it has been part of several approaches for transforming post-industrial sites, including greening, afforestation, regeneration, and adaptive reuse (Al-Jariri, 2020; De Sousa, 2014; Heatherington, 2017; Kristiánová et al., 2016; Maantay & Maroko, 2018).

In this study, parkification explicitly denotes the process of transforming previously developed sites into urban public parks.

2.2.1 Landscape Transformation of post-industrial sites

The landscape transformation of post-industrial sites is a multifaceted endeavor encompassing various strategies and processes. Heesche et al. (2022) investigate four key landscape-based strategies: reuse, porosity, re-naturing, and open-endedness, each aligned with distinct theoretical perspectives. These strategies, addressing heritage, socio-cultural use, environmental, and processual considerations, involve spatial, complementary, multi-scalar, and temporal dimensions. While the study doesn't identify a singularly dominant strategy, it underscores the intertwining nature of these approaches and their reflection of democratic and sustainable values. However, conflicts can emerge, such as reconciling increased human activity with wildlife preservation or preserving historical structures amidst re-naturing efforts.
Pukowiec-Kurda (2023) further contextualizes landscape transformation within the broader processes of suburbanization, re-industrialization, and the abandonment of agriculture, all contributing to shifts in urban and rural landscapes. This transformation aligns with the principles of parkification, repurposing industrial spaces into green and recreational areas to meet environmental and leisure needs.

Moreover, the dissertation explores contrasting approaches to urban renewal, highlighting the tension between project development and design processes and advocating for more experimental and speculative design strategies. By adopting a landscape perspective, the inquiry into urban transformation emphasizes dynamic, relational landscapes shaped by ongoing management and adaptation rather than static fixes, reflecting a pragmatic approach to sustainable development.

2.2.1.1 Approaches of Parkification in Post-Industrial Sites

This approach of transforming disturbed sites into urban parks has been employed in redeveloping brownfields in Europe and North America since the 1960s, marking a significant shift in perspectives on post-industrial site redevelopment and contributing to the global evolution of parkification strategies (Shackel & Palus, 2006). This convergence of post-industrial site redevelopment and integration of green spaces into cities primarily aimed to spur economic development, enhance environments, and provide recreational opportunities in underserved neighborhoods (Modica & Solero, 2022).

As local governments and stakeholders view post-industrial sites as potential green space locations, urban greening initiatives gain momentum, mainly through park establishment (De Sousa, 2006).
Studies highlight the benefits of transforming post-industrial sites into public parks, going beyond providing recreational spaces to include enhancing urban aesthetics, promoting healthier environments, increasing property values, providing ecosystem services, supporting wildlife habitats, aiding climate change adaptation, and offering various other advantages (De Sousa, 2014; Kristiánová et al., 2016; Maantay & Maroko, 2018; Wu & Liu, 2023).

The resulting parks offer a practical solution for reintroducing greenery and reclaiming lost spaces in expanding cities (Kristiánová et al., 2016). These parks present social and cultural benefits, particularly when sites hold historical and cultural value despite potential environmental challenges (De Sousa, 2010).

The effectiveness of adopting the parkification approaches hinges on how developers and key actors perceive and interpret post-industrial sites. In Germany, the redevelopment of these sites into urban parks is guided by idealizing industry, treating industrial artifacts as integral components of historic landscapes, recognizing post-industrial sites as distinctive areas with specific vegetation and an urban-industrial ambiance (Höfer & Vicenzotti, 2012). It integrates industrial ruins as landmarks through adaptive reuse, influencing the creation of notable industrial urban parks worldwide, such as Duisburg Nord Park, Phoenix West Park, Gas Pipe Park, New York City’s Highline, and Staten Island’s Fresh Kills (Li, 2023; Pulatkan, 2021). Diverse design strategies further enrich the development of these urban parks.

Parkification studies focused predominantly on the park and its design strategies. Lee’s (2019) exploration of transformed urban parks in a Korean context reveals the approaches employed by landscape architects, considering industrial structures as aesthetic objects and repositories of memory throughout the parkification process.
This strategy aims to establish green urban parks to safeguard post-industrial cultural heritage. However, challenges persist due to the absence of a well-developed plan to comprehend the specific conditions of each site and community culture, coupled with a lack of legislation to ascertain the value of these sites.

Despite the benefits of parkification, conflicts can emerge associated with the heritage and cultural values of post-industrial sites, potentially leading to misinterpretation of industrial heritage and risk-preserving structures. Therefore, developers often created these parks as memorial sites in a pleasant environment, incorporating green areas to document the positive and negative aspects of the site’s industrial history.

While this transformation can be advantageous for existing communities, it may inadvertently attract different users and businesses, potentially leading to social exclusion and the loss of these sites’ unique identity and heritage. A case in point is the Kalkbrottet limestone quarry in Malmo, Sweden, which was converted into a nature reserve and public park, illustrating the dynamics and challenges associated with the parkification process of post-industrial sites and ecological preservation (Sandberg, 2014).

This transformation reveals two contrasting perspectives: parkification aligning with environmental gentrification, primarily benefiting affluent residents, and parkification striving to balance ecological preservation with public engagement, emphasizing the industrial history of the quarry. This project reflects a broader trend in post-industrial landscape redevelopment, stressing efforts to preserve and showcase industrial heritage. Analyzing the driving forces of these projects underscores the complexities and tensions inherent in the parkification process, striking a balance between competing interests and visions for the post-industrial site’s future while highlighting the
potential for inclusive and dynamic spaces that celebrate industrial heritage while fostering community engagement.

However, the planning and implementation process of parkification becomes more complex when addressing post-industrial sites. Challenges include a diverse array of partners, the need for collaboration among stakeholders with different goals, substantial time requirements for planning and implementation, and high costs associated with site assessment and cleanup. These challenges necessitate collaboration among various stakeholders, including local and upper levels of government, the private sector, non-governmental organizations, and community-based groups.

Moreover, community participation is crucial, influencing decisions related to greening and parkification projects, often extending into long-term management and maintenance. Despite financial challenges, many cities pursue parkification decisions for benefits such as new recreational sites, economic revitalization, and improved community appeal (De Sousa, 2010).

2.2.1.2 Protecting the Industrial Heritage with Parkification

Parkification has demonstrated its pivotal role in safeguarding industrial heritage while redeveloping post-industrial sites (Lankton & Reynolds, 1985; Luis Loures, 2008b; Mieg & Oevermann, 2014). The transformation of these areas into urban parks presents an opportunity to address environmental and economic considerations and conserve and showcase the historical and cultural significance embedded in industrial structures (Berg & Stenbro, 2015).

Through integrative design methods and adaptive reuse, parkification actively contributes to the protection of industrial heritage, allowing these sites to serve a dual purpose—functioning as green spaces for the community and standing as living monuments to the region’s industrial history (Lee, 2019).
Many attempts have been made to protect the industrial heritage by transforming these sites into urban spaces as an appropriate base for various welfare, cultural, and recreational activities. Still, they have mainly focused on the conservation of industrial architecture (Tefagh & Yarmand, 2018). Recognizing the values of industrial architectural heritage helps the scientific management of cultural industries, as the integration of industry and culture reflects the new need for development in the cultural industry and as a communication model for interactive development for cultural heritage service.

However, the primary driving force lies in the close relationship between industrial heritage and local communities, fostering an attachment that serves as the source of social identity for the citizens of the city, compelling them to protect it (Krzysztofik et al., 2022).

Mieg & Oevermann (2014) summarized the discourses of planning practices in transforming industrial sites of industrial heritage into three categories: heritage conversation, architectural production, and urban development. Those three discourses mainly overlap within its transformation process into urban parks. Building from literature and cases, parkification of post-industrial sites that aim to protect industrial heritage highlighted various methods that have emerged from the park design itself, as follows:

a- Preservation through adaptive reuse: Parkification has carried out the adaptive reuse of existing industrial structures, repurposing them for various functions within the park rather than demolishing them. This adaptive reuse helps retain the physical manifestations of industrial history.

b- Interpretive elements: to ensure that the narrative of industrial heritage is not lost but actively communicated to the community, many urban parks developed through parkification incorporate interpretive elements like informational signage, exhibits, or
guided tours that educate visitors about the historical significance of the industrial structures.

c- Architectural conservation: The design process of parkification can prioritize the conservation of significant architectural features of industrial buildings. Integrating these features into the park’s layout helps maintain the authenticity of the industrial heritage, creating a seamless blend between the natural environment and historical structures.

d- Cultural programming: Urban parks resulting from parkification efforts can host cultural events, exhibitions, and educational programs related to industrial history. This dynamic use of the space ensures ongoing engagement with the heritage, fostering a sense of pride and connection within the community.

e- Community involvement: Parkification projects can actively involve the local community in decision-making processes and programming. Engaging the community ensures that diverse perspectives are considered and local knowledge about the park’s industrial history is integrated into its development.

f- Sustainable practices: Parkification often emphasizes sustainability, incorporating green infrastructure and eco-friendly design. This commitment to sustainability aligns with the historical practices of many industrial sites and establishes a connection between past and present, highlighting the evolution of environmental consciousness.

g- Documentation and digital preservation: Parkification projects can leverage technology to document and preserve the industrial heritage in the digital age. Digital archives, virtual tours, or interactive displays within the park can provide accessible platforms for showcasing the historical evolution of the industrial landscape.
Tourism has played a significant role in influencing the parkification of post-industrial sites. As these sites transform into urban parks, the potential for attracting tourists becomes a crucial factor in decision-making processes. Integrating industrial heritage into parkification projects creates unique attractions that draw visitors interested in exploring these landscapes’ historical and cultural narratives (Khalil & Elgohary, 2020).

By embracing these methodologies, parkification emerges as a comprehensive strategy that revitalizes post-industrial spaces into valuable community assets and actively safeguards and celebrates the embedded industrial heritage within these sites.

Preserving industrial heritage during the transformation necessitates a multifaceted approach, incorporating various methods such as documentation, mapping, oral history, digital technologies, conservation planning, and public awareness initiatives (Högberg, 2011; M. Jamhawi et al., 2021; Oevermann, 2020). It’s important to note that these methods were predominantly used for preserving industrial heritage, not necessarily in the parkification process dealing with heritage.

The harmonious application of these methods establishes a robust preservation strategy that reveres the diverse aspects of industrial heritage throughout the transformation journey of parkification. If applied to parkification projects, these integrated approaches might successfully achieve a balance that preserves, honors and protects industrial heritage within urban parks. Yet, there is a limited body of studies addressing the role of parkification in preserving industrial heritage.
2.2.1.3 Parkification: Landscape, Mechanism & Dynamics

The parkification of post-industrial landscapes is intricately linked to the broader concept of landscape transformation and its inherent processes of change. Change, a fundamental aspect of landscape dynamics, is shaped by the continuous interplay between natural processes and human activities, particularly those with spatial competence, such as landownership (Antrop & Eetvelde, 2008).

Environmental changes in post-industrial landscapes have been a primary catalyst, leading to landscape transformations embodying increasingly complex processes within our environment and society. These changes are perceived not only as environmental threats concerning quality and sustainability but also as challenges to existential values, encompassing diversity, identity, and preserving character and heritage. This recognition has fueled a growing interest in studying landscape changes and their historical development, giving rise to new analytical concepts (Modica & Solero, 2022).

This change can evolve as a redevelopment solution, as Antrop refers to these changes as “mechanisms of landscape transformation,” manifested in various forms, including functional urbanization, private greenways, parkification, and reforestation, underscoring the multifaceted nature of landscape transformation processes, particularly in the context of post-industrial spaces undergoing parkification (Antrop & Eetvelde, 2008, p. 184).

These changes can be intensive changes characterized by rapid but static transformations, often market-driven, or extensive modifications driving slower, subtle, and progressive transformation, mainly focusing on open spaces and ecology-based intervention (Marcello Modica, 2023).
The changes and mechanisms that overarch the parkification decision are often reactive and spurred by public demands for environmental remediation and expanded green spaces, as well as opposition to alternative development forms (De Sousa, 2014). Meanwhile, other factors contributing to this transformative shift include governmental initiatives prioritizing sustainable urban development, growing awareness of green spaces’ mental and physical health benefits, and an evolving understanding of the economic and social advantages of repurposing post-industrial sites. Therefore, understanding the process of parkification necessitates grasping the dimensions of change, involving impact and causes, whether natural, human, or combined, and the related actors and decision makers for this act of landscape transformation.

By delving deeper into the dynamics of parkification, we can unravel its potential as an integrated solution for protecting industrial heritage. In a way, these dynamics can be in the form of knowledge, representation, and critical interpretation towards uncovering the evolution of the landscape (Belardi et al., 2023). This exploration aims to elucidate the various dimensions through which parkification contributes to safeguarding historical and cultural significance, examining adaptive reuse, interpretive design, community engagement, and sustainable practices as common components in this intricate process. In doing so, we delve into the nuanced decision-making processes involved in parkification, emphasizing the need for a holistic and inclusive approach that embraces the complexities of preserving industrial heritage within the evolving fabric of urban environments (Cizler, 2014).

While there are no specific studies on the parkification process for post-industrial sites, this research integrates elements from various frameworks, including landscape and cultural landscape evolution. The decision-making and planning process for the rehabilitation of industrial derelict sites should also consider a comprehensive understanding of the historical development of the
industrial landscape, its relationship with the surroundings, and its significance to the locals, as it represents multiple layers of cultural activity and contributing to the identity of a people and place (Loures & Burley, 2012). In this respect, local participation is a factor in the success of the planning process.

Many decision-makers, professionals, and related actors adopted a holistic landscape planning approach, underscoring the need for practitioners to analyze site conditions from a landscape and historical perspective, inspect the impacts of planning and design based on individual perceptions, and incorporate feedback to refine decisions and methods in landscape regeneration.

Li (2022) identifies three crucial aspects that define the regeneration process of post-industrial sites. First, from a landscape perspective, the process should extend beyond mere structures, integrating natural resources, urban elements, and human interventions. This integration becomes integral to cities’ social, spatial, cultural, and technological history, connecting historical dimensions to future sustainable redevelopment.

Second, from a landscape ecology point of view, the predominant focus is place-making through landscape planning and design during the urban regeneration of post-industrial sites. Third, from a human relationship point of view, the study suggests understanding how people perceive the environment and assessing their attitudes after changes occur in their surroundings.

Therefore, Li outlines a continuous process of landscape regeneration for urban industrial heritage sites, presenting a conceptual framework for evaluation, Figure 2.2. This framework involves place-making through landscape planning, design, ecological restoration, environmental perception, and assessment of renewed sites (Li, 2022).
Cole and others (2023) conceptualized landscape decision-making as a collective governance process that requires the collaboration of key stakeholders. They advocate for a multi-methodological approach, employing various lenses such as site transformation, power and market gain, ecosystem services, place-based identity, and eco-centric perspectives (Cole et al., 2023). Each lens provides unique insights, evidence, solutions, and pathways to action in landscape decision-making.

(Gong et al., 2022) adopted a cultural landscape evolution approach to study the decision-making process encompassing pattern, function, process, mechanism, and scale. This approach delves into the spatial-temporal arrangement of landscape elements, their interaction with ecological processes, and the driving forces behind their evolution, considering economic, political, social, cultural, and technological factors. Cultural landscape evolution is a “multi-scale socio-economic process influenced by actors at various levels” (Gong et al., 2022, p. 4).

Understanding this evolutionary process is crucial for developing, protecting, and managing cultural landscapes. Gong et al. (2022) constructed a framework with three layers—

![Figure 2.2: The process of landscape regeneration of urban industrial heritage sites, Adapted from “Landscape Regeneration of Urban Industrial Heritage Sites Towards the Human Factors Perspective: Perception and Assessment” by Li, 2022, P.5.](image)
landscape, mechanism, and dynamics—to empirically examine the process, as shown in Figure 2.3.

This framework acknowledges the role of actors in steering the continuous evolution of cultural landscapes, with both positive and negative impacts. Actors’ behavior is identified as the primary driving force, either strengthening or deviating from the existing evolutionary path. The evolution of cultural landscapes and the behavior of associated actors is embedded in specific economic, social, and cultural contexts at different scales.

Figure 2.3: A framework to examine the parkification processes of post-industrial sites in Ruseifa. Adapted as described by Gong et al. (2022) in their study The Evolutionary Process and Mechanism of Cultural Landscapes: An Integrated Perspective of Landscape Ecology and Evolutionary Economic Geography, figure 1, p.5.

Understanding the process involves recognizing the evolved actors and their landowner, spatial, and territorial competencies. Landowners primarily drive tangible changes, while spatial competence belongs to municipalities, local management boards, planning authorities, or higher administrative levels. Territorial competence, possessed by numerous actors, poses a challenge in contemporary landscape planning and management (De Sousa, 2014). Landscape decisions, perceived as having local impacts, are influenced by strategies, decisions, and policies at larger
scales. However, decision-making often lacks inclusive participation, contributing to a deficit in stakeholder and community involvement.

Redeveloping post-industrial sites involves diverse actors with varied objectives, making it a complex topic. Achieving socially equitable planning, including all affected parties, is crucial for sustainability standards. Inclusive decision-making processes are necessary to address participation deficits and ensure the success of post-industrial reclamation projects (Cerreta et al., 2016).

2.2.2 Summary

- The exploration of parkification processes for post-industrial sites encompasses diverse dimensions, involving both landscape transformation and the intricate decision-making processes associated with it.
- Parkification refers to the conversion of former industrial areas into urban parks, typically overseen by authorities, and is intricately linked with landscape transformation.
- The multifaceted approaches to parkification, spanning greening, afforestation, regeneration, and adaptive reuse, have evolved globally since the 1960s, focusing on economic development, environmental enhancement, and recreational opportunities. The benefits of this transformation include providing recreational spaces and enhancing urban aesthetics, promoting healthier environments, increasing property values, supporting wildlife habitats, aiding climate change adaptation, and offering various other advantages.
- However, the parkification process has challenges, including conflicts related to heritage and cultural values, potential social exclusion, and the loss of unique identities.
- Parkification plays a pivotal role in safeguarding industrial heritage while redeveloping post-industrial sites, with diverse strategies such as adaptive reuse, interpretive elements,
architectural conservation, cultural programming, community involvement, sustainable practices, and digital preservation.

- These strategies contribute to protecting and celebrating industrial heritage, turning these areas into living monuments that serve as green spaces for communities and repositories of historical significance.

- The decision-making processes involved in parkification are complex, requiring collaboration among diverse stakeholders, considering local perspectives, and addressing challenges such as time requirements, high costs, and potential conflicts.

- The harmonious integration of various methods, including documentation, mapping, oral history, and digital technologies, can establish a robust preservation strategy, aligning parkification with the preservation of industrial heritage.

- Recognizing the complexities and tensions inherent in the parkification process is essential for striking a balance between competing interests and visions, ultimately fostering inclusive and dynamic spaces that celebrate industrial heritage while engaging the community.

### 2.3 Process: Decision-Making Processes

Decision-making is “a cognitive process of human behaviors in which a preferred option or a course of action is chosen from among a set of alternatives based on specific criteria” (Wang & Ruhe, 2007, p. 74). It is also “a set of activities through which a decision-maker determines the objectives, identifies and evaluates alternatives, and selects an alternative” (Herrmann, 2015, p. 162).

Since it is mainly a cognitive process, many disciplines have studied the process from a behavioral and human aspect, suggesting models for the decision-making process. In that aspect,
researchers perceive everyday decisions as a “repetitive application”; therefore, it can be applied to various decision-based systems; they have suggested structured processes to follow (Wang & Ruhe, 2007, p.73).

Decision-making processes can also be studied from an organizational perspective, investigating rationality or from a procedural activity to choose the final decision from different alternatives (AL Khalidi, 2018). Organizational decision-making can be seen as “the process of identifying and solving problems,” which includes two stages: “problem identification and the problem solution” (Daft, 2015, p. 468).

From a rational aspect of the process, Hastie defined the decision-making process as a judgment process to “combine desires (utilities, personal values, goals, ends, etc.) and beliefs (expectations, knowledge, means, etc.) to choose a course of action” (Hastie, 2001, p. 655). According to him, making a good decision entails determining which steps or behaviors increase preferable outcomes under idealized conditions. (Hastie, 2001, p. 660).

Most of the empirical literature on the decision-making process can be categorized into three main groups: cognitive studies on the process, social studies on group decision-making, and organizational decision-making process (Mintzberg et al., 1976). All these studies suggest a formal process and structured steps as an outcome for the analysis. Therefore, various decision-making processes for different situations have been developed into steps (Herrmann, 2015). According to that, and given the variety of decision-making processes, a decision-maker’s first step is to choose an appropriate decision-making process for situations where a formal technique is needed.

Decisions can be categorized into *descriptive* and *normative* (Wang & Ruhe, 2007). They both attempt to describe the behavior of human decision-making, where descriptive focuses on how people make decisions based on experimental observations and empirical behavior studies.
In contrast, normative is focused on making decisions based on a rational and well-defined preference (Edwards & Fasolo, 2001).

On the other hand, organizational decisions can be categorized as *programmed* or *nonprogrammed* (Daft, 2015). Programmed decisions are repetitive and well-defined; it obtain well-structured procedures and decision rules. Meanwhile, the nonprogrammed ones are novel, poorly designed, and rely on the decision-maker’s experience and rational process. It mimics the *unstructured decision process* that Mintzberg referred to, in which “no predetermined and explicit set of ordered responses exists in the organization” (Mintzberg et al., 1976, p. 246). With many factors and attributes influencing the process, such as spatial, political, social, and economic matters, few studies on the organizational decision-making process focus on one topic.

Daft has stated that organizational decision-making is a social process where most of “the decisions are not made logically and rationally” (Daft, 2015, p. 431). They tend not to follow the known systematic steps of analysis of the problem, analysis of alternatives, and implementation. Contrary to popular belief, they are marked by conflict, coalition formation, trial and error, speed, and errors.

### 2.3.1 Current Frameworks for Decision-making Processes

One of the frameworks to consider when studying the decision-making process is the context of the process. Context, in which the decisions are made, can affect the type and outcome of the process. According to Herrmann (2015), decision-making can occur within five different contexts: *simple, complicated, complex, chaotic, and disorder contexts*.

Each has a process that can be implemented for them. Since the context is beyond the decision-maker’s control, identifying the context and selecting the appropriate decision-making
process will avoid the risk of making wrong decisions. The following Table 1.1 is the recommended process for each of the contexts mentioned:

1- *The simple context*: the process requires clear and direct communication among the decision-makers.

2- *The complicated context*: the process must seek professional guidance and listen to potentially contradictory information.

3- *The complex context*: the process must search for patterns and generate ideas.

4- *The chaotic context*: necessitates making many decisions in a short period of time. Decision-makers must find solutions to restore order.

5- *The disorder context*: decision-makers must separate issues from one another, identify the relevant context for each, and respond appropriately.

Table 2.1: Types of decision-making context and process. Adopted from “Engineering Decision Making and Risk Management” by Herrmann, 2015, p165.

<table>
<thead>
<tr>
<th></th>
<th>Simple</th>
<th>Complicated</th>
<th>Complex</th>
<th>Chaotic</th>
<th>Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause-and-effect</strong></td>
<td>Clear cause-and-effect relationships are evident to everyone, and there are repeating patterns and consistent events.</td>
<td>are knowable but not obvious, expert diagnosis is needed.</td>
<td>Unpredictable and dynamic and full of unknowns and many competing ideas.</td>
<td>High turbulence</td>
<td>Multiple ideas and stakeholders produce a cacophony of many voices, making it difficult to recognize.</td>
</tr>
<tr>
<td><strong>Required actions for the process</strong></td>
<td>Clear and direct communication</td>
<td>Expert opinions and listening to possibly conflicting advice</td>
<td>The process must look for patterns and generate ideas</td>
<td>Requires making many decisions in a short time. Decision-makers must reestablish order</td>
<td>Decision-makers must disentangle concerns from one another, determine the context in which each is significant, and respond appropriately.</td>
</tr>
</tbody>
</table>
For post-industrial sites in developing countries, the contexts of the decision-making processes range from complex to disorder contexts. Therefore, it is important to choose and execute an appropriate decision-making process according to these studies to ensure a successful decision-making process. Other factors that can influence the process and its alternatives are cost, time of the process, amount of information used to make the decision, and number and quality of other options considered.

While having a myopic view can lead to poor decisions, rational and reasoning strategies should be incorporated into the action taken during the process, which is “to act with the maximal expected value until there exists now with a positive value” (Herrmann, 2015, p. 163). The actions within the decision-making process also refer to searching for alternatives, generating alternatives, gathering information, and testing potential solutions. Each action has some value based on whether it leads to a better solution and the cost of the time needed to act.

With that being said, Mintzberg showed that the decision-making process is “not a simple sequence of tasks but involves iterating between different types of activities that occur in three phases: identification, development and selection” (Mintzberg et al., 1976, p. 166). Those three phases are common steps in most of the studied decision-making processes.

Furthermore, the decision-makers gather data within this phase to establish goals and objectives. The development phase entails the main steps of the decision-making, such as the research, study, and design of alternatives. The final step is the selection, which involves actions such as screening, evaluation, and authorization. Those phases may overlap and not proceed logically, resulting in a series of small decisions over an extended period (Herrmann, 2015).
Decision-making is a dynamic process that includes several cycles and routines to reach a final decision. At the same time, routines support these cycles during the process and might impact the final result (Mintzberg et al., 1976).

However, studying final decisions, excluding the process will not help in understanding the decision-making process, as it includes perceptual, emotional, and cognitive processes that humans seek within the dynamic process; it should entail the overall steps that led to the choice of a decision (Svenson, 1979).

Researchers identify general steps common in most of these models; for example, a model by Clemen and Reilly has the following seven steps: 1. Identify the decision situation and understand the objectives. 2. Identify the alternatives. 3. Model the problem, the uncertainty, and the preferences. 4. Choose the best alternative. 5. Conduct a sensitivity analysis. 6. Decide if further analysis is needed 7. Implement the decision (Clemen & Reilly, 2013). These can pour directly but in different arrangements towards the understanding of these processes.

Other frameworks influencing our understanding of the decision-making process, either by identifying approaches or types for decision-making processes, have been identified. Herrmann (Herrmann, 2015) and Daft (Daft, 2015) suggested four main approaches to studying the decision-making process as follows (Herrmann, 2015, p. 165):

1- The *management science approach* relies on a mathematical model to identify the relevant decision variables, including constraints, and optimize an appropriate objective function to find the best solution.

2- The *Carnegie model*: describes decisions as the outcome of a process in which decision-makers form a coalition by talking about the problem, agreeing on the organization’s goals,
sharing their opinions, defining the problem, and recruiting others who support their position.

3- The *incremental decision process model* focuses on the activities during the decision-making process.

4- The *garbage can model* describes decision-making in a rapidly growing and changing organization. It is “organized anarchy,” ambiguity, organizational goals are poorly defined, and positions have high turnover (people do not stay in the same place for long). The lack of relevant history means no one can accurately predict the outcomes of different alternatives (Herrmann, 2015, p. 165).

In this research, we argue that the fourth type is the main type that is being used in developing countries with a growing economy. Each has its set steps and cycle adopted in organizational settings.

2.3.1.1 Decision-Making Processes for Developing Post-Industrial Landscape

Managing the post-industrial landscapes focuses on protecting and redeveloping them with industrial activities for cultural continuity. It brings future development opportunities by reclaiming these sites, their recognition, and redevelopment (reuse, preserve, restore, conserve, or reconstruct). It can be achieved through different actions that shape the decision-making process, such as policy making, initiating development projects, land use assignments, cultural heritage configurations, and tourism and community investment projects.

Post-industrial landscape comprises “the remnants of industrial culture of historical, technological, social, architectural or scientific value, which include all kinds of industrial structures, buildings and sites accompanying the industry, such as workers’ housing estates, as well as industrial landscapes, products, processes and documentation of the industrial society”
(Chmielewska, 2007, p. 133), decision-makers tend not to be dealing with these sites. In certain situations, the choice of destruction, in most cases, is the easy decision, mainly because it is not considered worthy of protection, and many decision-makers fail to see its value.

Not to mention, these sites have a substantial economic, environmental, and aesthetic impact on their surroundings, the environmental issues connected with their industrial activities and size and unique infrastructure that requires specific qualifications to manage before deciding what to consider as a development plan (KolejKa; et al., 2017).

Numerous actors are involved in the decision-making process when managing post-industrial sites: political representatives at various levels (local, regional, national, etc.), private entrepreneurs, and the community, as illustrated in Figure 2.4. It also involves professionals and experts from several disciplines (architecture, urban planning, geography, economics, etc.) as well as stakeholders actively participating in this process (support or opposition) and, most notably, local municipalities with their human and power resources (Klusáček et al., 2011).

![Figure 2.4: Stakeholders' interactions influence brownfield redevelopment in developed countries. Adapted from “The post-industrial landscape in relation to local self-government in the Czech Republic” by Klusáček et al. in 2011, p. 20.](image)

However, success in understanding the redevelopment of the majority of neglected sites depends on decisions made at the municipal level. The municipality’s role is very important because they have the most detailed information about the potential of the area and surroundings,
problems and needs, and assigned roles. The main actors in decision-making include “The
decision-makers, the decision staff, and the content experts and implementers” (Hastie, 2001, p.
659).

Those actors are not only within the municipalities but have a corporation with other bodies
of public governmental entities and levels, and the information provided by the municipalities
should be open and available to all stakeholders actively participating in the decision-making
process associated with post-industrial redevelopment.

The interaction between various groups indicated the distinct relationship between the local
government and the post-industrial landscape since many industries collapsed and new
developments were needed. Klusáček (2011) navigated this relationship and pointed out the main
barriers or obstacles that municipalities face when they choose to implement the redevelopment
process, mainly: “limited competencies, misuse of power and the preference for financial
opportunities, in addition to that most of these sites are owned by private entities. Regarding the
decision-making process, the lack of database, investors, and different expectations create clashes
and conflict, which delay the process” (Klusáček et al., 2011, p. 26).

A recent study navigated the procedure for post-industrial landscape management in terms
of identification, classification, and initial assessment of these sites in a European context. They
believed the current decision-making process lacked data on the actual geographical definition of
the territory of the post-industrial landscapes in that context.

The researchers demonstrated a methodology for mapping these sites, their classification,
and their impact on decision-making. They based the mapping on existing data of “man-made
landforms, land use, brownfields, mined sites, contaminated sites, and industrial, architectural
heritage, etc.” (KolejKa et al., 2017, p. 237). This study concluded with an outline, content, and
description of areas of these mapped landscapes to help decision-makers decide about future post-industrial landscapes.

Other decision-making processes tackled the analysis of several values that need to be considered when dealing with post-industrial sites. In addition to the difference, they deal with these sites’ public/private nature. Therefore, most decision-making processes are multi-attribute and multi-value, dealing with various values and benefits (Ferretti et al., 2014).

Several techniques were considered in research to study the process of decision-making using quantitative methods such as the multi-attribute value theories, the multi-criteria decision analysis, and the analytical hierarchy process combined with GIS (F. Liu et al., 2018; Cerreta et al., 2016; Ferretti et al., 2014; Nadkarni & Puthuvayi, 2000).

These studies showed that these methods could provide “references for heritage decisions, and they can provide a better understanding of the current heritage situation” (Cerreta et al., 2016, p. 219).

For example, the multi-attribute value theories consist of the following five steps: “defining and structuring the objectives and related attributes; identifying alternative options; assessing the scores for each alternative in terms of each criterion; modeling preferences and value trade-offs; ranking of the alternatives” (Ferretti et al., 2014, p. 664). It offers an approach to deal with decision problems, “taking into account available technical information and stakeholders’ values and Decision-making processes in the context of cultural heritage projects” (Ferretti et al., 2014, p. 644).

Another study by Claver and others (2018) highlighted using multi-attribute value theories in cultural heritage decision-making in emerging countries, as shown in Figure 2.5. That faces limited resources and economic considerations. It provided it with a checklist of elements that can
support planners and decision-makers in understanding which buildings/sites are valuable to preserve and conserve.

A study by Georgieva (2018) suggested a tool that guides the decision-making process regarding the most appropriate methodology for reusing industrial assets using an analytical hierarchy process and multi-criteria decision support technique (use of experts). It studied the result of the process to assess its usefulness for future development rather than the process itself.

The focal point of concern lies not solely in the actual park or the design strategies that facilitate the protection of industrial heritage within these sites. Instead, the emphasis is on comprehending the intricate processes that have led to the decision of parkification.

![Figure 2.5: Assessment methodology for industrial buildings. Adapted from “Decision-Making Methodologies for Reuse of Industrial Assets” by Claver, Garcia-Domínguez and Sebastián in 2018, p.3.](image-url)
2.3.1.2 Decision-making Processes in Developing Countries

Scholars have not paid enough attention to decision-making in emerging countries. Regarding economic decisions for development projects, most studies have shown that the decision-making process is externally influenced (Conteh & Ohemeng, 2009, p. 58). Developing countries like Jordan rely on external aid and donors such as the World Bank, the United Nations, and the International Monetary Fund (IMF) for many of their development projects nationwide. Ruseifa has had her share of residential projects and infrastructure rehabilitation.

Those international have become powerful instruments in spreading and forcing Western ideas onto these countries’ governmental policies and development projects (Conteh & Ohemeng, 2009, p. 62). In some cases, the decision-makers might play a minimal role in reshaping policies and management plans. For example, privatization and emphasis on economic growth rather than development might affect the decision-making process and the policies already in existence for the benefit of the projects. As a result, developing countries might follow the best global practices due to conditions required by external influences (Conteh & Ohemeng, 2009). Even though developing
countries have the human resource and administrative capacities to design policies that meet their needs, not all processes are the same.

Therefore, it has been argued that policies and decision-making are affected by the economic and political sphere, yet they are locally administered and managed. In contrast, developed countries with sufficient economies have long-term experience redeveloping these sites (Conteh & Ohemeng, 2009, p. 62). To limit that kind of assumption, it is useful to understand how the decision-making process is articulated with different economic criteria in developing countries (Klusáček et al., 2011).

2.3.2 Summary

The section above provides a nuanced exploration of decision-making processes, particularly in the context of post-industrial landscapes. It recognizes the multifaceted nature of decision-making involving various stakeholders, contexts, and challenges. The inclusion of both developed and developing country perspectives adds richness to the discussion, highlighting the need for adaptive and context-specific decision-making approaches.

- Decision-making is defined as a cognitive process in which a preferred option is chosen from a set of alternatives based on specific criteria. It involves identifying objectives, evaluating alternatives, and selecting the best course of action.

- Organizational decision-making is viewed as the process of identifying and solving problems, involving stages of problem identification and problem solution.

- Decisions can be categorized as descriptive (based on empirical studies) and normative (based on rational and well-defined preferences). Organizational decisions can be programmed (repetitive and well-defined) or nonprogrammed (novel and relying on experience).
- Decision-making occurs within different contexts, including simple, complicated, complex, chaotic, and disorder contexts. Each context requires a specific decision-making process, such as clear communication, seeking professional guidance, searching for patterns, making rapid decisions, or separating issues.

- Different frameworks exist for studying decision-making processes, considering factors like context. Various models and approaches, such as the management science approach, Carnegie model, incremental decision process model, and garbage can model, offer different perspectives on decision-making.

- Decision-making for post-industrial landscapes involves protecting and redeveloping these sites, considering factors like cultural continuity, policymaking, development projects, and land use assignments. Multiple stakeholders, including political representatives, private entrepreneurs, communities, and professionals, play a role in decision-making.

- Challenges in decision-making for post-industrial sites include limited competencies, misuse of power, preference for financial opportunities, private ownership of sites, and clashes among stakeholders.

- Decision-making in developing countries is influenced externally, with reliance on international aid and donors for development projects. Economic and political influences may shape policies, and decision-makers might have a limited role in reshaping plans.
CHAPTER THREE: RUSEIFA & POST-INDUSTRIAL SITES

This chapter introduces the post-industrial landscapes within the context of Ruseifa City. While the term *industrial landscape* encompasses a broad spectrum of economic, social, and physical changes in areas transitioning from industrial to post-industrial status, a *post-industrial site* specifically denotes locations often marked by disused industrial facilities or structures.

In the Ruseifa context, this chapter unveils an industrial heritage intertwined with various post-industrial sites, including those examined in the case study. This heritage is deeply rooted in the history of Jordan and Ruseifa, with the government playing a pivotal role in developing and transforming post-industrial sites and their landscapes.

The selection of the three post-industrial sites in Ruseifa is particularly significant, considering their simultaneous conversion into urban parks in 2020. These sites have remained closed and undeveloped for the past five decades. The landscape transformation within these sites has been profoundly dynamic, ushering in changes to the city’s landscape, the environmental context, and the residents' satisfaction both during their industrial operations and after the cessation of industrial activities. The three identified sites are as follows:

Site 1) The Pepsi Pond site was transformed into an Environmental Park.

Site 2) The phosphate ore landfill area site was transformed into an Environmental Park.

Site 3) The old phosphate mines & administration buildings site, proposed to be transformed into a Geo-heritage Park.

The data shared here is a compilation of a literature review, informal interviews with policy and decision-makers in Ruseifa, Zarqa, and Amman, archival documents, reports, public articles, and governmental studies.
3.1 Ruseifa and Post-Industrial Landscape

3.1.1 Ruseifa City Overview

Ruseifa city is situated northeast of Amman in Jordan and is governed by Zarqa Governorate, Figure 3.1. Initially known for its lush agricultural terraces along the Zarqa River, the city has evolved into a major industrial hub following phosphate discovery in the 1930s.

By 2015, it became Jordan’s fourth-largest city, with more than 481,900 inhabitants, predominantly Jordanian citizens (DOS, 2015). While recent census data is unavailable, authorities estimate the Ruseifa population to be approximately one million residents as of 2020 (Municipality, 2020).

![Map of Jordan and Ruseifa city within the Zarqa governate. Illustrated by Author 2023](image)

Despite being a relatively new city, Ruseifa’s strategic location carries a rich history dating back to the early 1800s, characterized by agricultural and natural retreat, referred to as “Utl eZarqa and Ruseifa (the uncultivated land of Zarqa and Ruseifa)” (Razzaz, 1987, p. 3). The city lies along the Hejaz Railway, indicating its important location within the Arab peninsula. The Hejaz Railway,
constructed in 1903 by the Ottomans, played an important role in the discovery of phosphate ore in the region (Khafajah & Al Rabady, 2011).

The city’s past as a natural retreat juxtaposes its current challenges with its rich agricultural and industrial heritage. However, what was once known as an agricultural city is now a major industrial and mining area, serving as a center for various industries for neighboring cities, especially Amman.

Numerous informal interviews with the local community evoke a nostalgic description of Ruseifa in the 1950s and 60s, characterized as an oasis for neighboring cities such as Amman, Jerash, Ajlun, and Irbid. Dr. Majed Hattab, a local community member and factory owner in Ruseifa, reminisced about the city’s former glory as a natural retreat with the Zarqa River, agricultural lands, and farms owned by Chechnya and Circassians.

The area featured various recreational amenities, including restaurants, picnic areas, and parks along the riverbanks. The city was renowned for its apricot farms and other fruits and vegetables exported to Palestine, specifically Yafa, earning Ruseifa the moniker “the lung for Amman.” However, Dr. Hattab pointed out that the city’s degradation began in 1950, citing changes in its geography, the passage of the Zarqa River through the city center, high population density, and diversity as significant challenges.

Starting in 1934, the beginning of excavation for phosphate led to profound changes in the city’s landscape, symbolically and physically, due to the several mine sites that have emerged, accompanied by the establishment of numerous factories and industrial settlements in these areas.

Commercial phosphate extraction began when the Jordan Phosphate Mines Company (JPMC) was established in 1952. The company is responsible for the phosphate extraction, production, and landscape formation in Ruseifa, which has formed the economic sector in Ruseifa
(Al-Jariri, 2020). Subsequently, the government became a partner in managing the extraction, mining, and marketing operations for the phosphate industry in Ruseifa and other mines across the country.

Initially, manual tunneling and mining were employed, but this later transitioned to open-pit mining, drastically altering the city’s topography, demographics, and environment. As a result, this change had a major role in reshaping the landscape of Ruseifa and impacted the geological and cultural heritage.

The area of phosphate mines spans 13,478 dunums¹(1347.8 hectares), with 3123 dunums (312.3 hectares) within Ruseifa municipality’s boundaries and the rest under Greater Amman Municipality (GAM) jurisdiction (Alkhalailah, 2019). In 1985, both extraction and mining came to a halt, and in 2005, the company’s right to mine in Ruseifa was revoked due to environmental abuses and irregularities in the area.

When the phosphate mines were depleted, the phosphate company ceased operations on their sites, leaving behind a legacy of phosphate waste, piles, silting, tunnels, excavations, discarded materials, iron remnants, scattered railways, and electrical cables. These remnants created additional environmental, social, and urban challenges stemming from the neglected remnants of the industry (Razzaz, 1991).

One of these challenges is the changes in the city’s topography due to mining activities, which have adversely affected the city’s environment and shape. This change resulted in an area declared geologically unstable due to the excavated tunnels and mines underneath a large amount of waste and landfill of phosphate ore (Al-Jariri, 2020).

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¹ Dunum is 0.247 acre, this scale is used mainly in Jordan and the Arab region area.
The extensive expanse of abandoned and unused mines throughout Ruseifa has placed immense pressure on the city’s development. Situated between the two major cities of Amman and Zarqa, Ruseifa faces exacerbated issues of overpopulation and heightened demand for the unused mine land that has remained inactive for over four decades. The lack of an integrative master plan, effective land management, and clear ownership status, especially after cessation, have led to poorly managed sites, with the cumulative impact of the industrial waste continuing to harm the environment and the community’s well-being.

Various initiatives, such as environmental projects, changes in land use, and social programs, have been undertaken in an effort to address the impacts of these post-industrial sites. However, these attempts have been deemed inadequate, merely addressing the symptoms of the issue. Compounding the challenge are issues like ambiguity in administrative roles, insufficient financial resources, and a notable absence of local community and experts’ participation in decision-making processes. These factors collectively contribute significantly to the difficulties currently faced in addressing the challenges associated with the post-industrial sites in the Ruseifa area.
Due to the adverse effects these post-industrial sites impose on the city and its residents, several studies and reports were conducted on these effects, including environmental pollution, public health risks, and the alteration of the overall landscape (Al-Jariri, 2020; Al-Omari et al., 2019; Al-Tarazi et al., 2006, 2008; Alawneh et al., 2005; El-Naqa, 2005; WANA, 2019).

Regarding the impact of post-industrial sites, a comprehensive study conducted by AECOM\(^2\), in collaboration with the MoEnv, MoLA, GAM, and Ruseifa Municipality in 2015, aimed to address environmental concerns in Jordan (AECOM, 2015). This study sought to restore the use of lands in Ruseifa and identified six major areas in need of rehabilitation, along with the surrounding communities, as shown in Figure 3.3:

![Figure 3.3](image)

*Figure 3.3: Six areas identified in Ruseifa city by AECOM and USAID study in 2015 as critical environmental areas. Area 1: Ruseifa landfill area, Area 2: Mining pits area, Area 3: Phosphate ore pile, Area 4: Lagoon area, Area 5: Tunnels area, and Area 6: Overburden piles area. The source was the AECOM report in 2015.*

1. Ruseifa landfill area
2. Mining pits area

\(^2\) AECOM: a multinational infrastructure consulting firm, that stand for “Architecture, Engineering, Construction, Operations, and Management”.
3. Phosphate ore pile
4. Lagoon area
5. Tunnels area
6. Overburden piles area

A thorough assessment study has been conducted for areas 3 (phosphate ore pile) and area 4 (lagoon). From that time till 2020, no subsequent decisions have been made, nor have further actions been taken to rehabilitate these areas, resulting in a significant gap in addressing their environmental and cultural heritage challenges.

Another recent study by Al-Jariri (2020) highlighted the environmental and urban damage caused by the abandoned Ruseifa mine area, which covers approximately 13 square kilometers (300 hectares), underscoring the urgent need for redevelopment and active measures in implementation, guidelines, and policies, Figure 3.4.

![Figure 3.4: The Ruseifa Phosphate Mine area within the city neighborhoods and urban settlements. Adapted from the Aljariri study “Sustainable Brownfield Generation, the case of Russeifa phosphate Mines, Zarqa-Jordan” in 2020, p.6.](image)

In response to these studies and the mounting pressure from the public, several councils from the government have been shaped to address this issue over the past few years. Following King Abdullah II's order to find necessary solutions to this problem, the government called for a
comprehensive plan to rehabilitate the area. Various rehabilitation and development projects are underway to address the issues associated with these lands.

3.1.2 The Industrial Significance of Ruseifa City

Although the industrial heritage of Ruseifa is relatively recent, it has profoundly impacted the city’s cultural landscape and surrounding areas. When considered within its historical and spatial context, it forms a unique and connected industrial landscape encompassing various socio-economic, cultural, ecological, and natural elements. As a holistic industrial heritage and landscape, this industrial setting is intricately connected to the city’s natural, cultural, and historical layers, especially along the Zarqa River and its historical Hijaz railway.

The Zarqa River serves as a crucial physical link between the three neighboring cities of Amman, Ruseifa, and Zarqa, playing a vital role in the natural and industrial fabric of Ruseifa itself. As it flows through these cities, it catalyzes significant landscape transformations, particularly in Ruseifa. The river is accompanied by various industrial remnants, including bridges, dams, and water wells, which have historically provided drinking water to urban areas.

On the other hand, the Hijaz railway, constructed by the Ottomans, remains a living cultural landscape intertwined with the industrial backdrop of the region, as explored by Khafajah & Al Rabady (2011) in their study of the Hijaz Railway line as a cultural landscape, marking an essential step toward understanding this complex historical context within Ruseifa city (Khafajah & Al Rabady, 2011).

It was challenging to understand the industrial significance of Ruseifa without examining its connection to Ruseifa’s history and the communities that have settled in this area, thereby contributing to and enriching its cultural and industrial heritage. Therefore, the industrial history
of Ruseifa can be divided into two primary periods: the pre-colonial era and the post-mandate period as follows:

3.1.2.1 The Pre-Colonial Era (Before 1918)

The historical significance of Ruseifa goes back to the Byzantine and Roman ages, where archeological excavations were carried out under the supervision of the Zarqa Antiquities Office, discovering several artifacts and tools dating back to the Bronze, Byzantine, and Roman ages. The archeological sites help strengthen the industrial heritage significance of the city, showcasing its geological importance and the availability of raw materials, natural elements, and landscape features.

An example of a historical industrial heritage site is the As Sayah Hills, an old Roman quarry for column making, to be transported later to other locations, Figure 3.5. The physical traces of unfinished carved columns, the trajectory of shipping, and the pathway of the incomplete stone column give evidence of the industrial making of columns in that era. Yet, this site has been left out with no further management or preservation, although pointed out by archeological and geological experts.

![Figure 3.5: As Sayah Hill site. Source, Ammar Khammash, 2021](image)

Moreover, the village of Ruseifa served as a station on the historic Roman road “Trajan” road, which connected Petra, the Gulf of Aqaba, and Bosra al-Sham south of Syria (Blake & King,
1972). This road is one of the best-preserved stretches of Roman road to be found anywhere; however, the population growth in Ruseifa has gradually exerted pressure on this tribute, leading to the deterioration and destruction of parts of the road along the densely populated industrial corridor (D. Kennedy, 1997).

In the pre-colonial era, the Circassians were among the first settlers in modern Ruseifa, arriving in the Balqa region between 1878 and 1906 during the rule of the Ottoman Empire. They established small settlements in various areas, including Amman, Wadi Seer, Seweileh, Jerash, Naour, and Ruseifa, which later became Transjordan in 1921 (Shami, 2009). These immigrants fled the Russian state and settled in agricultural farming communities along the Zarqa Riverbanks (Shami, 2009). They also played a role in laboring on the Hejaz railway, contributing to the local economy through agriculture, barley transportation, construction work, railway guarding, and obtaining positions in local administration (Shami, 2009).

The Bedouins constitute another significant cultural group that influenced the shaping of the Ruseifa area. Initially nomadic, they sought refuge in Ruseifa to access water and food after losing access to the Jordan Valley, first under Ottoman rule and later during the British mandate (Razzaz, 1992). Gradually, Bedouins settled on cultivated land, often by raiding agricultural and tribal communities for subsistence. Pastoral tribes competed with local peasants and Circassians for water and pastureland (Shami, 2009).

These communities played a pivotal role in shaping the early industrial landscape by establishing water wells, bridges, canals, and agricultural farming tools. They also contributed to the construction of the Hejaz railway itself. Then, the discovery of phosphate in 1908 by geological scholars, before its extraction in 1935, marked a significant turning point in the city’s development, creating an industrial heritage history for Ruseifa (AlRayyan et al., 2019).
3.1.2.2 Post Mandate - Transjordan 1918-Now

In the post-mandate era, the establishment of Transjordan marked the rise of the modern country, while in Ruseifa, the discovery of phosphate marked the rise of the modern city. It led to the establishment of the mining industry and many factories, including the yeast factory, the glass factory, and the Pepsi factory, providing opportunities for Ruseifa residents and spurring residential neighborhood projects for low-income workers’ families (Alawneh et al., 2005).

Today, the remaining phosphate outcrops and abandoned factories between the Zarqa riverbank and the Hijaz railway hold local scientific and economic significance and narrate their genesis (AlRayyan et al., 2019).

Additionally, the city of Ruseifa experienced significant population growth as a result of three major waves of immigration that occurred within relatively close time frames. These waves of immigration played a pivotal role in shaping the city. They consisted of:

1. The Nakba in 1948: This event led to the displacement of Palestinians from their homeland due to the Israeli occupation of Palestine.
2. The setback in 1967: This resulted in the displacement of hundreds of thousands of people from the West Bank and Gaza Strip.
3. The return of expatriates from the Gulf after the Gulf War in 1990.

These waves of immigration predominantly concentrated in the northeastern area of the Amman-Ruseifa-Zarqa conurbation, giving rise to a significant Palestinian refugee camp in Ruseifa known as Hittin camp, also known as Schneller camp, founded and run by the United Nations (UN) and the United Nations Relief and Works Agency (UNRWA) following the 1967 Israeli occupation. This informal settlement in the southern part of Ruseifa overlooking the Zarqa River has exerted urban pressure on the emerging city and created land tenure complexities for Transjordan tribal citizens in the area (Hohl, 2015; Razzaz, 1991).

These complexities in landownership accelerated in the late 1960s when Palestinian refugees residing in camps approached tribal landowners in northern Ruseifa to purchase land at affordable prices. This transaction led to complications in land tenure and urban development plans for the city. To address these challenges, the Urban Development Department (UDD)\(^3\), in collaboration with the World Bank, initiated several projects to upgrade crowded neighborhoods and establish new residential projects in Ruseifa.

These projects aimed to provide affordable housing, essential infrastructure, and community facilities to low-income groups with minimal subsidies, ensuring their replicability, including in the northern parts of Ruseifa (The World Bank, 1980). A prominent project from these efforts was completed in Ruseifa during the first Urban Development Program (UDP) in 1986, accommodating tens of thousands of residents in Ruseifa and nearby communities (Oesch, 2010). Moreover, the return of expatriates from the Gulf region, mainly settled in the northern part of the

\(^3\) UDD was established in 1979 with the support of the world bank. It was the first serious attempt by the government to address the need for middle- and lower-income housing in Jordan.
city, led to the development of additional neighborhoods in Ruseifa to accommodate the returning Jordanians such as Al-Qadisiyah, Al-Rashid, and Jafar Al-Tayyar.

Consequently, the urban sprawl of Amman gradually merged toward Ruseifa and Zarqa, connecting both cities as one urban entity (Ababsa, 2013). To capitalize on this synergy, the Ministry of Municipal Affairs attempted to merge Ruseifa’s boundaries within Amman's municipal boundaries to benefit from its solid authoritative structure. However, the proposal didn’t go through (Malkawi, 1996).

The northern part of the city holds numerous archaeological sites, manifested in the Jureiba area in the north, which is an archaeological site dating back to the Roman, Byzantine, and Islamic periods, contributing to a rich historical and archaeological heritage that demands preservation, as shown in Figure 3.7. Unfortunately, these sites have suffered from urban sprawl, vandalism, and illegal excavations due to the lack of protection and proper formal management.

Figure 3.7: Old Map of Ruseifa showing the mine areas within the Ruseifa development area in the 1960s. Adapted from “Law, urban land tenure, and property disputes in contested settlement: The case of Jordan” by O. Razzaz in 1991.
Urban sprawl and population growth led to extensive destruction of many archeological and cultural sites throughout Ruseifa, impacting various aspects of its heritage. Additionally, unauthorized excavations by individuals seeking artifacts and burials further damaged these landmarks. The lack of official interest and insufficient awareness of the cultural and archaeological heritage of Ruseifa contributed to the neglect and abandonment of these sites, a problem shared by many archaeological sites in the Kingdom.

Furthermore, this situation led to landscape changes, including the construction of new roads and alterations to the Zarqa River’s course, which compromised the city’s character. Consequently, there is an increasing urgency for cultural landscape studies and interventions to preserve the area's industrial heritage (AlRayyan et al., 2019). Therefore, initiatives, university projects, and practitioners from architectural, geological, and environmental backgrounds have proposed several counter-projects to advocate conservation. These projects have highlighted the city’s primary issues and the pressing need for action. However, the lack of funding and a clear vision from municipal authorities and those in positions of power has resulted in none of these projects being implemented.

Moreover, more studies on the impact of industrial products and remnants have underscored the importance of industrial conservation and advocated for sustainable and ecological solutions to address post-industrial remains, with many highlighting the pollution of underground water and rivers (Al-Omari et al., 2019; Alqadi et al., 2016).

In summary, the transformation of Ruseifa was marked by the rise and decline of phosphate mining, which reshaped its landscape and caused environmental and social issues. These layers of history and significance manifest the need for a cultural landscape focused on Ruseifa within the context of industrial development. The historical significance of Ruseifa, from its early
agricultural roots to its industrialization and the impact of the Palestinian refugee influx, underscores the city’s complex cultural landscape evolution, requiring thoughtful study and management.

![Figure 3.8: Ruseifa map in 1992. Source: GAM](image)

### 3.1.3 Planning Practices and Land Ownership on Post-Industrial Sites

Ruseifa City encompasses an extensive area of 38 square kilometers, equivalent to 3800 hectares, and is overseen by the Ruseifa municipality. Ruseifa is under the administrative jurisdiction of the Zarqa Governorate, which means there is an organizational hierarchy of two primary municipalities: the local municipality of Ruseifa City and the governorate municipality of Zarqa Governance. Beyond the local levels, these municipalities are under the administrative role of the Ministry of Local Administration (MoLA).
The organizational structure of the municipality in Ruseifa is integral to the city’s functioning, and it has undergone a significant transformation. Initially established as a village council in 1957, it was elevated to the status of a municipality in 1965 (Municipality, 2020). Since its inception, 20 councils and committees have guided the city’s growth and development. Moreover, GAM owns many areas of land within the Ruseifa boundary, adding another complex layer to the governance structure.

Ruseifa stands out regarding land ownership, presenting a unique characteristic not found in other Jordanian cities. According to the vice mayor of Ruseifa, “The city of Ruseifa faces a distinctive challenge that sets it apart from all other cities in the Kingdom, and that is the issue of land ownership. Ruseifa possesses a peculiarity that is absent in any other city due to the existence of four distinct types of land.” D10, Ruseifa Municipality.

These four types of land ownership in Ruseifa include:

- Lands owned by individual citizens are characterized as privately owned lands.
- Lands belonging to the state treasury.
- Concession lands of the Phosphate Company.
- Privately owned land held by the Phosphate Company.

These land ownerships are immersed and surrounded by most of the city’s well-served neighborhoods with all the necessary infrastructure services, including water, sewage, electricity, communications, internal paved roads connecting neighborhoods, and main thoroughfares linking it to other Jordanian cities, as shown in Figure 3.9.

Three major roads traverse the city: the southern part is connected to the Airport Road, the central area is served by King Hussein Street (Amman-Zarqa Old Road), and the northern part is connected by King Abdullah II Street (Yajouz).
Policies pertaining to industrial sites are primarily centered around defining the land use and function within these areas; however, there is a notable gap in addressing what happens to these sites once they are no longer in operation. The head of the planning department at GAM has indicated that while it may be challenging to alter a site's land use designation, it is possible to modify its categorization within the industrial land use classification assigned to the zone.

Figure 3.9: An illustrated map of Ruseifa city shows the phosphate mine area and surrounding urban neighborhoods. Adapted from the study “Treating and rehabilitating the impacts resulting from phosphate mining in the Ruseifa area” by Alkhalailah in 2019, p.13.

In the case of Ruseifa, what sets it apart is the absence of a designated land use category for post-industrial sites. However, land use planning and land ownership in Ruseifa are undergoing significant changes with the introduction of a new master plan. This lack of land use recognition
stems from the fact that these vast sites are government-owned treasury lands\textsuperscript{4}, which has unfortunately resulted in numerous encroachments and unauthorized activities.

Furthermore, developing strategies to develop these sites is still in a developmental phase, and they face various emerging challenges in environmental, natural, and cultural management. Strategies tailored to meet these evolving needs are recommended. Applying best practices in managing the industrial landscape in Ruseifa reveals a long way to go.

To effectively manage the various aspects of the metropolitan area, Ruseifa is divided into eight distinct administrative districts, each with its responsibilities and functions, as described in Table 3.1. This division helps streamline the governance and management of Ruseifa, excluding the Hittin refugee camp, ensuring that the diverse needs of the city and its residents are addressed efficiently (Ruseifa Municipality, 2020).

Most of the decisions made are within the planning department of the municipal institutions, mainly at Ruseifa Municipality, overseen by the MoLA. Therefore, it is important to understand the level of the planning process in Jordan before indulging in the focused process of managing post-industrial landscapes.

Table 3.1: The administrative districts of Ruseifa city area and population source the municipality of Ruseifa 2020 and (DOS, 2020)

<table>
<thead>
<tr>
<th>District</th>
<th>Hittin District</th>
<th>Ameriya District</th>
<th>Yarmouk District</th>
<th>Qadessiya District</th>
<th>Rasheed District</th>
<th>Alkarama District</th>
<th>Ajnadeen District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area (km\textsuperscript{2})</td>
<td>6.890</td>
<td>4.105</td>
<td>3.579</td>
<td>3.890</td>
<td>6.170</td>
<td>7.052</td>
<td>5.265</td>
</tr>
<tr>
<td>Population</td>
<td>150,831</td>
<td>120,436</td>
<td>150,158</td>
<td>130,356</td>
<td>120,354</td>
<td>30,000</td>
<td>50,000</td>
</tr>
</tbody>
</table>

\textsuperscript{4} Treasury-owned land is land or property owned by the government treasury or finance department of a country or government entity.
Most of the decisions made are within the planning department of the municipal institutions, mainly at Ruseifa Municipality, overseen by the MoLA. Therefore, it is important to understand the level of the planning process in Jordan before indulging in the focused process of managing post-industrial landscapes.

In Jordan, the planning process encompasses four primary levels: national, regional, structural, and local planning. The municipality takes on the role of overseeing local and structural planning, focusing on cities, villages, and neighborhoods.

Conversely, the Ministry of Local Administration (MoLA) and the Ministry of Planning Affairs (MoPA) are responsible for regional and national planning. Although this research does not directly address the planning aspect of the decision-making process, it serves as a valuable resource for understanding the policies and the influence of power dynamics on the management plans of post-industrial sites.
Table 3.2 below outlines the four levels of the planning process in Jordan.

<table>
<thead>
<tr>
<th>Statutory planning level</th>
<th>Responsible institution</th>
<th>Planning outcomes</th>
<th>Scale of implementation</th>
<th>The temporality of the planning level</th>
</tr>
</thead>
<tbody>
<tr>
<td>National planning level</td>
<td>Jordanian Government</td>
<td>General policies in various urban, industrial, economic, and agricultural aspects.</td>
<td>The national level, Jordan</td>
<td>More than 30 years could be contingent upon the political changes following governmental reformulations.</td>
</tr>
<tr>
<td>Regional planning level</td>
<td>The Ministry of Planning Affairs, the Ministry of Municipalities, Higher Planning Council</td>
<td>Strategic policies following national policies, though specified for certain characteristics of each region, according to the existing economic, and natural variables in relation to the distributed population in each region</td>
<td>Three main regions (north, centre and south), within governorate</td>
<td>30 years</td>
</tr>
<tr>
<td>Structural planning level</td>
<td>Municipalities</td>
<td>Spatial plans of different economic and environmental activities, distribution of land use for social, cultural, vocational and industrial purposes, as well as the definition the zones of new urban expansions.</td>
<td>Cities and villages</td>
<td>15-20 years</td>
</tr>
<tr>
<td>Local planning level</td>
<td>Municipalities and their local district departments</td>
<td>Detailed plans for certain areas of the city, in addition to decisions about direct interventions actions.</td>
<td>Neighbourhoods and local districts</td>
<td>5-10 years</td>
</tr>
</tbody>
</table>

In 2020, three development projects were initiated at post-industrial sites in Ruseifa, primarily aimed at rehabilitating the area by transforming it into urban parks. Although the management plan and the process of parkification were not publicly shared or consulted, the implementation and construction of these parks have fostered a positive attitude within the community. These projects reflect the government’s efforts to address the negative impacts of these sites over the past years. Before delving into these sites and their parkification projects, it is essential to understand what constitutes a park within the Jordanian context.
3.1.3.1 Parks in Jordan

In Jordanian legislation, parks fall under public open spaces, serving various functions, including relaxation, recreation, wildlife preservation, and the preservation of natural and agricultural resources. It’s worth noting that Ruseifa city classifies post-industrial sites as “parks and green areas,” a distinction not explicitly made in the Amman master plan and regulations. The Greater Amman Municipality states that public open spaces are physical areas for social interaction.

Jordan faces challenges related to a scarcity of green spaces, inadequate distribution of parks, and a lack of attention to their design. The problem is further exacerbated by urban sprawl and the density of buildings, which limit residents’ access to parks. Particularly in the capital, the population has increased by approximately 400,000 over five years (2017-2022) (Al-Zawahra, 2022). However, the number of parks in the city has only increased by one during the same period, resulting in 143 parks, translating to one park for approximately every 32,000 residents (Al-Zawahra, 2022).

The Ministry of Local Administration’s legal definition of a park states: “A park is an urban space formed from the land as a base for the space and from natural components (soil, topography, water, plants, animals) and structural components (roads, squares, drawers, fences, pergolas, benches, sitting rooms, lighting devices). These components form the boundaries of the space, and they are distributed within the urban space based on fixed foundations and rules and according to a clear design plan” (Ministry of Local Administration, 2022).

According to the Greater Amman Municipality, a public open space is a “physical space where people can meet for social interaction” (GAM, 2008). The Amman plan categorized different types of parks as open spaces, as illustrated in Table 3.3.
The concept of parks is considered a basis for understanding landscape architecture in Jordan. This concept differs from the familiar concept among people, which limits the meaning of the word to public gardens fenced from the outside, such as the urban public parks in cities. However, the concept of parks here includes urban open spaces planted or cultivated within and around residential complexes. A recent study that investigated the success of formal public open spaces in the Zarqa City of Jordan has affirmed the presence of inadequate public open spaces and identified poor design decisions that rendered these spaces undesirable for use (M. D. Jamhawi et al., 2020).

Table 3.3: The open space Hierarchy according to GAM master plan, 2008

<table>
<thead>
<tr>
<th>Open Space Category</th>
<th>Uses</th>
<th>Approximate Population Ratio</th>
<th>Size (dunums)</th>
<th>Average Service Area Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Park</td>
<td>Includes natural areas as well as formal parks with active and passive recreational uses, including sports fields. Parking should be allocated onsite.</td>
<td>1 per 300,000 residents</td>
<td>400 to 4000 and above</td>
<td>Approximately 3.2 km</td>
</tr>
<tr>
<td>Area Park</td>
<td>Includes natural areas as well as areas for recreational activities such as playgrounds, sports facilities and fields. Portions of these parks should also be kept as open area that can be used for community celebrations.</td>
<td>1 per 45,000 residents</td>
<td>100 to 600</td>
<td>Approximately 1.2 km</td>
</tr>
<tr>
<td>Neighbourhood Park</td>
<td>Some natural areas with focus on community playgrounds, gardens and sitting areas. These parks should be designed to accommodate community celebrations and 10% of these neighbourhood parks should be allocated entirely for urban agriculture.</td>
<td>1 per 5000 residents</td>
<td>≤ 100</td>
<td>Approximately 400 m</td>
</tr>
<tr>
<td>Linear Open Space</td>
<td>Includes pedestrian paths and linkages/corridors amongst natural areas and parks. Includes major wadis and streamways.</td>
<td>variable</td>
<td>variable</td>
<td>variable</td>
</tr>
</tbody>
</table>

Some studies have studied the emergence of open spaces and parks in Jordanian cities, describing their conditions and categorization (Aljafari, 2014; Jamhawi et al., 2020; Khawaja, 2015). While parks are part of the open spaces system outlined in the Amman master plan and regulations, post-industrial sites have not been explicitly recognized as open spaces within this framework. Nevertheless, Ruseifa city is considering categorizing these sites as parkland use.
Accordingly, the definition of a park applied in the transformation of post-industrial sites in Ruseifa into urban parks aligns with that of all urban parks and open public spaces in Jordan, characterized as follows: An urban public park in Jordan is a municipally managed, freely accessible outdoor space designed for recreational use by the public, enclosed by fencing and featuring various natural and structural components.

In the upcoming section, we will explore the three selected sites for this study that share a common characteristic of post-industrial sites undergoing transformation projects to urban parks.

3.2 Case Study Areas: Transformed Post-Industrial Sites

In 2020, three distinct post-industrial sites in Ruseifa underwent dramatic transformations, repurposing them into new land uses as urban parks. A map showing their location within the city of Ruseifa is illustrated in Figure 3.11.

*Figure 3.11: The three designated parkification projects of Ruseifa post-industrial sites. Illustrated by author, 2023.*
This study has chosen these sites as case study areas to explore the processes, events, and key factors driving their transformation into urban parks. Check the timeline of events in APPENDIX H for each site.

Notably, each project adopts a unique approach to its parkification. These differing approaches reflect diverse values and development objectives specific to each site. A brief overview of the selected sites, highlighting their unique characteristics and previous approaches for their management, will be provided in this section.

3.2.1 The Pepsi Pond Site

This site is an industrial pond formed on a natural water stream since the 1970s. It was created due to the phosphate mining activities that happened in that area. Later on, it was used by the Pepsi factory to clean their Pepsi bottles utilizing the water of the stream that used to flow from Wadi Marka (a rainwater catchment area south-west to the lagoon) into the Zarqa River (north-east of the lagoon). It served its purpose for a certain time; however, its formation obstructed the flow of the natural stream and led to its contamination by the waste from the phosphate mining activities.

The obstruction, which arose from industrial and mining activities in the area, has resulted in a complete blockage of water flow, creating a stagnant pond behind it. Over time, the lagoon has become heavily polluted with industrial and domestic sewage from the insufficient infrastructure of Hittin’s neighboring camp, debris, trash, and other contaminants.

The situation at the site has significantly deteriorated, exacerbated by the refugee crisis, which placed unprecedented pressure on the surrounding wastewater network, resulting in more sewage leakage into the lagoon. This blockage led to flooding during heavy rains, with sewage
mixing into the stormwater, resulting in contaminated water accumulating and flowing into the Pond.

The problems associated with the formation of the lagoon began 40 years ago, prompting numerous complaints from the surrounding communities. Since then, several consultants and technical committees representing various stakeholders recommended different solutions to address the Pepsi Pond site problem. These pollution issues primarily stem from the accumulation of stagnant water mixed with the sewage system of the nearby refugee camp.

<table>
<thead>
<tr>
<th>The pond area</th>
<th>35 dunum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total site area</td>
<td>197 dunum</td>
</tr>
<tr>
<td>Landowner</td>
<td>GAM</td>
</tr>
<tr>
<td>Al-Farah Park</td>
<td>18 dunum</td>
</tr>
<tr>
<td>Designer</td>
<td>Engicon</td>
</tr>
<tr>
<td>contractor</td>
<td>Symbols of the Saudi Gulf Union Company and the Spanish Terratest Group</td>
</tr>
<tr>
<td>Funded by</td>
<td>European Bank for Reconstruction and Development (EBRD)</td>
</tr>
<tr>
<td>Zarqa river responsibility</td>
<td>Water Authority of Jordan</td>
</tr>
<tr>
<td>Surrounding neighborhoods</td>
<td>Hittin camp, haveeqa and fakhoura neighborhoods</td>
</tr>
<tr>
<td>Neighborhood population</td>
<td>48,000 on an 84km2</td>
</tr>
</tbody>
</table>

**Figure 3.12**: Satellite images of the Pepsi Pond site before and after parkification. The table shows general information for the site and parkification project. Developed by author, 2023.

As shown in Figure 3.12, the entire Pepsi Pond site area covers 197 dunums (17.5 hectares), with 35 dunums (3.5 hectares) for the pond area. Even though the site is situated within the jurisdiction of Ruseifa City, it falls under the responsibility and oversight of the GAM as the
landowner. The site is adjacent to the Hittin camp from the east and Fakhourah and Hadeeqa neighborhoods from the south and west, accommodating 48,000 residents.

To address the issues stemming from this site, GAM has implemented short-term measures as the landowner to mitigate them, including constructing a protective fence around the site to prevent accidents and illegal dumping. Additionally, GAM annually pumps out the collected water and sprays the site to combat pests and insect-related problems affecting the neighborhoods. However, all endeavors to resolve the issue have failed to yield a lasting and sustainable solution.

The main factors contributing to the environmental predicament, as outlined by the executive director of the engineering department at GAM, are summarized into three key reasons:

- There are various factories in the vicinity, including the Pepsi factory, which has been discharging waste into the site and utilizing it for product cleaning.
- The proximity of the Hittin Palestinian refugee camp resulted in mixing sewage water with the rainwater collection system, causing pond flooding with contaminated water.
- Lack of maintenance of the existing culverts by Ruseifa Municipality.

GAM indicated that contamination wouldn’t pose a problem if the water flow were consistent, as sewage levels, compared to rainwater, do not lead to pollution concerns.

*Figure 3.13: The Pepsi Pond area before the parkification project, images taken from Engicon in January 2023*
Efforts to collaborate with stakeholders and relevant entities, such as the Water Authority of Jordan, have been made by GAM, but these attempts have gone unanswered. Given their status as landowner, GAM believes it is their responsibility to devise a solution.

### 3.2.1.1 Pepsi Pond Site Parkification project

GAM’s initial solution was to transform part of the site, 18 dunums (4.5 acres), into Alfarah Park. The main goal was to give back to the community some of the negative impacts of this Pond. Constructed in 2008, this park reclaimed a portion of the Pond’s territory, including a multi-purpose building, a football playground, and tree planting.

![Site images for the engineering infrastructure project at the Pepsi Pond site. Engicon provided these photos during the June 2022 and Jan 2023 site visits.](image-url)
Phases two and three of Alfarah park project, which encompassed tree planting and the construction of a rainwater tank, did not materialize. This park was fenced to control access to the site. Alfarah Park faced challenges such as inadequate design, insufficient lighting, and security issues, which led to vandalism and unruly behavior, discouraging residents from using the park. Even with the construction of this park, it didn’t solve the main environmental problem at the Pepsi Pond site, which has been occurring.

In 2018, following presidential instructions to find a permanent solution to the Pepsi Pond issue, GAM initiated a project to mitigate the environmental problems by restoring the Wadi and creating a recreational urban park. The project will employ micro-tunneling technology to rechannel the water and eliminate stagnant water in the Pond, followed by establishing an integrated environmental park, as shown in Figure 3.14. This park will serve as an urban, environmental, and social catalyst for the site and the local community, transforming it from a negative focal point into a positive one.

3.2.2 The Phosphate Ore Hills Site

The Phosphate Ore Hills site, located in the heart of Ruseifa and southeast of Zarqa River, presents a complex post-industrial site characterized by an extensive phosphate landfill occupying a massive area within Ruseifa. This site, nestled amidst densely populated neighborhoods, significantly impacts the city landscape and residents’ quality of life visually, environmentally, and physically, given the imposing presence of these phosphate residue hills.

With phosphate mining operations halting in the mid-1970s and ceasing completely in 1985, the repercussions have yielded enduring post-industrial legacies. This post-industry is evidenced by the presence of 7 million cubic meters of ore pills and waste, shaping hills that reached up to 30 meters in height within the urban fabric of Ruseifa.
The residents of Ruseifa have grappled with significant challenges stemming from the phosphate residue hills and remnants of past mining activities, primarily manifesting as persistent environmental issues. The industrial pollution of the Zarqa River, coupled with phosphate residues, waste dumps, and airborne phosphate dust settling in residential areas, has compounded the plight of the city’s residents. The toll on city infrastructure, air quality, and public well-being further accentuates the profound impact of the industrial and mining legacy.

Furthermore, the phosphate excavations have left huge mine pits in Ruseifa, forming high sand hills on roadsides, emitting fine sand saturated with minerals and phosphate residues into the air, posing a continual threat to the lives and health of the citizens with every passing breeze.

<table>
<thead>
<tr>
<th>Total site area</th>
<th>1795 dunum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landfill amount</td>
<td>14.7 million m3</td>
</tr>
<tr>
<td>Site Landowner</td>
<td>Treasury land, JPLC &amp; GAM</td>
</tr>
<tr>
<td>The Park site</td>
<td>75 dunum</td>
</tr>
<tr>
<td>Park site Landowner</td>
<td>Ministry of Environment</td>
</tr>
<tr>
<td>Project manager</td>
<td>Ministry of Local Administration</td>
</tr>
<tr>
<td>Park Designer</td>
<td>Al-Mostaqbal Engineering &amp; Environmental Consultant</td>
</tr>
<tr>
<td>Executor</td>
<td>Ministry of Public Works</td>
</tr>
<tr>
<td>Surrounding neighborhoods</td>
<td>Al-herafien, Alhussein &amp; Fakhoura</td>
</tr>
<tr>
<td>Neighborhood population</td>
<td>153,267</td>
</tr>
</tbody>
</table>

*Figure 3.15: Phosphate Ore Hills site before and after the parkification project. The table shows the project information. Illustrated by author, 2023.*
In 2007, a technical committee was conducted to prepare a study that addresses the environmental impacts caused by phosphate hills in the Ruseifa area. The committee, led by Ruseifa Municipality and consisting of representatives from various government entities, undertook comprehensive discussions and on-site investigations. It emphasizes the historical nature of the environmental problem, attributing it to phosphate mining activities by the Jordanian Phosphate Mines Company, and stresses the importance of finding quick and comprehensive solutions in collaboration with relevant institutions. They stated this site as a *National Problem*. Check Appendix B, T03.

The study covered concession areas spanning 14.4 km² (1400 hectares) within the administrative boundaries of the Greater Amman Municipality and Ruseifa municipality. The study observed significant changes in the region due to past mining activities by the Phosphate Mines Company, impacting the demographic, economic, social, geological, and environmental aspects. The study listed the main elements that resulted from the post-industrial activities on the site:

- **Open pit mining area**, dirt piles causing air pollution, and former landfill issues.
- **Tunnels and mining areas** pose safety risks and contribute to subsidence. There are continuous tunnels under residential buildings and existing facilities.
- **The former solid waste landfill** owned by GAM was moved to the Al-Ghabawi area, leaving behind a large area and an environmental disaster that needs to be rehabilitated.
- **Piles area**: The piles in the central part of the phosphate concession area are divided into four main categories: piles of raw materials, heaps of discards, and heaps of dirt and metal.
- **Industrial structures and building facilities**: buildings, metal hangars, and iron bridges belonging to the phosphate company are spread out and in poor architectural condition, as some of them are abandoned and falling apart, forming its presence a social problem without oversight and solutions.

- **Residential areas** within the concession face increased trespassing, and illegal structures raise social and health concerns.

![Figure 3.16: The areas of post-industrial sites of the Phosphate Company concession that need rehabilitation, Source: JPMC, 2022.](image)

In the end, as shown in Figure 3.16, the total areas of the Phosphate Company concession that are required to be rehabilitated are divided into the following:

- **Area A**: This is north of the Hijazi railway and Zarqa River and includes the Jubilee Forest, the Islamic cemetery, the northern forest, and the brick factory area. Its area is estimated at (1130) acres.

- **Area B**: This area is located east of the south of the Zarqa River up to the Amman Zarqa Highway. It has many piles, the company headquarters, and a mining mine. Its area is estimated at (1960) acres.

- **Area C**: This is the area located east of the highway and is located within the GAM contains dirt piles, large holes, a former solid waste dump, grain silos, an area for gas agencies, and others. Its area is estimated at 3730 dunums (373 hectares).
The committee recommends various measures, including the removal and rehabilitation of phosphate waste, intensified oversight, regulatory solutions for residential buildings, and a detailed study. It also suggests forming a committee for rehabilitation plan supervision, exploring funds, and addressing potential threats from abandoned structures.

In 2020, in response to a royal order from King Abdullah II, the Ministry of Local Administration (MoLA) established another ministerial committee that initiated the rehabilitation and parkification project for this post-industrial site. The primary objective of the project was to rehabilitate the site, relocate phosphate ore hills, level the site to restore the original ground level, and remediate the soil in preparation for afforestation and planting.

3.2.2.1 Phosphate Ore Hills Site Parkification project

From 2020 to 2022, the extensive post-industrial sites underwent a remarkable transformation, evolving from an industrial site into an urban park. This parkification project unfolded in three phases: rehabilitation, parkification, and afforestation.

The rehabilitation phase entails the relocation of approximately 3.5-4 million tons of accumulated phosphate at Ruseifa’s southern end, opposite the Hittin camp. Simultaneously, nearly 2,000 dunams (200 hectares) of treasury-owned lands are being rehabilitated, as shown in Figure 3.17.

![Figure 3.17: Before and after images for the Remnant removal of the Phosphate Ore Hills site project. Source: Jordan Phosphate Mine Company PLC presentation, 2022.](image)
The Jordan Phosphate Mine Company (JPMC) has taken the lead in this endeavor, aligning with its social responsibility to rehabilitate areas impacted by the phosphate company’s operations since the early 1930s.

In the parkification phase, the focus is on transforming 75 dunums (7.5 hectares) of the site into an urban park, known as the “Environmental Park,” as presented in the master plan in Figure 3.18. The Ministry of Local Administration, the Ministry of Environment, and the Ministry of Public Works jointly oversee the creation of this park, a central component of the project. The Environmental Park is designed to accommodate picnic areas, walking pathways, playgrounds, an amphitheater, a water tank, administration offices, a multi-purpose building, restrooms, and other facilities.

![First design proposal for the Environmental Park](image)

*Figure 3.18: First design proposal for the Environmental Park. Source: Al-Mostaqbal Engineering & Environmental Consultant, 2022.*

The third phase encompasses the afforestation of the remaining rehabilitated site, involving the planting and greening of native trees capable of thriving despite the presence of phosphate residues.
Amidst the ongoing progress of this project, various challenges persist within the surrounding area. Issues such as the persistent dumping of solid and liquid waste at the ‘Amana landfill’ and the continued existence of informal settlements around targeted rehabilitation areas are hindering the project’s objectives.

In response, the committee formulated an extensive plan to rejuvenate the entire area, addressing not only the immediate project site but also tackling broader environmental concerns. The committee comprised key stakeholders such as MoLA, Ruseifa Municipality, MoEnv, MoPW, Zarqa Governate, GAM, JPMC, MoPA, and others, with some entities assuming essential roles that emerged later in the process to fulfill specific needs.

The committee addresses additional environmental issues in the phosphate ore hills site and its immediate vicinity. Given the expansive scale of the project, spanning the jurisdiction of both GAM and Ruseifa municipality, it faced extra challenges necessitating comprehensive solutions. As per the Ministry of Local Administration (MoLA), key issues and accomplishments include:

1. Al-Kamkha Landfill Resolution: A major environmental concern was addressed by eliminating odors and unauthorized dumping, enhancing both visual and environmental aspects. Efforts included managing waste, mainly from nearby slaughterhouses and stone quarry sites. GAM took decisive action by closing down the Al-Kamkha landfill in 2021 establishing an alternative site at the Al-Baida landfill.

2. Halal Market (Livestock Market) Mitigation: The Halal market in Ruseifa posed significant environmental challenges. MoLA, in alignment with its directives, formed a committee to address the concerns and identify an alternative site for relocating the current livestock market.
3. Al-Fakhoura Neighborhood Rehabilitation: The neighborhood within the project boundaries, Al-Fakhoura, faced numerous challenges from phosphate ore waste piles. MoLA initiated the rehabilitation of the main street in housing units facing the park site in collaboration with Ruseifaa Municipality.

4. Resolving land ownership issues between JPMC and treasury lands was undertaken, facilitating service delivery to approximately 300 families.

![Figure 3.19: The Environmental Park at the Phosphate Ore Hills site. Images were taken by the author, 2023.](image)

### 3.2.3 The Phosphate Old Mines & Administration Buildings Site

The Phosphate Old Mines and Administration Building site is located in the northern part of the phosphate company concession area, north of the Hijazi railway line and south of the Islamic cemetery. It includes an administration building, mining equipment, and a storage yard used by Ruseifaa Municipality. It contains large quantities of fine phosphate and several tunnels, the most important of which is the main inclined tunnel, which leans toward the northwest and is branched from within by a group of sub-tunnels with an area of the lands on which these structures are located.
The site bears witness to the early era of the Jordan Phosphate Mine Company, founded by the Kawar Family in the 1930s. Spanning an area of 51 dunums (12.6 hectares), this site serves as a living testament to the early days of phosphate mining, preserving manual mining tunnels and various structures integral to the industry’s rich history (AlRayyan et al., 2019).

Since the company’s inception in 1935, the site has undergone significant transformations due to mining activities and the construction of the company administration’s buildings, industrial structures, and a railway.

<table>
<thead>
<tr>
<th>The project Area</th>
<th>12.6 hectare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous Landowner</td>
<td>Owned by the Jordan Phosphate Mine Company.</td>
</tr>
<tr>
<td>Current landowner</td>
<td>Given to the Ministry of Culture</td>
</tr>
<tr>
<td>Jurisdiction boundary</td>
<td>Ruseifa Municipality</td>
</tr>
<tr>
<td>Project designer</td>
<td>CSNCH, German Jordanian University</td>
</tr>
<tr>
<td>Supervisor/funded</td>
<td>The Ministry of Environment</td>
</tr>
</tbody>
</table>

![Figure 3.20: The old phosphate mine and administration building site before and after the parkification. The table summarizes the project information. Illustrated by author, 2023.](image)

The site is home to six main buildings, each in varying conditions, as presented in Figure 3.21 (AlRayyan et al., 2019):

1. Phosphate Management Company Building Complex: This was constructed in 1942, with subsequent extensions in the 1970s-1980s. These buildings once served as administrative offices, notable for their modern 1940s architecture.
2. Water Tower: Located on the eastern side, this tower, though standing at approximately 10 meters in height, historically provided water for trains.

3. The old Clinic Building is an early structure symbolic of the care provided to mine workers.

4. Entrance Building: Constructed in the 1940s using rough phosphate stone, it was a guard’s house.

5. Carts Depot Building: Originally an internal rail station from the 1940s, it languishes in disrepair.

6. Silo: Concrete structures from the 1970s, initially used for storing phosphate, are currently in a state of disrepair.

![Figure 3.21: The site’s industrial building at the Old Phosphate Mine site in 2018. Image Taken by the author in 2018.](image)

### 3.2.3.1 The Old Phosphate Mine and Administration Building Site Parkification project

The site also contains several mining tunnels on both upper and lower terraces, intricately linked with the site’s historical railway system. Due to the misuse of these tunnels, Ruseifa Municipality requested that JPMC seal the tunnel’s openings. The unfortunate abandonment and
lack of maintenance, compounded by vandalism and the site’s use for car scrap storage, have led to the deterioration of its buildings and the demolition of the water tower.

Despite its disrepair and urban challenges, the site holds significant potential for revival and educational purposes. It offers a unique window into Jordan’s industrial and geological past. For those reasons, a project by a team from the Center for the Study of Natural and Cultural Heritage (CSNCH) at the German Jordanian University (GJU) was proposed to preserve and protect the industrial heritage of this site.

The project suggested transforming the site into a geo-heritage park and museum, which was presented to various stakeholders and decision-makers seeking support and funds. Adaptive reuse approaches have been employed in the design of the site and its buildings. Additionally, the design encompasses a museum that guides visitors through the area’s industrial heritage and geological significance. It includes interactive exhibits showcasing various mining techniques and tools employed in phosphate extraction.

Figure 3.22 shows the proposed diagram for the parkification project. Approval from the landowner and Ministry of Environment to transform this site into a geo-heritage park, including a geological museum, has been granted.

Significantly, the Jordan Phosphate Mines Company initially owned this site within Ruseifa City's jurisdiction. Ownership has been transferred to the Ministry of Culture as part of the initiative to convert the buildings into a cultural center within the overarching park project.
Figure 3.22: The proposed design for the Geo-heritage park. Published in From Abandoned Mines to a Labyrinth of Knowledge: A conceptual diagram for a Geo-heritage Park Museum in Jordan in 2019.
CHAPTER FOUR: METHODS & METHODOLOGY

The study employed a multi-method research approach to uncover the processes, events, and key players that evolved in transforming post-industrial sites into urban parks in Ruseifa, focusing on the driving factors behind the parkification.

The research methodology combined an exploratory case study with a qualitative descriptive approach utilizing two main qualitative data collections: semi-structured interviews and Secondary data collection. The study used these methods within a case study comparative analysis approach.

This chapter outlines the methodology and methods used in this study to collect and analyze data from various sources in alignment with the research aims and objectives. It details the research methods, data types, and data collection procedures, providing a comprehensive overview of the research design and the rationale behind adopting a multi-method qualitative approach. The chapter also details the data analysis approaches used in this study and discusses the strategies employed to ensure the rigor and trustworthiness of the data collected.

4.1 Adopting A Multi-Method Qualitative Approach

Multi-method research uses two or more distinct research methods within a single study or program (Creamer, 2017; Hunter & Brewer, 2016; Vivek & Nanthagopan, 2021). This approach provides a flexible alternative to relying solely on a single research method, offering a broader range of methodological combinations compared to mixed-method research, which integrates qualitative and quantitative methods (Creamer, 2017).

A multi-method approach allows for a deeper understanding of social phenomena by providing multiple lenses and methodologies to address complex issues (Vivek & Nanthagopan,
Additionally, it helps mitigate bias inherent in a single-method study and legitimizes mixed methods in responding to research problems (Vivek & Nanthagopan, 2021).

The interplay between qualitative and quantitative research, their relationship with interpretative and constructivist methods, and the in-depth case analysis inherent in qualitative research are central to using a multi-method approach (Collier & Elman, 2008). McKendrick (1999) identified three reasons for employing such an approach: addressing data limitations, enabling comprehensive understanding, and building audience confidence. This approach allows for a broad, comprehensive exploration of complex topics and enhances the credibility of research findings.

Common qualitative methods allow researchers to gather rich, detailed information from participants. These holistic, inductive methods employ interpretive processes, including interviews, observation, open-ended questionnaires, journaling, focus group sessions, or collecting indirect data (Whitehead et al., 2012). They provide insight into individuals’ experiences, perceptions, beliefs, and behaviors.

Using multiple qualitative methods, researchers can capture a broader range of perspectives and contextual factors, aiding in-depth exploration of complex phenomena and identifying patterns and themes (Meijer et al., 2002). The strength of the multi-method approach lies in the unique contribution of each method to understanding the research problem rather than just cross-validation (Lever, 1981).

The decision to use a multi-methods approach for exploring parkification processes in Jordan is driven by the limited availability of data, the difficulty in obtaining data due to bureaucratic constraints, and the challenge of accessing key governmental and decision-making figures without the necessary connections. Additionally, there were varied sources and locations
of similar data types, and the reluctance of public entities to permit data use presents further challenges. The research design is illustrated in Figure 4.1 below.

Figure 4.1: Research design and methodologies framework, as prepared by the author, 2023.
Given the complexity of the parkification process, the scarcity of data documenting the decision-making process, and the obstacles in obtaining formal data, a multi-method approach is crucial. This study aims to comprehend the process not only as a cognitive one but also in terms of its social, economic, and political impacts (Tracy, 2019). The lack of mapped or documented processes necessitates engaging with participants’ experiences to understand the decisions made fully. Therefore, employing a multi-method approach was helpful to analyze the intricate decisions inherent in the transformation of post-industrial sites.

Furthermore, the involvement of various decision-makers in shaping the parkification process necessitates an engagement with participants to capture their perspectives on the decisions made throughout the process. Relying solely on quantitative research might lead to an oversight of crucial factors and elements, as qualitative insights often provide a deeper understanding of processes beyond mere quantitative outcomes (Tracy, 2019). Thus, adopting a multi-method approach will help analyze and examine the decision-making processes associated with complex post-industrial site transformations.

4.1.1 Research Phases

This research is structured into two main phases: the preparatory phase and the empirical phase. The preparatory phase involved gaining initial knowledge and context about Ruseifa, fueled by personal experience and familiarity with the site. The study reviewed available literature and formal documents, reports, and policies related to Ruseifa’s post-industrial landscape.

This phase included a three-month preliminary field visit to Jordan in June 2022, where governmental institutions and related entities in Ruseifa, Amman, and Zarqa were visited to assess the current state of post-industrial sites and the parkification projects. This visit, coupled with
initial research, helped refine the research objectives, questions, and case study site selection. Key activities during this phase included:

- Formulating research questions.
- Developing main data collection methods and methodology.
- Selecting case study sites.
- Preparing a preliminary list of participants and establishing relationships

The empirical phase focused on implementing the methods chosen to study parkification processes in the selected case study areas within Ruseifa. It encompasses the actual application of the multi-methods approach. Various methods were employed to capture experiences from key players, mainly decision-makers and stakeholders, including government and municipal officials of Ruseifa city, as well as experts in post-industrial site development.

Two field trips to Ruseifa City in Jordan were integral to this phase. The primary data collection took place during the January 2023 visit, prioritizing interviews in participants’ workspaces after the new year to ensure availability and minimal interruptions to participants’ work. The research trip included conducting semi-structured interviews, document collection, and site visits. Follow-up visits in June 2023 addressed other emerging key players, and additional data needed were collected in person due to the ongoing construction of two parkification projects.

Upon completing the empirical phase and gathering the necessary data, the study advanced to the final phase, which involved data analysis and the development of research results.

4.1.2 Research Questions

This study is utilizing the multi-method research approach to answer three main questions:

1) How do decision-makers and other development influences in Ruseifa view and treat post-industrial sites in Ruseifa city?
2) What are the parkification processes transforming post-industrial sites into parks in Ruseifa?

3) What are the compelling issues of post-industrial sites, and how do the parkification processes address them?

A set of sub-questions was established for each question to navigate the type of data required and the method to collect these data that will help answer each question, as shown in Table 4.1 below.

Table 4.1: Research questions and sub-questions of the study.

<table>
<thead>
<tr>
<th>Main Questions</th>
<th>Sub-questions</th>
<th>Type of Data</th>
<th>Used Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How do decision-makers and other development influences in Ruseifa view and treat post-industrial sites in Ruseifa city?</strong></td>
<td>a) What are the current narratives about these sites?</td>
<td>• Interview data</td>
<td>• In-depth interviews with decision-makers</td>
</tr>
<tr>
<td></td>
<td>b) What are the specific goals and priorities of decision-makers in Ruseifa when considering the future of post-industrial sites?</td>
<td>• Documentary &amp; archival data</td>
<td>• Document &amp; Archival data review</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Field observational data</td>
<td>• Site visits &amp; observation</td>
</tr>
<tr>
<td><strong>What are the processes transforming post-industrial sites into parks in Ruseifa,</strong></td>
<td>a) What specific processes and planning strategies are employed in the transformation of post-industrial sites into urban parks in Ruseifa?</td>
<td>• Contextual data</td>
<td>• In-depth Interviews with decision-makers</td>
</tr>
<tr>
<td></td>
<td>b) What were the main drivers and reasons for the decision of parkification?</td>
<td>• Qualitative Interview data</td>
<td>• Formal &amp; informal documents review</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Documentary &amp; archival data</td>
<td>• On-site observations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Observational data</td>
<td>• Archival research</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Geospatial data collection</td>
</tr>
<tr>
<td><strong>What are the compelling issues of post-industrial sites, and how do the parkification processes address them?</strong></td>
<td>a) What environmental, social, and economic challenges are associated with post-industrial sites in Ruseifa, and how are these identified in parkification plans?</td>
<td>• Qualitative interview data</td>
<td>• In-depth interviews with decision-makers</td>
</tr>
<tr>
<td></td>
<td>b) What are the main challenges that are solved by these parks?</td>
<td>• Documentary &amp; archival data</td>
<td>• Formal &amp; informal documents Review</td>
</tr>
</tbody>
</table>

4.1.3 *Type of Data Collected*

Throughout each phase of the research, various types of data were collected to align with the research questions, their sub-questions, and the overall goals of the study.
For the first research question regarding decision-makers and development influences’ views and treatments of post-industrial sites in Ruseifa, a combination of qualitative data types was essential in both phases:

a) Interview data: Informal and semi-structured interviews with decision-makers, stakeholders, and experts in Ruseifa were conducted to gain insights into their perspectives, attitudes, and processes before parkification. These interviews were designed to explore their views and strategies for managing these sites.

b) Documents & archival data: Analysis of official documents, reports, policy statements, and development plans related to Ruseifa’s post-industrial sites provided context and insights into the narratives and strategies of decision-makers. Academic studies, historical records, and archives contributed additional background information and patterns of decision-making over time.

c) Observational data: General visits and field observations at several post-industrial sites helped identify patterns in their current states, whether abandoned, redeveloped, or reclaimed by nature. Observations were supported by photographs, memos, and informal interviews with the local community.

For the second research question regarding the parkification processes, the focus was on an in-depth study of three concurrent parkification projects:

a) In-depth interview data: Key decision-makers, planners, architects, community members, and developers involved in the transformation of the three case study sites were interviewed to gather detailed insights.

b) Documents data: The planning documents, reports, and official records of the three selected sites were analyzed. The data included urban development plans, government
policies, publicly published newspaper articles, and historical records to understand past events and decisions.

c) On-site observations data: Site visits to the case study areas were crucial for observing physical changes, construction activities, and space utilization. It also helped to uncover emerging key players involved in the parkification projects that were not publicly shared.

d) Contextual data: despite its dearth, Geospatial data, maps, and GIS data provided a spatial perspective on the location and condition of post-industrial sites in Ruseifā were collected. Additional maps and data from academic studies and reports supplementing this information also have been part of these studies.

For the third research question regarding the challenges of post-industrial sites and parkification proposals, the study employed similar data collection methods, mainly in the second phase:

1) Interview data: in-depth interviews with decision-makers and stakeholders on the vision and goals associated with the transformation of these sites into parks.

2) Documentary data: review planning documents, proposals, and official records related to parkification projects to extract information about development needs and goals.

Each data type and collection method were tailored to address the research questions and sub-questions. Ethical considerations, data management, and data analysis techniques were carefully considered for each method to ensure the validity and reliability of the findings, as detailed in section 4.2.4.
4.1.4 Research Data Collection Methods

Employing multi-method research, this study utilized two main data collection methods for three post-industrial sites: in-depth interviews and document review. The case study approach was applied to investigate three post-industrial sites undergoing parkification in Ruseifa. This method comprehensively examined compelling issues, metrics, challenges, and anticipated impacts associated with parkification within different contexts.

In-depth, semi-structured interviews were conducted with key players in Ruseifa, including representatives of local government and municipal institutions, experts, and stakeholders associated with the parkification of the three post-industrial sites in Ruseifa city. These interviews provided rich, focused insights into their perspectives, aspirations, challenges, and expected outcomes of the parkification processes.

Additionally, the study employed content analysis of various documents, as explained earlier, including institutional and governmental documents, policies, planning documents, proposals, and official records—this analysis aimed to uncover critical issues and decision-making criteria related to the post-industrial sites in Ruseifa.

Data collection methods for each phase are illustrated in Figure 4.2.

The preparatory phase focuses on background understanding, targeted information on Ruseifa’s socio-spatial and economic context, the industrial and cultural landscape, and current management strategies, including site case selection. For this phase, the data collection methods include:

a. Secondary data, archival, and document review
b. Site observations for each case site
c. Informal interviews
The empirical phase defined the research design process, articulating the study’s theoretical perspectives, methodology, and adopted methods. This phase involved data gathering during field visits, interviewing key players, and collecting secondary data. The data collection methods for this phase:

a. Secondary data, archival & documents review
b. In-depth semi-structured interviews
c. Case study sites contextual data collection
d. Field observation for case sites

### 4.1.5 Data Collection Procedures

This section describes the data collection procedures for the two data collection methods, Interview data and secondary data, including recruitment and sampling, ethical considerations, and data management relevant to each method, to ensure the validity and reliability of the findings.
4.1.5.1 Interview Data Collection

Primary data was collected through open-ended, semi-structured interviews with the leading players involved in the parkification of post-industrial sites in Ruseifà. As Secor notes, these participants are “experts from whom you hope to learn how certain practices, experiences, knowledge or institutions work” (Secor, 2010, p. 199). The goal was to interview relevant key players in the parkification processes for each case site. However, tracing each site's leading key players was a challenge. The number of participants varied depending on the emerging players for each site and the parkification project per se.

4.1.5.1.1 Research Participants

Qualitative researchers must consider certain criteria when selecting participants: sufficient experience with the phenomenon, effective communication skills, and willingness to share experiences fully (Hein, 2021). Focusing on key players in the decision-making processes, Herrmann (2015) identified five main roles for stakeholders in general decision-making systems:

1- Those who suggest alternatives by gathering, analyzing, and presenting information to the decision-maker.
2- Those who provide input when consulted information about the alternatives.
3- Those who agree by verifying that an alternative is feasible concerning their domain.
4- Those who decide and have the authority to implement decisions.
5- Those who decide by implementing the desired actions.

To explore multiple roles and perspectives, the targeted participants were divided into two groups:
• Immediate Key Players: Decision-makers and government stakeholders, offering insights into parkification processes, local governance, site conditions, decision nature, and implementation.

• Supporting Key Players: Experts and non-governmental stakeholders representing the supporting players in the decision-making process in transforming these post-industrial sites, including architects, planners, geologists, and environmentalists, provide secondary support in decision-making.

Participants were targeted before the formal interviews, where the researcher prepared a preliminary list of key informants to be solicited. Knowing the nature of the research and personal experience of study, a preliminary list in APPENDIX I of interviewees possibly involved in the transformation processes or the development of post-industrial sites in Jordan was prepared in the preparatory phase and during the first site visit in June 2022, to conceptualize the research design.

The identified key actors and decision-makers were approached and informally interviewed during the first phase to establish rapport and network connections and gain insight into their roles in post-industrial site development. These preliminary interactions were crucial for selecting the current case study sites and refining a more targeted list of participants related to the post-industrial sites that have been transformed into parks in Ruseifa.

During these informal interviews, general questions were posed about post-industrial sites in Ruseifa, focusing on existing laws, regulations, and the participants’ views and influences on the decision-making for their management. These interviews were not highly structured and did not specifically target the sites chosen for the second research phase. Participants were encouraged to elaborate on their answers and share relevant stories, leading to diverse conversations.
The duration of these informal interviews varied, with some lasting over an hour and others less than 15 minutes. Notes were taken during these interviews, but they were not recorded. The information gathered was used as guidelines and a foundation for the data gathered in the empirical phase of conducting the formal interviews.

It became evident that three simultaneous projects were transforming post-industrial sites into parks in the Ruseifa area. The similarity in the parkification decision for these three projects facilitated an exploration of the reasons behind these developments that led to the formulation of research questions and subsequent phases. The three parkification projects identified for an in-depth study were:

a. The Pepsi Pond Park
b. The Environmental Park
c. The Geo-heritage Park

Each project involved various governmental and non-governmental institutions, experts, and local community members. This preliminary engagement guided the selection of participants for the formal interviews. The final list of participants encompassed three main groups: governmental decision-makers, non-governmental stakeholders & experts, and the local community. This categorization ensured diverse perspectives and insights into transforming post-industrial sites into urban parks.

Using the referral strategy, site visits, and content analysis, a more developed list of actors was identified. This phase led to the emergence of new patterns and interests, shaping the second phase and aiding in collecting data and documents for more focused interviews.

This list was created about the three case sites of the study. Some of these emerged actors intersect for the different sites; however, roles varied. APPENDIX J shows the final list of key
players that were visited and approached for interviewing related to each site project, transforming it into an urban park.

4.1.5.1.2 Recruitment and Sampling Procedure

Participants in this study were purposefully chosen for their relevant roles in the parkification projects at the three sites. The researcher inductively traced key players from the project’s beginnings, conducting fieldwork that involved visiting the targeted sites and conducting informal interviews with onsite individuals and surrounding communities, thus identifying a range of main actors.

Field visits were essential for observing the ongoing parkification processes and consulting with different experts in the field, which was instrumental in building trust and gathering foundational data. The adaptive nature of the fieldwork accommodated overlapping layers and factors that helped finalize the key players' list. The targeted participants for this research included key players and decision-makers from various levels within the same institution. It aimed to make the data collected representative and comparable. For each post-industrial site, the principal institutional player initiated a chain leading to other key players, differing from those identified in the preparatory phase.

This study utilized a Snowball sampling technique. It is a convenience sampling method applied when it is challenging to access the participants needed for the study (Naderifar et al., 2017). This method was adapted and targeted based on a list developed in the preparatory phase. Since it was impossible to randomly obtain people working in these governmental and non-governmental agencies relevant to the parkification process in Ruseifa, a referral method such as snowballing eased the recruitment of participants.
Moreover, as most participants occupy governmental positions, it was particularly useful given the logistical challenges of recruiting government employees without prior permission or connections.

The recruiting process began with identifying informants who nominated others or direct institution visits. Interviews, though time-consuming, produced extensive in-depth data. Yet, establishing connections was crucial for effective communication with government institution personnel in Jordan. An introductory step involved getting verbal approval from higher authorities or “the decider” to ease the interviewing of key actors in government institutions (Tracy, 2019, p. 53).

The verbal approvals were also obtained by conducting an introductory meeting with the municipality mayor and department heads to facilitate access to participants. Moreover, two entry representatives were contacted to help set up meetings and refer potential participants. Also, through field visits to the current transformed sites with the local representative, relationships with individuals related to the parkification projects were leveraged during the solicitation process.

The participants that were interviewed were categorized according to three main groups: governmental Decision-makers, non-governmental stakeholders & experts, and the local community. A total of 22 participants from all three sites were interviewed in the empirical phase: 15 immediate decision-makers, 8 experts and stakeholders, and 5 from the local community. Sampling continued until data saturation was achieved or when no new or relevant information emerged (Naderifar et al., 2017).

Governmental representatives were also local community members in some instances. Key players involved in multiple sites were categorized based on their specific roles at each site. Table
4.2 details the number of participants and groups for each site, and the final list of key players is included in APPENDIX A.

Table 4.2: The number of interviewed participants for each site.

<table>
<thead>
<tr>
<th>Identified actor</th>
<th>Site 1: Pepsi pond</th>
<th>Site 2: Phosphate mine</th>
<th>Site 3: Phosphate old mine</th>
<th>Total No. of participants sampled*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision-makers</td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Stakeholders &amp; experts</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Local Community</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total of interviews:</strong></td>
<td><strong>22</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Numbers might not represent the total of each group as the same actors were interviewed representing different sites.

During field visits, a male companion was present to facilitate interactions and interviews due to Ruseifa’s conservative nature. This approach also involved collaborating with a community gatekeeper in Ruseifa to help ease the accessibility of many of the sites and governmental institutions to interview decision-makers, some of whom refused to reach out without the help of the gatekeeper. Bilal Alghueiri, a geologist at the phosphate company and a Zarqa resident, facilitated access to various decision-makers and stakeholders. Institutional Review Board (IRB) approval was obtained for the officially recorded interviews; therefore, certain procedures were followed.

Since the research was carried out in Jordan, the interviews were conducted in Arabic, the researcher’s native language, to facilitate understanding of local terminology, with translations necessary for documentation. The referral strategy, site visits, and content analysis resulted in a comprehensive list of actors.

The three main key player groups were identified in terms of the three case sites. Each key player emerged for each site and took a different role in reference to the post-industrial sites.

The recruiting was done in three ways:
1) Informal solicitation during the municipality visits and the referral from the entry gatekeeper.

2) Invitations are sent to individuals by hand at Ruseifa municipality or sent digitally through emails.

3) Private invitations via phone to certain referred participants of higher positions.

In terms of experts and stakeholders, it was either through emails, private invitations via phones to experts and stakeholders of industrial landscape interest, or through connections of those who have worked on projects related to Ruseifa city industrial sites.

4.1.5.1.3 Interview Administration

The participants were provided with the research information: the research project and objectives, contact information for the researcher, data collection process and recording of the interview and privacy measures, and most importantly, interview scheduling steps. Afterward, a recruitment letter was given to participants according to what possible means are available. Since the municipality of Ruseifa might not be contacted through email, a hard copy was delivered to each interviewee by hand. Recruitment letters in Arabic were prepared as the common language used in Jordan, as well as governmental documents in Arabic.

Before initiating any data collection, approval from the IRB was obtained, which is provided in APPENDIX F. The interview questions were generated and updated in response to the contexts in which the research was conducted; therefore, it shows the dynamic role of the context in developing theories and new approaches related to the issue being explored. And finally, it helped in the snowball sampling methods for choosing the interview respondents.

Notably, the term "post-industrial" in Arabic has no synonym available due to the absence of this term in their policies and professional vocabulary. Instead, the term "Mawaqie’ ma b’ed
“Sena’eya” was employed, directly translating the concept. To ensure that the participants fully understand the nuances of the term, an illustrative example of a site was cited in each instance, with the phosphate mining site as the representative familiar example. Interview questions were mainly within these three main categories to ease the analysis process. Check **APPENDIX C** for the interview questions:

a) Perception of post-industrial sites.

b) Role in the parkification process.

c) The implication of the parkification towards preserving the site’s industrial heritage.

The interview has five main processes: “informal contact, formal solicitation, onboarding to the interview, the actual interview, and follow-up” (Steeves, 2019, p. 95). In the onboarding to the interview phase and participant recruitment, the following step was to schedule the time and place for the interview based on the interviewee’s preference. The interviews were mainly in Arabic and lasted 60-75 minutes.

Verbal consents were collected before written consent. Prior to the interview, a consent letter was explained to and signed by the participant (check **APPENDIX D & APPENDIX E** for recruitment and consent letter). However, not all participants agreed to sign, as the culture in Jordan developed a refusal to sign any unformal document; therefore, verbal consents were recorded before the interview. All interviewees had no problem using their names or positions in this study.

All the interviews were audio-recorded, and field notes were taken simultaneously. Moreover, interview memos were written immediately after the interview. At the end of the interview, the participants were asked to refer to other participants who were part of the
parkification process and might help provide information for the research. The Researcher translated all interview transcripts and employed a back-translation service to ensure the accuracy of the interpretation and translation.

4.1.5.1.4 Data Transcription and Processing

Once the interview was completed, the recordings were transcribed into their original language. After data analysis and coding, it was translated into English. A back-translation technique was utilized to minimize errors and misinterpretations (Brisiln, 1970). Back-translation is translating from the target language (in this case, English) back to the source language (Arabic), and the comparison between source and target editions can be evaluated (Chen & Boore, 2010). Any misinterpretation was modified in English.

To protect the identity of participants, an identification code was used for each interview record, memo, or note. No names were mentioned; however, positions in municipalities were kept as an important data inquiry. No one had access to the recording and written notes, but the investigator and all identification codes were stored separately.

The audio recordings of the interviews, all paper and electronic copies of the interview transcripts, and all paper and electronic copies of the data analysis are stored securely when they are not being used. Also, the signed consent form was retained, and the interview audio recording was stored securely in a separate location from the remainder of the above-mentioned data (Hein, 2021).

4.1.5.2 Secondary Data Collection

Secondary data encompasses disparate information originating in a wide variety of scales, forms, and types (Martin & Pavlovskaya, 2010). This study aimed to collect secondary data from different sources, including formal documents, publicly published and unpublished, but the
primary sources are the official data archives and reports. Some data were easy to retrieve and available without cost; others were difficult to obtain or expensive. In general, these documents were formally obtained from governmental institutions.

Public documents concerning post-industrial sites, landscapes, and their heritage were collected first. These documents included policies, reports, maps, and other relevant information. Other documents were laws, legislation, programs, and development management plans for the selected post-industrial sites. Also, the study navigated available minutes of municipality committee meetings and memos regarding the process, newspaper archives, booklets, brochures, and other online or on-site information. Also, informal interviews of specific stakeholders and other employees of industrial activities in post-industrial sites were considered as a type of oral information.

Moreover, the research examines secondary data comprising published non-governmental reports, official policies, masterplans, and development projects, as well as GIS data and maps that provide information on transformed post-industrial sites at Ruseifa.

Sources of secondary data were mainly from the Municipality of Ruseifa, Greater Amman Municipality, Zarqa Municipality, the Ministry of Local Administration, the Ministry of Planning Affairs, the Department of Antiquity, the Ministry of Industry, and the Industry and Trade Chamber. Also, non-governmental institutions and local research centers were sought for information and data on post-industrial management plans and decision-making policies (see APPENDIX B for a coded list and type of documents obtained). The primary purpose was to understand how post-industrial landscapes were managed and the processes that shaped the decision to transform the selected post-industrial sites in Ruseifa into urban parks.
Secondary data collection was completed once data saturation was achieved (Whiteside et al., 2012). Moreover, data availability, scarcity, or ambiguity was an indicator for analyzing the parkification process (Hox & Boeije, 2005). The data was evaluated in terms of appropriateness for the research questions and their quality before indulging in the analysis process.

Qualitative analysis transforms data into findings that begin earlier during data collection. It starts when ideas for making sense of the data emerge while still in the field. Therefore, it was important to keep recording and tracking analytical insights using field notes and continuously record emerging themes, their connection to data, and any information that helped understand the data.

4.2 Data Analysis

Qualitative data analysis is a reflexive and inductive analytical process in which you have to make sense of massive amounts of data by identifying patterns, themes, and emerging theories (Patton, 2002). Therefore, the study utilized Dedoose software for qualitative data analysis to analyze primary interview transcripts, field and interview memos, and secondary data.

In this study, two primary data analyses were employed to organize and process the data pertaining to the parkification process of post-industrial sites: Content Analysis and Thematic Analysis. Thematic Analysis was applied to examine the interview data, while Content Analysis was utilized for the examination of documents and archival data. Combining findings from both analytical approaches, a comparative analysis was conducted to structure the findings related to

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5 Dedoose is “a qualitative data analysis application designed for mixed methods research. This allows for the analysis of research data that is both qualitative, such as text, audio, images, or video, or quantitative such as spreadsheets, test scores, or demographics. You can even mix both qualitative and quantitative data in your analysis” according to their website.
the post-industrial sites in this study. The research data analysis process is represented in Figure 4.3.

![Research Data Analysis Process](image)

**Figure 4.3:** Research Data Analysis Process, as prepared by author, 2023.

### 4.2.1 Content Analysis

After identifying all the documents, policies, newspaper articles, and study reports associated with the management of post-industrial sites in Jordan, and more specifically for the three site cases of this study, content analysis was conducted to gain a better understanding of the available documents, laws, and policies in a comprehensive perspective.
The content synthesis identified and briefly described the laws and policies that considered post-industrial sites in urban areas.

Furthermore, the content synthesis helped bring more formal and legal understanding and a better framework to understand how these sites in Jordan are managed, preserved, or integrated in the planning masterplans through:

- Identifying the main actors and institutions responsible for post-industrial sites in Jordan and Ruseifa.
- Defining what post-industrial sites are or how they are integrated into these policies.
- Providing a brief description of policies, legislation, or policies that are relevant to post-industrial site transformation.

4.2.2 Thematic Analysis

The second process of analysis used thematic analysis for interviews. Thematic analysis is a method used to examine the data and identify common issues that come up repeatedly within the interviews.

The analysis consists of coding the data to reveal emerging patterns and themes. The first coding phase included initial coding that retains descriptive information on the interviewees’ coding. The second phase generated patterns and focused categories, using diagrams and a matrix to facilitate coding and explore relationships.

Adapted from Lacey (2009), the main steps for data analysis: “coding (indexing) the data, identification of themes, re-coding to develop categories, investigating relationships between categories, a refinement of themes and categories, a development of theory, testing of theory against the data, and finally report writing and including excerpts from original data if appropriate” (Lacey & Luff, 2009, p. 7).
After detailed coding, the study identified three main categories: Perception, the Parkification Process, and Key Issues of Post-Industrial Sites. Different themes were identified for each set of questions regarding those main categories:

The first category regarding the perception of key players and influencing developers of post-industrial sites in Ruseifa and their attitude toward them has developed these main themes:

1. Lack of clear definitions, classification, or unified terminology
2. Lack of policies and standards
4. Burdensome on various decision-makers
5. Jurisdiction and landownership complication.
7. Need for industrial heritage recognition.

The second category of the parkification process, transforming post-industrial sites into urban parks in Ruseifa, has identified these main themes:

1. Various players and involved decision-makers.
2. Different types of parkification processes for each site.
3. Various reasons for parkification.
4. Lack of precedent projects.
5. Partnerships, collaborations, and committees.
7. Landownership influenced the parkification direction.
8. Industrial heritage hindered the process of parkification.
9. Parkification as a response to site limitation.
The third category deals with navigating the compelling issue of post-industrial sites and how parkification addresses them. Coding the interview text has issued three main themes for this category:

1. Issues related to post-industrial physical site characteristics.
2. Issues related to the decision-making process in Ruseifa.
3. Parkification role in resolving these issues.

4.2.3 Comparative Case Study Analysis

Yet the primary method of data analysis is the comparative case study analysis (Glaser & Strauss, 1967). This research is between the case studies of the three sites that have developed the processes for parkification. In this method, “concepts or categories emerging from one stage of the data analysis are compared with concepts emerging from the next” (Lacey & Luff, 2009, p. 10). Comparing themes and categories between the different case studies enabled the researcher to find connections.

4.2.3.1 Evaluation Framework

To do such, this study utilized a framework to analyze and compare the processes of parkification of post-industrial sites encompassing these layers: patterns, mechanisms, and dynamics. An additional layer for this study, ‘perception,’ towards the parkification process emerging from the analysis, was incorporated into framework.

The amalgamation of these layers will provide insights into the driving factors behind the transformation of these sites and their characteristics. These layers are as follows:

a) The patterns layer involves an examination of the physical attributes of the sites before and after parkification to understand the changes in the landscape as part of the transformative process.
b) The mechanisms layer explores the generative mechanisms of transformation in terms of conceptualizing the process that led to the decision of parkification that guided the transition from post-industrial sites to urban parks.

c) The dynamics layer focuses on various events, stakeholders’ interaction and their role in the parkification decision-making process. This layer is crucial for understanding the socio-political and economic dynamics that influenced the transformation of post-industrial sites.

d) The perceptions layer concentrates on the insights and perspectives of decision-makers and key stakeholders regarding the transformation of these post-industrial sites. It specifically examines how their perceptions and attitudes towards these sites influenced the approach to parkification. This layer delves into the initial views held by those in positions of influence and how these views shaped the decision-making process leading to parkification.

Building on that, these layers were put within a bigger framework that included the research questions to evaluation and unpack the parkification process, as illustrated in Figure 4.4. This framework offers a structured and applicable method for transformation process assessment.

![Figure 4.4: Evaluation Framework of the Study for the parkification process.](image-url)
In line with research question 1, the framework necessitates acquiring knowledge about the perception of decision-makers and stakeholders towards post-industrial sites, forming the first layer of site assessment. It entails understanding the layers of the compelling issues of post-industrial sites and their impact.

Building on research question 2, the framework evaluates three main layers: landscape patterns related to the site and process, the mechanism of transformation, including parkification, and the power dynamics that uncover the nature of key players’ and stakeholders’ relationships related to the site and process.

Lastly, a layer of perception, including expert consultation and community integration, is unveiled. The evaluation also examines the driving factors generated from the evaluation process, and building on question 3, conceptualization and contextualization of the approach take place. By understanding these layers, one can gain insight into the process: perceptions, conceptualizing the process through understanding these layers—pattern, mechanism, and dynamic—and addressing the compelling issues.

4.3 Reliability and Validity

Qualitative research within this study requires a particular characteristic for the researcher when collecting, interpreting, and analyzing the data; his role requires intensive experience and involvement with the participants (Marshall & Rossman, 2014, p. 118).

As the research is “the instrument,” there are ethical, strategic, and personal approaches to consider, including identifying biases, values, and personal background through reflexivity, positioning assumptions, and sensitivities that shaped their interpretations (Marshall & Rossman, 2014). The researcher’s reflexivity report is presented in APPENDIX G.
Also, Ethical rules require transparency in data collection procedures, gaining entry to settings, archival documents, methods, and experiences, and the steps for granting permission from the institutional review board (IRB) before contacting human participants to guard their rights (Creswell, 2014).

Integrating multiple qualitative methods in a multi-method research design enhances the reliability and validity of the findings. It allows for triangulation, where data from different sources are compared and cross-validated to establish credibility and ensure consistency in the results (Meijer et al., 2002).

In addition, since it is a qualitative strand when data are collected and analyzed, we need to check the ‘trustworthiness’ of the qualitative data first. It entails credibility, which indicates whether the research findings are reasonable and trustworthy; confirmability, which describes the relationship between the data and the results; dependability, which focuses on the extent to which the research process is documented and traceable (Hein, 2021; Marshall & Rossman, 2014). Transferability indicates whether findings can be carried to other research settings (Hein, 2021; Stenfors et al., 2020). Also, I implemented the following techniques to improve both the validity and reliability of the research findings:

1- **Triangulation of data:** According to Sandra Mathison, data triangulation is “a strategy for improving the validity of research or evaluation findings that will aid in the elimination of bias and allow the dismissal of plausible rival explanations such that a truthful proposition about some social phenomenon can be made” (Mathison, 1988, p. 13). It is used for three primary purposes: to enhance validity, to create a more in-depth picture of a research problem, and to interrogate different ways of understanding a research problem. I used cross-data source triangulation (triangulation of interview
participants) and methodological triangulation (triangulation of multiple data sources, interviews, and secondary data). I also used cross-checking emerging themes from similar and multiple data sources to determine areas of agreement and divergence of ideas (Creswell, 2014).

2- **Personal Bias (reflexivity):** bias can occur when selecting participants through snowball methods and reflexivity or research bias (Mavin & Corlett, 2019). Therefore, the researcher added a reflexivity report to check for self-reflexivity, which refers to “the careful consideration of how researchers’ past experiences, points of view, and roles impact these same researchers’ interactions with, and interpretations of, the research scene” (Tracy, 2019, p. 2).

3- **Peer review and debriefing:** This method usually entails long conversations between the researcher and impartial peers concerning primary data gathering and analysis. It provided outside viewpoints on potential subjective biases affecting data processing. During the initial analytic phase, I peer reviewed discussions with other academics.

4- **Rapport & Reciprocity:** Lastly, it was important to establish a harmonious relationship with the participants and the people at the municipality for better in-depth access to their experiences. My background and familiarity working with people at the municipality through the gatekeeper helped me establish rapport with the participants. It provided better communication and eased the conduct of the interviews.
CHAPTER FIVE: KEY ACTORS’ VIEWS ON RUSEIFA’S POST-INDUSTRIAL SITES

This chapter presents the findings related to the first research question, which investigates the perspectives and approaches of key players and decision-makers toward Ruseifa’s post-industrial sites. Understanding these viewpoints helped conceptualize the parkification processes in Ruseifa as they directly influence the treatment and future of these sites.

Consequently, this chapter places a significant emphasis on understanding the stance of decision-makers, particularly those representing local governmental institutions and the municipalities, and their attitudes towards these post-industrial sites leading to the parkification decision itself to assess its implications for the future of the post-industrial sites in Ruseifa.

This investigation serves as the foundation for the subsequent examination of the three empirical case sites, shedding light on how these key stakeholders perceive and interpret post-industrial sites within Ruseifa City. The focus on stakeholders and decision-makers is particularly relevant given the historical context for over 40 years; government actions towards the recovery of these sites have been markedly slow. This lack of action has significantly impacted the quality of life in Ruseifa. Their intentions and perceptions regarding redevelopment have mainly remained undisclosed.

Despite the public complaints, evidenced in formal documents, local media, and statements by local municipality representatives, there has been a notable lack of transparency from key actors involved in the site transformations.

5.1 Key Actor’s Perceptions of Post-Industrial Sites in Ruseifa

Through a comprehensive two-phase research approach, this study delves into the perceptions of key players regarding post-industrial sites in Ruseifa undergoing parkification. In
the preparatory phase, an extensive content analysis encompassed documents, reports, regulations, and articles, complemented by informal interviews with potential key players. The empirical phase involved thematic analysis of semi-structured interviews, focusing primarily on the three identified post-industrial sites.

The analysis uncovered diverse perspectives and approaches among the main actors involved in these sites, categorizing them into three main groups: governmental decision-makers, non-governmental stakeholders (including experts), and the local community.

The study identified five primary perceptions held by influential key actors towards Ruseifa’s post-industrial sites. These perceptions include viewing the sites as environmental challenges, burdens, opportunities for development, contested lands, and valuable industrial heritage worthy of preservation, as illustrated in Figure 5.1.

![Key-player's perceptions of post-industrial sites in Ruseifa](image)

**Figure 5.1: Categories of key players’ perceptions of post-industrial sites in Ruseifa.**

The predominant view among key players is that post-industrial sites in Ruseifa represent a significant environmental issue requiring immediate attention. Notably, this perspective is dominant among governmental decision-makers, confirmed by several assessment reports
emphasizing the environmental hazards posed by these sites (check APPENDIX B for details on documents collected). Notably, the concerns extend beyond mere environmental risks, including public health threats and safety concerns within the community.

Another substantial portion of key actors see post-industrial sites as a burden, either due to challenges in managing them or because of the negative impact on those living nearby. This view is mainly held by landowners and governmental decision-makers directly responsible for managing these sites. Although the local community and some experts share this sentiment, it is most strongly endorsed by governmental decision-makers.

In contrast, some key players perceive these post-industrial sites as opportunities for development. This view often coincides with the idea of these sites as contested land, either due to ownership disputes or through development proposals to benefit specific parties. Governmental decision-makers, in particular, advocate for the repurposing or alteration of land use of these sites to benefit the city of Ruseifa more effectively.

Experts and non-governmental stakeholders, while aligning with the development opportunity perspective, also show a greater inclination towards viewing these sites as industrial heritage worth preserving. This view contrasts with the opinions of governmental decision-makers and the local community, who are more inclined towards their removal as part of efforts to restore the city’s former landscape.

Notably, there was a noticeable shift in perception based on whether participants were residents of Ruseifa, with many responses reflecting personal experiences of suffering or issues linked to site neglect.

The following sections elaborate on each of these perceptions in detail:
5.1.1 Post-industrial Sites: An Environmental Problem

A consensus among key actors identifies the abandoned post-industrial sites in Ruseifa as significant environmental concerns. This view stems from numerous complaints by the residents living in proximity to these sites and is shared by decision-makers, some of whom reside in Ruseifa or commute from neighboring cities like Amman or Zarqa.

The primary environmental issues associated with these sites, resulting from past industrial activities and subsequent neglect, include soil and groundwater contamination, air pollution, habitat degradation, abandoned structures, invasive species, land instability, and visual pollution. These issues have become part of Ruseifa’s everyday landscape, with studies and reports highlighting their negative impact on public health and quality of life (Al-Jariri, 2020; Al-Tarazi et al., 2006, 2008; Alawneh et al., 2005).

Residents and municipality employees express their concerns vividly, “I am the son of Ruseifa, the son of the suffering” D09, Ruseifa Municipality. One resident notes the severe impact of phosphate dust on the community’s health, while a municipality representative emphasizes the broader environmental repercussions on Ruseifa’s natural environment and landscape:

As a citizen of this complex situation caused by phosphate remains, the company left the old mine almost as a dumpster in the old area of Ruseifa. The phosphate deposits were the most significant obstacle, and we were afraid because of reports that there was a uranium atom with a carbon atom, and the heights of the hills were high, blocking the western air from the city even. We suffered from the wind spreading the phosphate dust in our direction, so we suffered severely from these sites. C01, Ruseifa Municipality.

MoEnv also acknowledges these challenges. As part of their mandate to address environmental concerns associated with industrial activities, they have issued Environmental
Impact Assessment (EIA) reports, revealing the extent of contamination and its public health implications. Notably, contradictory findings in these reports over the years have added complexity to addressing these issues.

Specific post-industrial sites, like the Pepsi Pond, highlight environmental problems. Its name alludes to the environmental issues stemming from industrial wastewater from the Pepsi factory affecting the site. The rehabilitation of the site became a primary focus due to its adverse environmental impact, as noted by a representative from GAM, “our primary focus for the Pepsi Pond rehabilitation project was not to determine what the project would become; our focus was only to solve the environmental issue,” D11, GAM.

Over 40 years of mounting complaints have solidified the view of these sites as environmental hazards. This perception is prominent among the local community and the Ruseifa Municipality, who experience these issues firsthand, shaping all goals to deal with these sites to solve these environmental issues.

Even decision-makers not based in Ruseifa, or those without direct contact with local complaints, have come to view these sites as environmental problems, influenced either by higher authority mandates or EIA reports, as stated by a representative from MoLA describing their direct assignment from the Hashemite Royal Court (HRC) for the rehabilitating of phosphate ore hills site, “The assignment was clear, is to solve the environmental site problem, so I am not required to make investments or build more structures in this site,” D07, MoLA.

Moreover, the perception of post-industrial sites as an environmental problem extends to concerns about safety risks, lack of green spaces, and social issues. Abandoned structures and mines, for instance, attract vandalism and drug abuse, exacerbating the community’s challenges.
In conclusion, while all key players recognize the environmental problems posed by post-industrial sites, this concern is particularly pronounced among those living in Ruseifa and dealing directly with these sites’ impacts on their daily lives.

5.1.2 Post-industrial Sites: A Burden

Another critical perception emerging from this study and interviews is that decision-makers see post-industrial sites as a burden to their institution and resources. These sites are often described as challenging to manage due to factors like ownership, existing industrial structures, and landscape alteration, coupled with the absence of direct strategies for resolution.

As a result, solutions often require extensive expertise and significant changes to the city’s infrastructure, extending beyond the site boundaries. A representative from GAM explained, “The issue of the Pepsi Pond site has been on the table for years. It is not something new. It is a problem troubling the municipality, the local community, and the municipality of Ruseifa” D11, GAM.

Governmental institutions, particularly those responsible for these sites but operating outside their jurisdiction, mainly express these concerns. Four factors contribute to the perception of these sites as a burden:

1) Ownership challenges: The burden associated with land ownership often falls on entities outside the site’s jurisdiction, complicating management, and cooperation. For example, GAM owns the land of the Pepsi Pond site within Ruseifa’s boundaries, leading to difficulties in collaboration with Ruseifa municipality.

2) Responsibility sharing: Collaborating with various stakeholders to manage complex site issues presents significant challenges as post-industrial sites entail broader issues beyond physical elements.
3) Lack of a governmental strategy: the absence of a clear governmental strategy or precedent for handling these sites complicates decision-making processes.

4) Limited resources and infrastructure: inadequate infrastructure, limited resources, and lack of funding restrict potential solutions for post-industrial site management.

For more details, the key players’ perception of these post-industrial sites in Ruseifa as a burden is described further as follows:

**5.1.2.1 Ownership**

Issues surrounding land ownership have impacted the management of post-industrial sites. For instance, GAM’s ownership of the Pepsi Pond site within Ruseifa’s jurisdiction poses unique challenges regarding authority and rights within municipal boundaries. GAM highlights the difficulties in cooperating with the Ruseifa municipality due to these jurisdictional complexities:

“As GAM, I am not the state owner of the Ruseifa region, which means that I am currently facing a lot of difficulties with the Ruseifa municipality in cooperating with us!” D11, GAM.

The problem is compounded by private ownership of lands adjacent to these sites, particularly near residential areas. This proximity raises concerns about addressing site issues without negatively impacting the neighboring community. Many of these land ownership issues stem from historical trespassing on treasury lands, leading to a significant portion of Ruseifa’s residential areas being built on such lands. As a result, the government faces added pressure to resolve site issues without harming residents, further complicating the decision-making process.

“Unfortunately, all the lands of Ruseifa were invaded randomly, without law. The legislation is not clear because there are no regulatory master plans. It has become a problem that the municipality must deal with”, C01, Ruseifa Municipality.
Political restrictions, such as those in the Hittin refugee camp area, also contribute to the complexity. The camp’s administration falls under host authorities, while service provision is the responsibility of the UNRWA. This dual authority creates difficulties in making changes in areas adjacent to post-industrial sites, necessitating strategic approaches to management: “The presence of the Palestinian camp, and the municipality has no authority over it.” E06, Ruseifa Municipality.

5.1.2.2 Lack of Collaboration

A critical factor contributing to the perception of post-industrial sites as a burden is the difficulty in fostering collaboration with the different stakeholders involved. Efforts to form committees comprising different stakeholders generating solutions for these sites have necessitated a collaborative approach, but the absence of effective cooperation places an additional burden on decision-makers.

A representative from GAM expressed the challenges faced in collaborating with the Ruseifa Municipality: “As I am not the governor of the Ruseifa region. We face many difficulties in terms of cooperation. Unfortunately, their contribution, lack of commitment, and tendency to intervene only in response to complaints have been major obstacles”, D11, GAM.

The failure to collaborate effectively often results in stakeholders working independently, leading to conflicting interests and a lack of coordinated efforts. This situation has sometimes caused key players to retreat from initiatives due to time constraints and environmental concerns, hoping for immediate action from other administrative bodies.

For instance, the geo-heritage park project team experienced verbal support from stakeholders but faced a lack of formal action and commitment, disrupting their process and forcing them to alter plans to suit institutional preferences.
The meetings between various stakeholders, such as MoEnv, Ruseifa Municipality, and JPMC, also illustrate the collaboration challenges. Despite forming multiple committees and holding meetings to find solutions for the phosphate mine sites, there was a lack of follow-through, with many attributing this to the absence of decisive leadership or intentional management efforts.

Moreover, frequent changes in government administrations and ministers have posed additional challenges in maintaining continuity in committee efforts. For example, the changes in the minister brought different agendas and priorities, necessitating reevaluation of objectives and further delays. “Many committees were formed, but due to failed administrations, the issue remained unsolved until recent initiatives by higher authorities,” noted a representative from the Ministry of Local Administration (D07).

Looking at various meetings between the MoEnv, Ruseifa Municipality, and JPMC regarding the Phosphate Mine Administration Buildings site, multiple committees were formed, and meetings were held to find feasible solutions. Still, none of them followed through on their discussions. Many key players noted that the absence of strong and decisive leadership or a deliberate intention to manage these sites at that time contributed to the failure of these previous committees.

The involvement of key players and stakeholders in these sites makes the transformation process complex, highlighting the need for collaboration to ensure the effective implementation of decisions. Consequently, the burden falls on the main decision-makers to initiate and sustain solutions, often single-handedly.

5.1.2.3 Absence of Defined Strategies and Past Precedents

A significant challenge in managing post-industrial sites is the absence of national precedent projects or case models to guide decision-making. This lack of prior examples
complicates the engagement of the community and experts in the transformation process, placing a substantial burden on governmental bodies to devise strategies from scratch.

One key issue is the scarcity of existing projects to reference. As explained by a representative from MoLA, even though studies were conducted on the Ruseifa and Phosphate area, they were inaccessible to government entities, being commissioned for private clients. This situation has forced decision-makers to look at similar cases in other regions for guidance.

The problem is that there are no previous projects to base our decision on! So, we took other cases similar to our region. Moreover, many studies were carried out on the Ruseifa and Phosphate area by the Royal Scientific Society. Still, they were not given to us, even though we are the government with an official assignment, because it was done for a private client. D07, MoLA.

Another challenge is the lack of a well-defined strategy to involve community members and external experts in decision-making. Often, alternative viewpoints and expertise are only brought to light after decisions have been finalized and set in motion. This timing issue limits the consideration of diverse perspectives in the early stages of project development.

Moreover, the lack of experience among staff and the absence of precedent projects on treating these sites have made these challenges more daunting. The parkification projects are thus seen as learning opportunities for future endeavors. GAM representative emphasizes the importance of these projects as educational experiences, serving as potential models for green infrastructure across the city.

The scarcity of experts specializing in the design and implementation of such projects has led to outsourcing expertise. The responsibility of bringing in technical proficiency lies heavily with key players within the institutions.
5.1.2.4 Limited Resources & Poor Infrastructure

Compounding these challenges are the limited resources and inadequate infrastructure to handle environmental remediation strategies. As noted by a representative from the Ruseifa Municipality, the financial constraints of Jordanian municipalities significantly impede the implementation of large-scale projects without external support, “municipalities today in Jordan suffer from a huge financial crisis, and these projects cost a lot of money. Without royal patronage support, the municipality would never have implemented this work alone.” D10, Ruseifa Municipality.

The poor infrastructure within the city further complicates the adoption of natural-based or complex engineering solutions. The potential for unintended consequences, such as flooding due to inadequate sewage systems, adds to the complexity of these projects.

Experts in geology, archaeology, and architecture have also pointed out the inadequacies in government institutions’ ability to manage these sites. The suggestion of partnerships with organizations like RSCN reflects a search for alternative management models that could offer more effective solutions.

... The dilemma is that the municipality cannot manage such a project, so it was proposed that the municipality enter a partnership with the RSCN and lease it to them for 100 years with conditions and let them manage the site’s issue without any engineering solutions... the RSCN is very creditable and has the resources, laboratories, and plant specialists. E10, Architect.

In conclusion, the challenge of managing post-industrial sites in Ruseifa is exacerbated by the absence of defined strategies, lack of precedent projects, limited resources, and poor
infrastructure. These factors collectively contribute to perceiving these sites as burdensome and challenging to transform effectively.

5.1.3 Post-industrial Sited: An Opportunities for Development

A prevalent perception among key players, particularly within governmental institutions, is that post-industrial sites in Ruseifa represent significant development opportunities. The expansive area of these sites within Ruseifa Boundaries, totaling over 7000 dunums, positions them as prime locations for redevelopment. Various stakeholders and governmental entities have expressed interest in acquiring land within these sites, envisioning diverse land uses.

Experts and stakeholders have actively proposed projects to revitalize and repurpose these vast, vacant areas. These initiatives aim to rejuvenate the city and transform these abandoned sites into valuable assets.

A critical aspect highlighted by some key players is the potential of these empty lands, as they described it, to be integrated into Ruseifa’s master plan. Given the city’s high population and limited expansion options due to these sites blocking south and westward growth, their redevelopment is seen as a crucial opportunity. The absence of a comprehensive master plan for Ruseifa and strategies for maintaining and managing these sites further strengthens this perception.

Experts in archaeology and geology have offered insights into the potential of these sites. They envision repurposing them for ecologically, naturally, and culturally significant projects – opportunities currently underexplored in Jordan. Ideas include creating a wetland, an ecological research center, and reintroducing open and green spaces. One expert described these post-industrial sites as “scarred sites,” suggesting that the alterations they have undergone could be leveraged for innovative and beneficial projects. “This wound or scar may be seen as an opportunity because you have already changed the landscape, giving you the freedom to either
restore or reuse it and transform it into a project of the city’s benefit and the community” E10, Architect.

Furthermore, these experts pointed out the irony of water-rich ponds in a water-scarce country becoming health hazards. This paradox highlights water management and environmental health complexities in redeveloping these sites.

Another perspective focuses on the thorough cleanup and removal of industrial remnants, viewing the sites as having served their original economic and industrial purposes and now ripe for repurposing. This view advocates for land reclamation and transformation into residential, commercial, or industrial areas, as highlighted by a representative from the Jordan Phosphate Mine Company: “We need to rehabilitate these sites, transforming them from their current state to residential, commercial spaces bringing services like playgrounds for residents, thus enhancing the environment” E01, JPMC.

These diverse views underscore the potential of post-industrial sites in Ruseifa as development opportunities, ranging from ecological projects to urban redevelopment, reflecting a shift towards sustainable and community-focused land use.

5.1.4 Post-industrial Sites: A Contested Land

This section addresses the perception of post-industrial sites in Ruseifa as contested lands. Studies and official documents have highlighted the struggle to control and own this valuable land, emphasizing its strategic location and potential for community development (Razzaz, 1987; 1991). Reports from the Ruseifa Municipality, MoEnv, and JPMC indicate that various stakeholders are vying for rights over these lands, aiming to develop and manage them.

JPMC’s concession lands in Ruseifa cover approximately 144 square kilometers (14.4 hectares), with significant portions lying within the jurisdictions of both GAM and Ruseifa
Municipality. These lands include various features such as waste dumps, workshops, warehouses, and excavated pits. The contest over these sites stems from their strategic location and proximity to essential city areas (Appendix B, T03). Additionally, dealing with these sites becomes more streamlined and regularized as they are considered treasury land.

The Ruseifa Municipality has expressed challenges due to its lack of authority over sites owned by the Greater Amman Municipality. Numerous documents reveal efforts to acquire parts of the concession lands for community development projects like mosques, recreational areas, and residential spaces. However, these efforts have been complicated by land encroachments and competing claims (Appendix B, T14, T16, T17 & T18).

_We hope to incorporate it within our boundaries or receive it upon completion of the project. There were previous promises that, after its completion, it would be handed over and transferred to Ruseifa Municipality. This way, we can ensure its continuous operation, management, and maintenance._ D09, Ruseifa Municipality

A 2015 report from a formal committee recommended that certain land properties be transferred to the MoLA under Ruseifa Municipality’s authority. This transfer aimed to facilitate the creation of a comprehensive masterplan for Ruseifa, incorporating these sites into the urban fabric. Other proposed projects include establishing a driving training area, solar energy installations, and a geo-heritage Park in collaboration with the German Jordanian University within these sites once transferred (See Appendix B, T16).

However, Ruseifa Municipality has been utilizing these lands for various projects, including the construction of a mosque. A 2018 report further examined these sites and made recommendations for their potential reuse (Appendix B, T18).
Another pressing issue is the existence of residential buildings on state treasury lands without legal registration. Over 30% of Ruseifa’s lands consist of such structures, creating a complex situation with multiple residents claiming the same land. The municipality aims to resolve these disputes and provide legal rights and services to these residents (Al-Khudary, 2020).

The contestation over these post-industrial lands is a significant issue fueled by their potential for diverse development projects. The ongoing struggle for ownership and jurisdiction highlights the need for a coordinated approach to integrate these lands into Ruseifa’s urban planning and development.

5.1.5 Post-industrial Sites: An Industrial Heritage

A notable perception among several experts and stakeholders is the recognition of post-industrial sites in Ruseifa as valuable industrial heritage. These sites are not only historically significant to the communities that were part of the city’s industrial past, but they also mark a crucial era in Ruseifa’s economic development and expansion.

Experts, including those from the Jordan Phosphate Company, highlight the foundational role of phosphate mining in Ruseifa’s history. The city’s entire evolution and the livelihoods of its inhabitants have been intricately linked with the phosphate industry, from tunneling and prospecting to open-pit mining:

*Ruseifa was established because of phosphate; if it weren’t for phosphate, the city of Ruseifa would not have existed. Everyone in Ruseifa worked with phosphate. Their entire history was with phosphate, whether by mining, prospecting, or excavations.* E01, JPMC.

Despite their impact on the city’s landscape and the environmental hazards they pose, these sites are an integral part of Ruseifa’s historical fabric. Experts from diverse fields—geologists, architects, landscape architects, planners, archaeologists, and historians—stress the importance of
preserving these sites for their industrial heritage and the rich oral history, events, and stories they embody.

The proposed geo-heritage park at the site of the phosphate mine administration buildings exemplifies this perspective. The site’s unique geological features, such as exposed mountain cuts revealing stone and phosphate layers and its historical architectural structures, are considered valuable assets. Experts see these sites as critical to preserving the country’s industrial era for future generations: “What we have in Ruseifa is unique and can’t be found elsewhere, even when compared to mines in other regions” E12, GJU.

A key factor driving this perspective is the concern over the erasure of historical narratives. Studies indicate that while Jordan has laws to preserve ancient archaeological sites, recent industrial heritage, particularly from the colonial and industrial era of the early 20th century, has been largely neglected. The preservation of intangible and oral history related to these sites also lacks sufficient consideration from governmental and decision-making bodies (Abu-Khafajah, 2007; Daher, 1999; Maffi, 2009).

We have laws that aim to preserve historical sites, but our larger issue is the conservation of our heritage. We have a colonial and industrial history that emerged in the twenties, and they are all gradually disappearing. As the buildings and the site deteriorate, we’re losing unique architectural elements that don’t exist elsewhere: circular windows, water towers, the specific type of stone used, architectural designs, and even the hangar from the twenties. All of it is vanishing, and this place holds historical significance in how it developed, especially the mines. E11, Landscape archaeologist.

Designers and practitioners involved in creating post-industrial parks emphasize the importance of documenting the original state of these sites. They advocate for incorporating
archival structures or exhibitions that effectively convey the sites’ evolution and heritage. This approach aims to transform these sites into educational and culturally rich spaces, preserving their history while adapting them for contemporary use.

You must tell the story!! This is a good example of transforming an abomination into something used as a park. You must talk about history in order to encourage people to take real initiatives for the environment. Currently, there is no intention to show the history of the site; at least, there must be documentation somewhere that this park was established on the Phosphate Hills. S07, Architect.

However, there is a sense of disappointment and skepticism among many, particularly non-governmental decision-makers and experts, regarding the government’s recognition of these sites’ cultural and historical value. While the concept of parkification is generally supported, the final designs often fail to reflect the sites’ industrial past or capture their historical significance. This gap highlights the need for more inclusive and thoughtful approaches to rehabilitating and transforming post-industrial sites, ensuring that their rich history and industrial legacy are preserved and celebrated, “I’m not upset that they removed these harmful remnants, but if certain parts were preserved, and we documented what was there, along with its history, it would have been better for mining history” E12, Geologist.

5.2 Approaches Taken to Dealing with Post-Industrial Sites in Ruseifa

Various strategies were previously utilized in addressing post-industrial sites in Ruseifa, providing insights into the actions and perspectives of key stakeholders. The study identifies four primary approaches:

1) Leaving sites undisturbed: A common initial response has been to leave the sites untouched as a temporary measure while deliberating on future actions. The prevailing strategy for dealing
with these sites has been to delay any concrete action due to the absence of a clear plan. This approach reflects a "wait and see" mentality rather than actively addressing the challenges posed by these sites. This approach often stems from a lack of comprehensive understanding of the sites’ implications. The authoritative players couldn’t fully grasp the current situation and, consequently, haven’t taken decisive action.

A 2007 report involving stakeholders like the Ministry of Environment and Ruseifa Municipality highlighted the challenges in managing these vast areas, especially considering public safety concerns and rapid landscape changes (Appendix B, T03). As stated in the report, the mining activities conducted by JPMC had a profound impact on the Ruseifa area in multiple dimensions—demographic, economic, social, geological, environmental, and urban.

The reluctance to act without thorough studies and solutions has led to the deterioration of the landscape and infrastructure, raising safety and environmental concerns. Moreover, it has contributed to the existing issues and challenges within the landscape, which have negatively impacted the local community and the environment.

2) Temporary measures: To address urgent environmental and social issues related to post-industrial sites, stakeholders have resorted to temporary solutions to mitigate problems, such as fencing off hazardous areas, pumping floodwater, and controlling mosquito infestations. For example, GAM implemented measures to manage the water issue at the Pepsi Pond site but faced challenges like theft and equipment breakdowns. Other temporary actions included relocating nearby industrial activities contributing to the pollution. Eventually, GAM sought a permanent, comprehensive solution to resolve the problem once and for all.

Over the years, GAM has been working with temporary solutions every winter, and we kept pumping water with pumps. Every time we installed a pump, it was stolen or
broke down, so we thought of a permanent solution that would solve the problem radically and permanently. D11, GAM.

3) Community projects: Some efforts aimed to compensate and pacify local communities, such as adding community projects like parks or community centers. These efforts also included renting buildings within the site to local small businesses and establishing temporary service areas.

Complaints about this issue have increased, and many people have become annoyed by what’s happening in the residential neighborhoods or the area. The responsibility also lay with us and the municipality to do something, even if nominally, like mitigating the impact and calming the pond, even though we were not the ones who caused the problems at the Pepsi Pond. D11, GAM.

4) Land use changes: During the preparatory phase, it was found that post-industrial sites in Ruseifa are categorized as land designated for parks and green areas. This categorization served as a temporary measure within the comprehensive master plan and indicated a potential approach for future development. It mitigates the significant impact of these sites by considering them as green areas in the first place, yet not showing the actual harm they are causing while not considering them as post-industrial sites.

5.3 Discussion and Conclusion

The exploration of key stakeholders’ perceptions and the approaches taken for dealing with post-industrial sites in Ruseifa has revealed a multifaceted understanding of these sites. The primary perceptions identified include viewing these sites as environmental challenges, burdens, opportunities for development, contested lands, and valuable industrial heritage. These varied perceptions underscore the complexity of the issues surrounding post-industrial sites and the factors influencing decision-making processes.
The findings highlighted a significant gap in proactive and strategic planning, as evidenced by the common approach of leaving sites undisturbed due to the absence of clear plans and policies. The ‘wait and see’ mentality, temporary measures, and the lack of comprehensive strategies have led to ongoing challenges in managing these sites effectively. Furthermore, the perceptions of these sites as burdens and contested lands indicate the difficulties in stakeholder collaboration and land ownership disputes, complicating the development and transformation of these areas.

The perceptions and attitudes provided valuable insights into the decision-making processes for transforming post-industrial sites into urban parks in Jordan. Their impact as environmental concerns has influenced the common approach towards these sites. However, these sites’ cultural and historical significance has often been overlooked, leading to strategies that transform the landscape without adequately involving experts in landscape architecture or industrial heritage. The diverse perspectives and approaches towards post-industrial sites in Ruseifa point to the need for a more coordinated, inclusive, and strategic approach to their management and redevelopment.

While there are challenges, these sites also present unique opportunities for urban development and the preservation of industrial heritage. The concept of parkification, as a response to these challenges, offers a pathway for transforming these areas into valuable community assets. However, this requires careful consideration of the sites’ historical, environmental, and social contexts to ensure that redevelopment efforts are sustainable, culturally sensitive, and beneficial to the local community.
CHAPTER SIX: CONCEPTUALIZING PARKIFICATION PROCESSES OF POST-INDUSTRIAL SITES IN RUSEIFA

This chapter uncovered the processes of the parkification projects at the three designated post-industrial sites in Ruseifa by providing an in-depth description of the decision-making processes involved in their transformation into public parks. An exploratory and descriptive approach unveiled the unique characteristics of each parkification process while holding the specific challenges and opportunities each site presents.

These processes were examined by navigating these layers: the site landscape patterns, the process dynamics, the transformation mechanisms, and the perception of decision-makers and stakeholders towards the parkification decision, as explained in section 4.2.3.1. This chapter also presented the key driving factors behind the parkification processes.

6.1 Parkification Processes to Post-Industrial Sites in Ruseifa

The study identified three distinctive parkification processes in the transformation of post-industrial sites into urban parks in Ruseifa:

1) Restoration and Parkification Process at the Pepsi Pond site,

2) Environmental Rehabilitation and Parkification Process at the Phosphate Ore Hills site and,

3) Industrial Heritage Preservation Parkification Process is at the Old Phosphate Mine and Administration Building site.

Each process represents a distinct approach to addressing Ruseifa’s post-industrial sites and exhibits uniqueness tailored to each site.
6.1.1 Parkification Process 1: Restoration & Parkification at the Pepsi Pond Site

The parkification process at the Pepsi Pond site in Ruseifa is primarily a process of mitigating environmental issues of the post-industrial site by implementing a restoration and parkification project. The project aims to restore the natural Wadi that used to flow through the pond site. Furthermore, the project scope shifted to transform the contaminated industrial lagoon into a green urban park once the restoration of the Wadi is completed.

The restoration project at the Pepsi Pond site chose to eliminate the Pond, restore the natural Wadi stream, and incorporate a green public park, marking a shift from industrial use to a community green space. It was initiated in response to a directive from Prime Minister Omar Razzaz in 2018. The Greater Amman Municipality (GAM) played a dominant role in this transformation process as the primary decision-maker, given its ownership of the site.

Before undergoing parkification, the site faced challenges such as pollution from various factories, notably the Pepsi factory, sewage mixing from the nearby refugee camp, and inadequate maintenance of culverts by Ruseifa Municipality. Despite collaboration attempts with stakeholders by GAM, viable solutions remained elusive, leading to the implementation of short-term measures without achieving lasting and sustainable results.

The obstruction of water flow at the site resulted from past industrial and mining activities, resulting in the accumulation of phosphate remains that formed elevated hills. Deeply woven into the urban fabric, these hills could not be removed due to extensive urban sprawl. Consequently, the solution involved initiating a tunneling project beneath these piles rather than their removal.

The project commenced with an intensive engineered infrastructure phase on the restoration of the Wadi. This phase included measures such as diverting incoming sewage,
constructing a stormwater storage system, and redirecting stormwater flow. Employing micro-tunneling technology addressed issues related to both rainwater and wastewater.

The decision to incorporate an environmental park into the project’s scope following the restoration of the lagoon area was influenced by securing funds from the European Bank for Reconstruction and Development (EBRD). Notably, the EBRD specified the creation of the park as a condition for providing financial support for both phases of the project.

Key components of this project include an underground tunnel line for water flow, a wastewater tank, and a water tank for future irrigation. Additionally, the rehabilitation effort involves creating a clay soil layer, preparing for backfilling, and facilitating cultivation for the envisioned park.

Table 6.1 provides a general breakdown of the transformation project at the Pepsi Pond site, highlighting key aspects of the site before transformation, the identified challenges, the envisioned new park, and the overall transformation process.

Table 6.1: Breakdown of the Parkification project at the Pepsi Pond Site

<table>
<thead>
<tr>
<th>The Site Before</th>
<th>Site Problem</th>
</tr>
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<tbody>
<tr>
<td>• The Pepsi Pond site, historically undermanaged, bore remnants of its industrial past, featuring large phosphate piles impacting water flow from the Marka Valley.</td>
<td>• Challenges included flooding, contamination, invasive habitat, and unpleasant odors due to phosphate waste accumulation.</td>
</tr>
<tr>
<td>• Urban development encroached on the site, and mining waste disposal led to pond formation, causing environmental challenges.</td>
<td>• Temporary solutions were attempted over four decades, but no permanent resolution existed.</td>
</tr>
<tr>
<td>• At the lowest wadi point, the site’s topography presented seasonal flooding and contamination issues.</td>
<td>• Urban sprawl limited feasible options, and resource constraints hindered pile removal.</td>
</tr>
<tr>
<td></td>
<td>• The site’s complex post-industrial nature posed inherent difficulties in addressing environmental issues.</td>
</tr>
</tbody>
</table>
### The New Park

- The Park project aimed to offer recreational spaces, integrate stormwater management, and replace the natural-based solution.
- Funding for the park from the European Bank was the main reason for the park idea.

### Transformation Process

- The transformation is presented by restoring the site's natural wadi and water flow through engineering remediation and a natural-based solution, replaced by a park transformation.
- The decision-making process involved key players like the HRC, MoEnv, WAJ, Ruseifa Municipality, EBRD, and GAM. However, GAM played a dominant role due to site ownership.
- Initial proposals focused on engineering solutions, but the prime minister’s directive led to exploring a nature-based approach.
- Despite concerns, GAM pursued its micro-tunneling proposal, securing EBRD funding for the two-phase project, conditioning to create the park.
- Delays, challenges, and changes in government affected the project's timeline and design phase progress.

### 6.1.1.1 Landscape Pattern

The landscape pattern layer in the context of the Pepsi Pond sites involves examining the site’s physical attributes before the parkification to understand the changes in the landscape as part of the transformative process; more details are in Section 3.2.1.

The Pepsi Pond, as a post-industrial site, bore the remnants of its industrial past for almost 40 years. By not dealing with these remnants, the site impacted the surrounding areas and the community with social, environmental, and aesthetic problems and misuse of the site.

The Pepsi Pond site was formed as an industrial pond due to phosphate mining activities since the 1970s and the blockage of the natural flow of stormwater. The water ran from the Marka Valley through the site uninterrupted until it reached the Zarqa River. With that, the site faced environmental challenges, including contamination from factory disposals and flooding. These challenges were due to the accumulated remnants of phosphate blocking the stormwater flow through the valley.
This blockage is mainly due to the large phosphate piles that cover the site; some towering up to 30 meters, woven into the urban fabric over four decades, have impacted the site and the surrounding areas. Moreover, its location near industrial factories, including the Pepsi Factory, has led the factory to use the Pond for cleaning their bottles and discharging chemical waste into the Pond, which has exacerbated the environmental problems caused by this site, including flooding, contamination, invasive habitat, and unpleasant odors due to phosphate waste accumulation.

The site is strategically important as a gateway for the densely populated city and is positioned along a major road connecting Amman and Ruseifa. The urban development expanded to the site, and the disposal of mining waste disrupted this natural course, leading to the formation of the Pond and subsequent environmental challenges.

*Figure 6.1: Site plan for the Pepsi Pond post-industrial site in Ruseifa.*
The urban sprawl limited the options available to decision-makers, as removing these piles was neither feasible nor practical due to resource constraints and their proximity to the highly dense neighborhoods. Figure 6.1 shows the site’s primary attributes as a post-industrial site.

Topographically situated at the lowest point of the Wadi, the site offered unique seasonal views in a country lacking watershed. In winter, with the seasonal water level covering approximately 35 Dunums (3.5 hectares), the filled lagoon led to flooding mixed with wastewater, leading to contamination of the Pond, while summer brought swamps, insects, and odors. The intended park aims to provide recreational spaces with integrated stormwater management, emphasizing sustainability and community benefits.

The Pepsi Pond site embodies a dual essence, seamlessly blending the historical narrative of post-industrial activities from the phosphate mine and Pepsi factory with the natural beauty of the lagoon and Marka Wadi. This harmonious convergence highlights the industrial legacy and serves as a crucial component in managing stormwater flow, contributing to the ecological balance of the Zarqa River.

6.1.1.2 Process Dynamic

The dynamic layer focuses on examining key players’ interaction and role in the parkification decision-making process that influenced the transformation of the post-industrial site. This layer will uncover the main actors, their role in the process, and their relationships with each phase.

During the initial decision-making process for transforming the Pepsi Pond site, governmental stakeholders and decision-makers were involved, including the Hashemite Royal Court (HRC), Ministry of Environment (MoEnv), Ruseifa Municipality, Zarqa Governate
Municipality and Greater Amman Municipality (GAM). Figure 6.2 shows a diagram of the project phases, involved players, and their roles in each process stage.

Figure 6.2: Key players involved in the transformation process at the Pepsi Pond site with main roles.

GAM, as the proprietor of the Pepsi Pond site, wields considerable authority over its management. Its status as a financially independent governmental entity positions GAM as the primary decision-maker, surpassing other entities like the Ruseifa Municipality, despite the site falling under Ruseifa’s jurisdiction. This dominance by GAM is underscored by its noted role in the matter. As GAM stated: “We, as GAM, tried to collaborate with other partners, but unfortunately, as always, since you are the landowner, you are the only responsible entity” D11, GAM.

Before the parkification project, GAM employed temporary measures to address some of the environmental issues at the site, including flooding, contamination from industrial wastewater, invasive habitat, and issues related to pests and odors. The Prime Minister’s visit to Ruseifa in
2018 underscored the urgency for immediate action. During his visit, the prime minister promised the public that the Pepsi Pond issue would be resolved, placing heightened pressure on GAM to act promptly. In response, GAM formed a committee comprising representatives from multiple governmental entities with the mandate to propose solutions within a 40-day timeframe.

Despite the involvement of additional stakeholders in the process, GAM remained the guiding force, firmly steering the project’s direction in accordance with its vision and objectives.

Later, Prime Minister Omar Razzaz gave directives to solve the problem within 40 days! So, the municipality formed a committee including representatives from the municipality, the Ministry of Environment, and all relevant authorities. The city’s director in this committee proposed a group of solutions, each with its engineering values, including cost, structural capacity, impact, and the time required. D11, GAM

During this stage of the process, the primary focus for GAM was not the parkification nor the future development plan for the site restoration. GAM’s primary objective was to rehabilitate the Pepsi Pond site, resolve its environmental issues, and create a foundation for future projects to revitalize the area and benefit Ruseifa.

Several alternatives were put forth, each subjected to evaluations based on engineering complexity, financial implications, and time requirements. The top three options resulting from this scrutiny were presented to the prime minister and committee members formed by GAM for their approval. The committee was comprised of representatives from the Ministry of Environment (MoEnv), Ruseifa Municipality, Zarqa Governorate, and GAM itself.

Notably, none of the proposed alternatives initially included the transformation of the site into an urban park. Instead, as highlighted by a GAM representative, all the proposals centered on
engineering solutions to restore water flow and tackle environmental challenges arising from the accumulation of phosphate ore waste.

After receiving approval from the prime minister for the chosen alternative, the implementation phase commenced. However, there was a budget constraint for the selected solution, as it required an estimated 17 million dollars. Compounding the challenge was the tight timeframe set by the prime minister for completing the project, adding urgency to the need for external funding.

Up to this point, GAM remained the primary driving force behind the environmental mitigation process, with limited involvement from other significant stakeholders. Notably, external experts were minimally consulted during the proposal and presentation of solutions. During the approval stage, the prime minister informally sought advice from an expert familiar with the site and the proposed project. The expert raised concerns about the intensive engineering solution involving the construction of a tunnel beneath the site and the Phosphate Landfill. Specifically, the expert emphasized the potential disruption to the site’s intrinsic value as an industrial pond.

In response to these concerns, the prime minister convened another meeting with GAM to explore the viability of adopting a more natural-based approach, as recommended by the expert—a shift in the project towards parkification. One proposal suggested transforming the site into a wetland, capitalizing on its natural features and the existing Pond.

This envisioned wetland would have multiple functions, such as supporting wildlife and agriculture. Additionally, plans included establishing educational research centers on the site, affiliated with local universities and relevant school departments, such as agriculture and landscape architecture.
Alternatively, other solutions were considered, including constructing a dam to reduce water accumulation in the Pond or installing natural dams along the valley to regulate water flow.

However, GAM maintained its stance on the micro-tunneling proposal for several reasons: 1) GAM lacked the expertise and resources to maintain and implement a nature-based solution effectively and refused to lead this type of project. 2) Ruseifa’s existing infrastructure is insufficient to support these solutions. 3) Pursuing these ideas was considered time-consuming and resource-intensive, posing a risk of delays beyond the determined timeframe. Therefore, GAM remained committed to its initial mitigation proposal, viewing it as the most feasible solution using available resources.

With this stance, GAM’s initial project proposal garnered the endorsement of the Prime Minister and subsequent formal approval from the Ministry, facilitating GAM’s acquisition of the essential budget. GAM approached the EBRD, a familiar funding agency from previous engagements in Ruseifa, to request a sub-sovereign loan. To fund the undertaking, GAM approached the European Bank for Reconstruction and Development (EBRD), a familiar funding agency with previous engagements in Ruseifa. The purpose was to seek a sub-sovereign loan designated for the urgent remediation and prevention of contamination at the Pepsi Pond site within Ruseifa Municipality.

The EBRD granted initial approval, contingent on the project being presented as a sustainable environmental and social initiative that would bring tangible benefits to the community. At this juncture, the project’s trajectory shifted towards the parkification initiative.

To align with the Bank’s sustainability criteria and objectives, GAM adjusted its primary plan, transitioning the project into a comprehensive redevelopment of the site as a public park. This shift was leveraged as a key selling point for the project, ensuring alignment with the Bank’s
sustainability standards. Consequently, the project evolved into two distinct phases: the engineered infrastructure phase, centered on mitigating environmental issues, and the subsequent parkification phase, aimed at transforming the site into a public park.

Upon completion, the envisioned park will be accessible to the public, providing a recreational and leisure space enhanced by green areas sustained through a stormwater well seamlessly integrated into the site’s infrastructure. With secured funding for the infrastructure phase, the project has begun its journey toward revitalizing the Pepsi Pond site.

_The Bank doesn’t just want an environmental problem solved; they want to see its impact on the community. So, I proposed that the Pepsi Pond site be turned into a public park afterward. I thought about what we could do to secure funding and even named it the ‘Environmental Park.’ I presented my case as a negative hotspot that transformed into something positive, which would be a qualitative leap for the site! So, we said the first phase is solving the environmental problem, and the second phase will convert it into a park._ D11, GAM

The Ministry of Environment collaborated closely with GAM, contributing Environmental Impact Assessment studies crucial for obtaining approval from the Bank. As part of these studies, MoEnv suggested strategic ecological solutions, such as adding a protective cap of red soil over the contaminated area affected by the phosphate waste.

The terms of reference for the project also mandated the involvement of the Water Authority of Jordan (WAJ) and Ruseifa Municipality to address the issue of stormwater flows mixing with sewage, a major contributor to the pollution in the lagoon. In accordance with the project’s timeline, GAM initiated the tendering process and planning drawings for the engineering remediation phase of the project in 2020. The implementation of this phase commenced towards
the end of 2021, with an initial projection for completion within 18 months. However, the project encountered significant delays.

These delays were attributed to the site’s physical characteristics, marked by the inherent complexity of being a post-industrial site. Challenges included navigating existing tunnels from earlier phosphate mining activities and dealing with the instability of soil degraded soil by remnants from the phosphate industry. The situation was further compounded by the COVID-19 pandemic and the resultant curfews imposed in Jordan during 2020.

The construction of the public park had not started by this period. Notably, during Phase One, the prime minister directed GAM to proceed simultaneously with Phase Two, which entailed designing and preparing the urban park master plan. This directive prompted the allocation of additional funding designated explicitly for the design and construction of the park, which was originally planned to be initiated after the completion of Phase One.

However, a change in the government and the appointment of a new prime minister in 2021 led to a realignment of priorities for the project, causing an extension in the timeline for Phase Two. Despite these changes, the project maintained its financial backing from the EBRD, ensuring the park’s construction remained secure.

For the park, which constitutes the project’s second phase, I managed to secure around 5 million in funding, although, at that time, we didn’t have a design in place. When the president met with us, he was curious as to why the design for the park hadn’t been developed yet and why work on the second phase hadn’t commenced parallel to the first phase. Unfortunately, following a change in government, the new administration didn’t pursue this matter further. To be frank, little progress has been made since then. D11, GAM.
GAM proudly asserted that this project stands as a unique endeavor in the Middle East, employing the innovative micro-tunneling technique to restore a contaminated lagoon.

Recognizing the specialized expertise required for such a project, GAM entrusted Engicon, a Jordanian consulting firm, with the design of the engineered micro-tunneling project. Additionally, a collaborative effort was initiated with an international coalition of contractors featuring Symbols of the Saudi Gulf Union Company and the Spanish Terratest Group to carry out the intricate infrastructure project.

The parkification process at the Pepsi Pond site, characterized by intricate interactions among technical, financial, and bureaucratic entities, exemplifies the multifaceted nature involved in transforming post-industrial sites into public parks. It underscores the pivotal role of dominant stakeholders like GAM in steering such transformations while pointing to the potential for broader stakeholder engagement in future developmental phases.

A decisive turn in the project’s trajectory occurred when the Prime Minister advocated for a natural-based solution. Subsequently, the EBRD assumed a critical role as a primary player, instrumental in the evolution of the project from initial engineering proposals to the parkification approach. The securing of EBRD funding was contingent upon the condition of transforming the site into a public park, marking a significant shift in the project’s purpose and outcomes.

6.1.1.3 Process Mechanism

The mechanism layer explores the generative approaches of transformation shaping the parkification process. It’s about understanding the stakeholders’ approaches and the decisions that guided the transition from post-industrial sites to urban parks.

The parkification project at the Pepsi Pond site required an intensively engineered infrastructure to restore the natural water flow of the Wadi through the site. A critical component
of this restoration was the construction of a 1200-meter-long tunnel under the phosphate landfill on the site, which was the leading cause of water blockage and the subsequent creation of the Pond. This micro-tunnel excavation will occur 20-30 meters below the natural ground level, minimizing disruption to the surrounding urban developments.

Rehabilitation measures involved adding a clay soil layer as a barrier to prevent rainwater and irrigation water from infiltrating through the phosphate remains into the Amman-Zarqa groundwater basin. This preparation is essential for the subsequent backfilling of the Pond, paving the way for cultivation in the project’s second phase.

Other measures were diverting incoming sewage directly to the existing sewer network, constructing a stormwater storage and balance system within the lagoon, and subsequently redirecting settled stormwater flows to the Zarqa River.

The subsequent phase of this project features the parkification and transformation of the site into an urban park. This phase was integral to revitalizing the area and providing the community with new recreational and environmental benefits.

To summarize the mechanisms adopted in this restoration parkification project process, it was described within the main goal of each stage of the process as follows:

- **Site assessment stage**: It involved conducting several EIA reports to identify environmental challenges and contamination issues, site clean-up, and implementation of environmental remediation measures.

- **Engineered infrastructure planning stage**: develop the plan for the tailored infrastructure project that restores the water flow within the Wadi, considering the construction of all necessary structures, such as the micro-tunnel caping, retaining walls, and all related water structures.
- **Environmental remediation**: in this case, it constituted soil remediation, erosion control, water management, and phosphate landfill remediation.

- **Natural-based solution integration**: explore natural-based solutions to transform the site into a wetland to create a sustainable environment and integrate it into the park design.

- **Parkification stage**: in this case, it focuses on creating a public park over the remediated lagoon, incorporating recreational spaces and green areas with aesthetically pleasing landscapes.

- **Community engagement**: It is worth highlighting the absence of community participation and environmental expert involvement during the initial stages. Community engagement primarily occurred towards the completion of Phase One, focusing on addressing concerns raised by residents and Ruseifa Municipality. A series of community meetings were held during the construction phase, as stated in the stakeholder engagement plan reports by Engicon, see Appendix B, T14. These sessions provided a platform for the local community to learn about the project’s progress and voice their opinions and suggestions.

  The community welcomed the long-anticipated lagoon project, recognizing its potential benefits for Ruseifa.

  The Pepsi Pond parkification project is an exemplary model for transforming post-industrial sites into thriving urban parks. Its methodical progression navigated key stages, addressing environmental challenges, implementing crucial engineered infrastructure, and culminating in parkification. The engineered phase, highlighted by the construction of a tunnel beneath the phosphate landfill, was pivotal in restoring water flow and mitigating contamination issues. Concurrently, strategic environmental remediation measures, including soil rehabilitation
and water management, were meticulously executed, setting the stage for the subsequent parkification phase.

This parkification phase played a vital role in harmonizing engineered interventions with restoring natural elements and creating recreational spaces that benefit the local community.

6.1.1.4 Perception of Process

The stakeholders’ perception of parkification on Pepsi Pond site primarily viewed it as a means to secure funds, rather than a top priority. Once integrated into the project, it became a strategically logical step for the restoration initiative. Stakeholders perceived parkification as an avenue to align with environmental and nature-based approaches, aiming to mitigate the impact and address the problem. GAM emphasized, “Whatever happens afterward is not crucial. Whether it transforms into a park or takes another form is not the main concern. The essential objective is to eliminate the environmental problem.” D11, GAM.

The transition to a green and urban park use was considered an easy land-use change for GAM, shifting from a post-industrial and environmental problem to a park that facilitates environmental restoration. GAM clarified, “As a solution, there is no alternative but the park. The key is to restore the natural flow; by rejuvenating the valley, the stream will return.” D11, GAM.

6.1.2 Parkification Process 2: Environmental Rehabilitation & Parkification at the Phosphate Ore Hills Site

The parkification process of the Phosphate Ore Hills site in Ruseifa represents a collaborative, government-led effort focused on reclaiming this post-industrial site by rehabilitating it environmentally and transforming part of it into a public park.

The main problem of the Phosphate Ore Hills site is the extensive environmental degradation and pollution caused by the post-industrial legacy of phosphate mining operations.
The site is characterized by an extensive phosphate landfill forming hills up to 30 meters high. This post-industrial landscape significantly impacts the city of Ruseifa in various ways:

1) The visual impact of the imposing presence of phosphate residue hills affects the city's visual aesthetics.

2) The environmental impact on the site and its surroundings contributes to persistent environmental issues, including industrial pollution of the Zarqa River and underground water, contamination from phosphate residues, waste dumps, and airborne phosphate dust settling in residential areas.

3) Physical impact from the phosphate excavations that have left huge mine pits, forming high sand hills on roadsides. The emission of fine sand saturated with minerals and phosphate residues poses a continual threat to the lives and health of the citizens.

4) negative impact on the Quality of Life, with the cumulative effect on city infrastructure, air quality, and public well-being, further exacerbates the challenges faced by the residents.

To address these issues, a rehabilitation project was initiated in response to a royal order, with the primary objective being to rehabilitate the site, relocate phosphate ore hills, level the area, and remediate the soil, followed by a parkification project aimed at transforming the rehabilitated site into an urban park and providing a positive change to the quality of life for the community. This parkification process was unfolded in three phases: rehabilitation, parkification, and afforestation.

The rehabilitation phase focused on improving the site's environmental quality and addressing the effects of industrial activities. This involved decisive and strategic measures such as removing the massive phosphate waste hills, soil remediation to address contamination, tree
planting, and introducing native species to rejuvenate green spaces. Additionally, recreational spaces were created to align with broader environmental rehabilitation goals.

During the parkification phase, the Ministry of Environment played a crucial role, initiating the idea in 2012 and making it a pivotal component of the overall rehabilitation project. The parkification process had its dedicated committee and procedures seamlessly integrated into the overarching project. The envisioned park, designed twice with a primary focus on environmental aspects, was entrusted to the Ministry of Environment for landownership. The entire process, from design to funding and implementation, was carried out under their supervision and in collaboration with the Ministry of Public Works.

The afforestation phase, constituting a broader strategy for greening, became essential due to the site's limitations – characterized by a lack of open spaces and the poor, unstable land resulting from over 40 years of phosphate waste accumulation. Planting emerged as the primary solution to gradually remediate the site over time.

Several challenges arose, extended across the jurisdictions of the Greater Amman Municipality (GAM) and Ruseifa Municipality, including issues related to land ownership of treasury land, private holdings, and concession lands of the Phosphate Company. The committee dealt with these challenges while also addressing surrounding environmental and social matters critical to the project’s success.

The Ministry of Local Administration (MoLA) was pivotal in this multifaceted process. Although not directly involved in the technical aspects, MoLA oversaw the collaborative efforts of diverse stakeholders and players within the ministerial committee. Operating under a directive order from the king, MoLA facilitated efficient collaboration, ensuring that the involved parties worked together seamlessly within a limited timeframe.
Table 6.2 provides a comprehensive breakdown of the transformation process at the Phosphate Ore Hills site, shedding light on key elements such as the site's condition before transformation, the challenges encountered, the envisioned new park, and the transformative process itself.

**Table 6.2: Breakdown of the Rehabilitation Parkification Project at the Phosphate Ore Hills Site**

<table>
<thead>
<tr>
<th>The Site Before</th>
<th>The Phosphate Ore Hills site is characterized by an extensive phosphate landfill occupying a massive area within Ruseifa.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This site, nestled amidst densely populated neighborhoods, significantly impacts the city landscape and residents’ quality of life.</td>
</tr>
<tr>
<td></td>
<td>The phosphate ore piles, and waste-shaped hills reached up to 30 meters in height within the urban fabric of Ruseifa.</td>
</tr>
<tr>
<td></td>
<td>The phosphate excavations have left huge mine pits in Ruseifa, forming high sand hills on roadsides emitting fine sand into the air, posing a continual threat to the lives and health of the citizens with every passing breeze.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site Problem</th>
<th>The main problem of the Phosphate Ore Hills site is the extensive environmental degradation and pollution caused by the post-industrial legacy of phosphate mining operations.</th>
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<tbody>
<tr>
<td></td>
<td>Causing visual impact, environmental impact and physical impact from the phosphate excavations that have left huge mine pits, forming high sand hills on roadsides, poses a continual threat to the lives and health of the citizens.</td>
</tr>
<tr>
<td></td>
<td>Impact on the Quality of Life, with the cumulative impact on city infrastructure, air quality, and public well-being, further exacerbates the challenges faced by the residents.</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>The New Park</th>
<th>Part of the site was transformed into an urban park known as the “Environmental Park.”</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>An important component of the rehabilitation project.</td>
</tr>
<tr>
<td></td>
<td>The Environmental Park is designed to accommodate picnic areas, walking pathways, playgrounds, an amphitheater, a water tank, administration offices, a multi-purpose building, restrooms, and other facilities.</td>
</tr>
</tbody>
</table>
• In response to a royal order from King Abdullah II, the Ministry of Local Administration (MoLA) established a ministerial committee that initiated a rehabilitation project for this post-industrial site in 2020.
• The extensive post-industrial sites underwent a remarkable transformation, evolving from industrial sites into urban parks.
• This parkification project unfolded in phases: rehabilitation, parkification, and afforestation.
• A comprehensive plan to regenerate the entire area, encompassing the project site and addressing broader environmental concerns.

6.1.2.1 Landscape Pattern

The analysis of landscape patterns in the Phosphate Ore Hills site context plays an important role in understanding the decision-making process of parkification. It involves examining the site’s physical attributes towards the transformative process. More details about the site's physical elements can be found in Section 3.2.2.

The parkification of this site was significantly influenced by its post-industrial status, marked by remnants and disturbances, posing a national environmental problem. The presence of open pits, mining areas, tunnels, waste piles, and industrial structures profoundly impacted the demographic, economic, social, geological, and environmental aspects.

Old mining tunnels from previous phosphate excavations presented a major challenge, extending hundreds of meters with multiple branches throughout Ruseifa city; some partially collapsed, complicating parkification efforts. The unclear locations of these tunnels necessitated alternative solutions that led to only a parkification or greening approach.

The removal of the phosphate remains piles during the rehabilitation process emerged as the most challenging aspect of site redevelopment, leading to land instability. The extraction of the phosphate piles surrounding the area and adjacent site changed the landscape and required digging nine meters deep to reach the natural ground level during park construction.
The selection of the park’s specific site was strategic, positioned along the main road and in proximity to urban neighborhoods, symbolizing the government's success in revitalizing the area. The proposed park, situated in the northeastern part of the phosphate mining site and bordered by 40-meter-wide roads, serves as a gateway for Ruseifa from Amman and Zarqa. It is strategically located near landmarks, including the general intelligence building, Ruseifa police and security station, and the research center for the phosphate company, known locally as the “safety triangle.”

As illustrated in Figure 6.3, the park in this location serves as a prominent facade for the city and the entire project. It encapsulates other post-industrial sites, contributing to a redeveloped post-industrial landscape. Completing this park was crucial for the overall rehabilitation project and symbolized the government’s accomplishment in revitalizing the area.

![Site map of Phosphate Ore landfill site and the environmental park](image)

**Figure 6.3:** Site map of Phosphate Ore landfill site and the environmental park, as illustrated by author, 2023.
Land ownership belongs to the treasury of the Hashemite Kingdom of Jordan, with substantial portions owned by the Phosphate Company. Due to a lack of land use categorization and oversight from concerned parties, random buildings have spread in the area and among the hills and piles, posing a collapse risk. Moreover, these vacant sites, though prohibited from construction by Public Defense Order No. (6) of 1975, were temporarily utilized by other governmental entities for storing and disposing of garbage.

Given the situation, it was imperative to reconsider landownership status and rights to distribute responsibilities among various stakeholders. In the case of the park site, the Ministry of Environment was granted full authority and control over the land.

The site currently lacks any signs of green areas or natural planting, necessitating rehabilitation and soil remediation. Addressing the challenges of this disturbed land requires a remediation process and a shift in perceptions, considering these sites not as problems but as opportunities. Despite capturing the historical context and industrial legacy, the transformation of the site into a park inadvertently erased a part of the community's collective memory. Unfortunately, the changes in the landscape were not documented or presented in the park, erasing traces of the industrial site’s legacy.

6.1.2.2 Process Dynamics

The dynamic layer navigates the collaborative approach and the roles played by various stakeholders in the decision-making process for the parkification project at the Phosphate Ore Hills site, influencing the transformation of this post-industrial area. This layer revealed the main actors, their functions in the process, and their interrelationships across different phases.

The parkification process at the Phosphate Ore Hills site was underpinned by the Ministerial Committee, spearheaded by the Ministry of Local Administration (MoLA). This
committee provided essential support to Ruseifa municipality and other involved parties, with a representative from MoLA emphasizing, “Ruseifa Municipality is unable to operate independently; given the constraints faced by the Ruseifa municipality, our committee stepped in to offer the necessary support.” D07, MoLA.

The project was officially launched after King Abdullah II’s visit to Ruseifa City in 2019, where he directed the initiation of the site’s rehabilitation. However, the groundwork commenced after the site’s cessation and official closure in the 1990s. Given its status as treasury land, this distinctive post-industrial site engaged various stakeholders owing to its substantial impact on the city, which required a collaborative effort to address related issues collectively.

Several committees have been established over the years to tackle the phosphate pile problem in Ruseifa city and rehabilitate the post-industrial site. The first committee convened in 2011, followed by subsequent ones in 2016 and 2018. None of these committees could reach a final decision for implementing and managing the project. The breakthrough occurred with the formation of the last committee on December 9, 2020, in response to a royal order from King Abdullah II to the Ministry of Local Administration.

The committee’s preliminary meetings formalized the project’s primary mission and objectives for the site transformation, encompassing three phases: rehabilitation, parkification, and afforestation.

These objectives were the foundation for a collaborative, multi-disciplinary approach to converting the Phosphate Ore Hills site into a rejuvenated, green public space, showcasing a significant shift from the site’s industrial past. Specific committees and players emerged for each phase, illustrating the coordinated efforts involved. The diagram in Figure 6.4 below depicts the key contributors for each project phase, as they have emerged consequently.
The project’s first objective aimed to clean the site of any industrial remnants or residues from past phosphate excavations and restore the ground level. It involved relocating 30-40-meter-high phosphate ore piles to the outskirts of Ruseifa, thereby returning the site’s surroundings to an open and natural state. The Phosphate Company took responsibility for this task, acknowledging its direct role in the area’s industrial impact. According to a representative from the company, “Our responsibility evolved from phosphate extraction to improving and beautifying the area, aligning with the Royal Court and Ministry of Environment’s directives.” E01, JPMC.

Figure 6.4: Key players involved in the transformation process at the Phosphate Ore Hills site with main roles.

The project’s second objective centered on greening, afforestation, and agriculture, aligned with the Environmental Strategic and the National Green Growth Plans. A study by the National Building Authority (NBA) identified restrictions on above-ground construction due to an extensive network of underground tunnels, leading to the decision to parkification.
The third objective aimed to develop a public park for the community, initially proposed by MoEnv in 2012 and later incorporated into the project. Despite unique challenges and resulting delays due to the site’s specific conditions, the park was eventually inaugurated by the King and opened to the public in March 2023.

The ministerial committee comprised a diverse group of initial stakeholders, each playing a role in the parkification decision-making process. The Ministry of Local Administration (MoLA) oversaw the project’s development, monitored progress, set deadlines, and requested reports. The Ministry of Environment (MoEnv) focused on the environmental aspects, and the Jordan Phosphate Mine Company (JPMC), holding concession rights, played a primary role in the site’s transformation. The Ministry of Public Works (MoPW) executed and oversaw the design of the proposed park. The Zarqa Municipality was also a player due to Ruseifa’s city administration borders within its governance area, and the Greater Amman Municipality was part of the process as the landowner of the southern part of the site.

As the project progressed, additional stakeholders were engaged; the Ministry of Interior (MoI) addressed security concerns, the Royal Society for the Conservation of Nature (RSCN) provided essential studies, and the Ministry of Energy (MoE) assessed radiation levels. Compliance with project goals and site conditions was overseen by consulting the National Building Codes department. The Ministry of Agriculture (MoA) and the National Research Center (NRC) were consulted for expertise in planting strategies and advising on suitable tree species. Environmental Police and the Gendarmerie ensured site security.

Ruseifa Municipality played a vital role in decision-making, incorporating a large adjacent area into the project for planting and preparation expanding the Environmental Park. They took charge of planting other areas.
JPMC collaborated with GAM and Ruseifa Municipality to align their efforts with comprehensive master plans for Ruseifa City. JPMC’s financial contribution of $35 million is a major factor in completing this project. JPMC stated, “We approached the municipality and said, Let’s work together. Here’s what we’re doing. Let’s see how our work aligns with your future needs”. D02, JPRC.

MoLA assigned specific roles to each key actor, ensuring smooth coordination in the multi-disciplinary collaboration. Regular meetings and site visits were organized, fostering stakeholder engagement. In 2021, 170 ministerial meetings occurred, 37 site visits in 2022, and 20 meetings at the Royal Court, issuing 2,125 official documents detailing project phases and progress. These efforts were instrumental in creating the Environmental Park, enhancing environmental quality, and supporting urban development in Ruseifa.

Transitioning to the Environmental Park project, a dedicated committee was established to implement the park project, aptly named the Environmental Park, to emphasize its primary purpose. This committee included the Ministry of Environment as the primary decision-maker, the Ministry of Public Works (MoPW), Ruseifa Municipality, and the Ministry of Planning Affairs (MoPA). As the new landowner, the Ministry of Environment was responsible for initiating, designing, funding, and implementing the park on the allocated 75 dunums.

The inception of the park project dates back to 2012, when it was proposed by the Ministry of Environment, aiming to create a recreational space reflecting Ruseifa’s historical agricultural landscape. Community input played a significant role, emphasizing the need for gardens and recreational spaces in the densely populated area while addressing environmental concerns. The design envisioned a multi-use recreational area with playgrounds, sports fields, an amphitheater, and green spaces for community gatherings.
Responding to residents’ complaints, we realized the necessity of a park. Our Ministry endorsed this idea and kickstarted the project. Initially, the project was divided into two stages: the first, from 2012 to 2015, involved the construction of walls and two rooms for the guard. The second phase involved the design of the park, which initially included administrative offices, playgrounds, outdoor seating, and children’s play areas, but it wasn’t executed. In 2022, they discovered that the soil was too unstable, so they proposed reducing the buildings’ risk by eliminating the administrative offices and all buildings, leaving only the sanitary units and keeping them prefabricated. D06, MoPW.

However, the project faced delays due to studies in 2012 revealing high levels of radon and uranium from the phosphate piles. These studies raised concerns among the government and residents, leading to the postponement of the project and concerns about public health.

In 2021, after resolving the contamination concerns, the project resumed with a revised design and a reduced budget managed by Al-Mostaqbal Engineering & Environmental Consultants. The site’s transformation involved removing phosphate piles, relocating municipality vehicles, altering the landscape, and necessitating a new design that prioritized greenery while adhering to budgetary and structural constraints.

The initial vision of creating a sustainable and comprehensive environmental systems park had to be altered due to budget limitations. Furthermore, the site’s landscape, topography, and characteristics underwent significant changes with the removal of vast piles of phosphate waste, necessitating a new survey and site inventory. The revised master plan and technical drawings had to adapt to these alterations while adhering to tighter budget and timeline constraints. Additional funding from MoPA and MoEnv was secured to construct the park. Given time and budget
constraints, the design had to be revised to meet the basic requirements of a public park rather than the original concept of the environmental park, as stated by the project architect.

The park was much larger; the idea was to create a sustainable park with all the concepts of sustainability, treatment facilities, and a processing station that utilized green systems for the site. However, the costs were high, and the budget was insufficient, so the project was postponed [...] in 2021; they requested a reevaluation of the site and redesign. In this case, many of the environmental applications we had initially planned were abandoned, and they asked for the site’s transformation into a park that is as close to a typical park as possible, with consideration for safety aspects related to the environment.

S07, Architect.

In this stage of the parkification process, an approach known as “binding” was employed. This approach involved retaining the same consulting firm specializing in environmental parks that had designed the park during its initial phase. Due to time limitations, MoPW opted against engaging a new consultant through the usual tender and bidding procedures, choosing instead to quickly re-employ the same firm to adjust the design for the second phase. The Ministry of Public Works assigned a team to execute these revised designs and oversee the park’s construction with their on-site team.

The design team utilized innovative solutions to address challenges such as unsuitable soil conditions for planting. For instance, underground containers filled with appropriate soils were employed in designated planter areas, ensuring the feasibility of green spaces within the park. This approach catered to the environment and made the park visually appealing and functional for the community’s use. Furthermore, the decision to create the park stemmed from community demands for more public spaces. The objective shifted towards restoring these sites to their original
recreational state, integrating elements of reforestation within the parkification approach. Unfortunately, there was a notable absence of documentation, and the site’s evolution – from an industrial area to a green urban space – lacked effective communication with the public. This oversight represents a missed opportunity to educate and inform visitors about the site’s significant historical and cultural value. The industrial heritage, which could have been a focal point for preserving and celebrating the site’s past, was not seamlessly integrated into the parkification narrative.

*Of course, the goal is to create a recreational space for people in Ruseifa. It was known as a green area where people used to stroll, mainly since the Zarqa River flows through it. However, the area has suffered a lot, so we are trying to breathe some life back into it by establishing gardens.* D03, MoEnv.

Furthermore, this lack of historical preservation emphasizes the need for a more holistic approach to redevelopment projects, striking a balance between environmental restoration and preserving historical identity. The site’s transformation into a park inadvertently erased a portion of the community’s collective memory by failing to capture the historical context and industrial legacy.

### 6.1.2.3 Process Mechanisms

The mechanism layer delves into the stakeholders’ strategies and the decisions shaping the transition from post-industrial sites to urban parks, summarizing the mechanisms employed in this rehabilitation and parkification project.

Emphasizing the collaborative decision-making process among multi-disciplinary governmental stakeholders, this project underscores three integral phases: rehabilitation, parkification, and afforestation, all serving as cohesive components for the overall process.
The mechanisms implemented for the transformation at the Phosphate Ore Hills in Ruseifa include:

- **Site Assessment and Evaluation**: Various stakeholders, including JPMC and MoEnv, collaborated with Ruseifa Municipality to conduct Environmental Impact Assessments (EIA) and assessment studies. These efforts identified environmental issues and pollutants from industrial activities, thoroughly documenting all disturbing elements. The 2007 study was foundational in listing and surveying existing industrial elements on-site.

- **Multi-disciplinary and Stakeholder Collaboration**: Given the project’s scale and the unique nature of the site as a post-industrial area, a partnership involving governmental entities, experts, and local authorities was essential. Engaging and informing all stakeholders fostered discussions aligned with the main goals of rehabilitation, greening, and afforestation.

- **Site Remediation and Clean-Up**: This phase included the removal of massive piles of phosphate, which remain known as phosphate hills. Landfills were repurposed, open-cast pits from phosphate open mine extraction were closed, and all contamination from industrial activities, such as quarries, was thoroughly cleaned.

- **Rehabilitation**: This involved soil remediation by adding an adequate layer of red soil to the restored land. It also included introducing vegetation capable of thriving in high phosphate levels and afforestation efforts to heal, restore biodiversity, and enhance ecological functions.

- **Parkification**: The design of the park aimed to provide recreational, green, and natural spaces to meet community needs while preserving the site’s natural elements.
- **Sustainability Practices and Afforestation**: Focus on incorporating sustainable and environmentally friendly practices into the park design and management, serving its primary goal as a facade for the environmental rehabilitation project of the phosphate site.

- **Landownership and Land Use**: Robust monitoring was established through practical measures, including changing the site’s land use to parks and open space and limiting future developments. Altering landownership ensures ongoing monitoring by related stakeholders and engaging local authorities advocates for a preserved parkified environment.

6.1.2.4 **Perception of Process**

The perception of parkification at this site predominantly portrays the park as a positive and essential addition to the city. Recognizing the scarcity of green spaces and public parks, the decision-makers view this initiative as a remedy to address the void. It serves as an incentive to alleviate the enduring effects of past industrial activities on the site, positioning itself as a tangible manifestation of governmental efforts to rehabilitate the area.

The park is considered a crucial element for greening and afforestation, especially given the unstable nature of the site. Its creation aims to erase the lingering industrial elements and memories of past hardships, acting as a symbol of the government's commitment to transforming the landscape. Additionally, it serves as a reminder of Ruseifa’s identity before the onset of the phosphate mining industry.

The Mayor of Ruseifa, commenting on the project, emphasized its positive impact on the community: "The rehabilitation of the phosphate hills had a positive effect on the citizens of Ruseifa, transformed previously problematic sites into valuable recreational areas. The environmental park and its adjacent spaces have replaced areas once marred by pollution and disturbance." D09, Municipality of Ruseifa.
A representative from the Ministry of Public Works observed,

*The park project here is probably the most beneficial thing you can do for the people of Ruseifa, offering them much-needed respite and the city lacking recreational spaces. The phosphate mounds were a source of various issues, especially at night when they caused a haze of dust. Transforming this area into an environmental park has been a remarkable achievement.* D05, MoPW.

### 6.1.3 Parkification Process 3: Industrial Heritage Preservation Parkification at the Old Phosphate Mines and Administration Building Site

The parkification process for the Phosphate Old Mines and Administration Building site is primarily a process of industrial heritage preservation through the adaptive reuse of buildings and parkification. The main goal was to transform the site into a geo-heritage park.

This site is home to historical buildings from 1934, such as the early JPMC administration building, and industrial structures related to old phosphate mining, such as the water tower, silos, Railway, and others. The site also features several openings of the old mine tunnels for extracting phosphate dating back to the 1940s. Therefore, the site encompasses historical, heritage, economic, and social value to preserve.

Moreover, its unique geological formations recognize the role of phosphate ore in the national economy, Jordan’s global standing, and the potential for new economic opportunities through projects. Despite that, the site was neglected and undeveloped for over 40 years.

In 2016, a project was proposed to preserve and protect the industrial heritage of this site by a team from the Center for the Study of Natural and Cultural Heritage at the German Jordanian University (GJU). The project suggested transforming the site into a geo-heritage park and museum, which was presented to various stakeholders and decision-makers seeking support and
funds. Adaptive reuse approaches have been employed in the design of the site and its buildings. Additionally, the design encompasses a museum that guides visitors through the area’s industrial heritage and geological significance.

Table 6.3 provides a general breakdown of the transformation project at the site, highlighting key aspects of the site before transformation, the identified challenges, the envisioned new park, and the overall transformation process.

Table 6.3: Breakdown of the Rehabilitation Parkification Project at the Phosphate Old Mines and Administration Building Site.

| The Site Before |  
|-----------------|---------------------------|  
| • located in the northern part of the concession area, spans 51 dunums (12.6 hectares). |  
| • It contains remnants of old mining tunnels, the principal administrative building, and structures associated with post-mining activities. |  
| • The site, witness to the early era of the Jordan Phosphate Mine Company, underwent significant transformations due to mining activities and industrial structures, integrating it into the urban fabric. |  
| • Neglected and unused, overlooking Zarqa River. |  

| Site Problem |  
|--------------|---------------------------|  
| • Despite its historical significance, the site suffered from abandonment, neglect, and urban challenges. |  
| • The six main buildings, including the Phosphate Management Company Building Complex and silos, were in various states of disrepair. |  
| • Mining tunnels, intricately linked with the historical railway system, were misused and vandalized, leading to deterioration. |  
| • Despite disrepair and urban challenges, the site held potential for revival and educational purposes, providing a unique window into Jordan’s industrial and geological past. |  

| The New Park |  
|--------------|---------------------------|  
| • The proposed project suggested transforming the site into a Geo-heritage park and museum, incorporating adaptive reuse approaches. |  
| • The design included a museum guiding visitors through the area’s industrial heritage and geological significance, featuring interactive exhibits on mining techniques and tools. |  
| • The Geo-heritage park was envisioned as a labyrinth of knowledge, offering insights into Jordan’s industrial history and geological heritage. |
The transformation process involved a project proposed by a team from the CSNCH at the German Jordanian University. It aimed to preserve the site’s industrial heritage, employing adaptive reuse approaches. Approval from the landowner (Jordan Phosphate Mines Company) and the Ministry of Environment was secured for the transformation into a Geo-heritage park. The project faced ownership disputes but gained cooperation after proposing the parkification initiative, supervised by MoEnv.

### 6.1.3.1 Landscape Pattern

The site’s nature as a post-industrial site greatly influences the direction of the parkification process at the Phosphate Old Mines and Administration Building site, with its array of old industrial structures, administrative heritage buildings, and mine tunnels presenting both challenges and opportunities. The Company didn’t have a plan for these buildings and structures, while the expert team saw potential in these elements.

One of the site’s main attractive features is its location on a linear plateau overlooking the Zarqa River, the Hijaz railway, and the northern hills of Ruseifa’s neighborhoods. Also, it was one of its obstacles, situated away from the main road and having one entry point from the east, connected to the main road leading to the western settlements, that gave it less attention and slowed the process of parkification, as shown in Figure 6.5. The site is structured into three distinct terraces:

- The Upper Terrace houses remnants of old mining tunnels.
- The Middle Terrace features the principal administrative building that has been pivotal in the site’s history.
- The Lower Terrace historically served as a workshop area for post-mining; it contains remnants such as silos and barrels and other structures related to the Railway that was used to transfer phosphate.
This location boasts a unique vantage point, commanding views over the Zarqa River, with a notable elevation difference of 30 meters between the upper main road (King Hussein) and the riverbed below. It also offers a captivating glimpse into the geological narrative of phosphate mining and Jordan’s broader geological heritage, showcased in the exposed layers of mountains.

The once-natural landscape dominated by hills and river embankments was reshaped by phosphate excavation, resulting in a unique topography. The site stands as a blend of historical significance and urban neglect, characterized by abandoned and dilapidated buildings and sealed mining tunnels, some extending deep into the earth. And rugged terrain with remnants of phosphate mining, altering the natural landscape.

Due to the lack of maintenance or management, main features like the water tower and Railway have been demolished due to safety measures, and illegal activities have further degraded
the site, causing the loss of essential elements for the proposed park. Moreover, the old mine
tunnels on the southern side reach hundreds of meters long. Although it was utilized in the
parkification project as part of the museum experience, the local authority chose to close them
with cement and remove their trace of existence.

Although it has remained abandoned since the 1980s, Ruseifa Municipality has found
various uses despite ownership disputes. However, it was only when the project was proposed that
the Company agreed to allocate this land and its structures for the project’s benefit, under the
supervision and directives of MoEnv, in support of the initiative parkification project proposal.

6.1.3.2 Process Dynamics

The dynamics of the parkification process at the Phosphate Old Mines and Administration
Building site describe the incomplete multi-processes for the industrial heritage preservation
parkification project. In addition to the main actors, their functions in the process and their
interrelationships across different phases are uncovered in this layer.

The parkification initiative began with concerned community members and non-
governmental institutions who recognized the site’s historical, geological, and industrial value.
This recognition was partly sparked in 2010 by a historian from JPMC who highlighted the
importance of the site and its industrial structures to Ruseifa. The site faced risks of destruction
and neglect, having been abandoned for over 40 years.

In 2013, a team of geologists and landscape archeologists from CSNACH conducted an
exploratory visit to the site. Their report confirmed the geological importance of the sites, mainly
due to their exposed phosphate deposits and the presence of old mining openings.

This geological significance, combined with historic industrial structures, created a unique
appeal for the site. Their report revealed the site’s unique potential in integrating industrial heritage
buildings, geological attributes, and the mining tunnels as an important element to the city’s old industry.

This blend of features catalyzed the concept of transforming the area into a park. As an expert from the German Jordanian University (GJU) noted, “The distinctive amalgamation of heritage structures, geological features, and subterranean tunnels at this location offered a promising opportunity for its development into a park.” E12, GJU.

Subsequently, a meeting with a Kawar family representative, the phosphate company’s founding family, was arranged to obtain information, plans, and possible support for the project. JPMC, which owns the site, showed initial interest in the idea, encouraging the team to start planning and designing the project.

In 2016, the team expanded to include several experts, including geologists, landscape architects, architects, archeologists, and building preservation experts. The assembled team started conceptualizing the proposal for transforming the site into a geological museum, spearheaded by the Center for the Study of Natural and Cultural Heritage (CSNCH) at the German Jordanian University. Several meetings with governmental institutions explored the potential to adopt the idea of preserving this site and developing it into a national touristic project.

This marked the beginning of the parkification process of transforming this site into a geo-heritage park, where a team proposed a project to preserve the industrial and geological heritage within the site. Initially, it was to transform the administration building into a geo-heritage museum. With the trajectory of seeking funding and support, the concept expanded to the whole site, incorporating the mine tunnels and these industrial buildings into the geo-heritage park.
This parkification process has experienced several challenges and shifts in direction. This process has involved the search for collaborative stakeholders and experts committed to preserving the site and acknowledging its historical and industrial significance, as shown in Figure 6.6.

Figure 6.6: Key players involved in the transformation process at the Phosphate Old Mine and Administration Building site with main roles.

With the phosphate company’s support to donate the site for a park, the team approached the Ministry of Tourism (MoT) first to represent the site as a tourist attraction. Meetings with the Department of Antiquity (DoA) highlighted the site’s historical industrial heritage. However, neither entity could offer support, citing funding limitations and their mandate to archaeological sites. The initial idea presented to the DoA was to preserve and reuse one of the buildings as a geological museum. Yet, it faced refusal due to the lack of historical recognition of the phosphate mines in the DoA’s records.

The Ministry of Environment (MoEnv) showed active support, leading to several meetings between the CSNACH team and potential funding stakeholders, including the Ministry of Tourism.
and Ruseifa Municipality. As a leading governmental key player in this project, MoEnv approved collaboration to transform the site into a museum and proposed to expand the idea to include the entire site in the geo-heritage park.

An expert in the project explained: “Based on our meeting with the Ministry of Environment, the project expanded even further. The idea became comprehensive, covering the entire area, not just the buildings. To gain approval, we had to incorporate an environmental park, or something related to aligning it with environmental concerns”. E11, Expert.

Therefore, the design team saw the opportunity to combine the ideas, proposing to transform the entire site into a geo-heritage park. The site’s unique characteristics have shaped the parkification approach and the geo-heritage park that aimed to showcase these mines’ historical and geological importance and the site itself. In addition to the intention to preserve these buildings and reuse them as a museum, it gives the community the site back as a public park. The comprehensive design was developed and submitted to MoEnv for funding approval.

However, the project’s process encountered several challenges. One of these challenges was the changing of administrative personnel in the MoEnv. Work stopped several times, as a member of the expert team noted: “Once the Company’s administration showed interest and accepted the idea, we began to develop and solidify the concept. That’s when we encountered a series of difficulties. From changing the Ministry to the different governmental committees, we met every time” E11, Expert.

Studies on the radiation levels from the phosphate waste have led the government to stop any redevelopment projects in the phosphate mine sites, including this project. The project proceeded when the issue of phosphate ore piles in other sites gained media attention, reigniting interest.
During meetings with MoEnv and other stakeholders in 2017, resistance from the municipalities of Ruseifa and Zarqa hindered the project’s progress. They opposed the project, arguing its redundancy and unnecessary for Ruseifa. To cement their refusal, they rented the buildings on site to locals as a form of defiance towards the team. The site was also temporarily repurposed for other uses, such as a gas station and a space for a local shepherd’s livestock. This resistance from local authorities showcased the complexities and challenges faced in transforming post-industrial sites into functional, heritage-preserving public spaces.

As a result, the expert team escalated the matter to a higher authority and approached the Hashemite Royal Court (HRC). The team presented the project idea to them and explained it in a formal meeting involving the MoEnv, MoT, Ruseifa Municipality, JPMC, and funding agencies from Denmark. The parties expressed interest, but no immediate actions were taken.

Landownership was an issue for this site as it has been noted that Ruseifa Municipality showed interest in gaining ownership for the benefit of the city. MoEnv sent several formal requests to JPMC to transfer the site’s ownership to the Ruseifa Municipality with conditions for implementing the Geo-heritage Park in collaboration with GJU, see Appendix B, T16, T17.

Lack of communication and policies have impacted the project’s continuity and parkification process. In addition, the conflicting interests of the municipalities and other stakeholders, aiming for different plans for the site and vying for leadership of the project, caused the project to be put on hold again.

Despite these challenges and lack of funding or support, the CSNACH team decided to map the site and document the proposed project, collaborating with the DoA to survey buildings using a point cloud survey tool that the DoA obtained. The surveyed data was archived in the
Antiquities’ archival department, and the proposal for the geo-heritage park on that site was published in 2019 (AlRayyan et al., 2019).

The site was saved from destruction or demolition mainly due to the JPMC’s ownership, despite the Ruseifa Municipality’s intention to repurpose it for their interest.

In 2022, the phosphate company donated this site to the Ministry of Culture (MoC) to transform historic buildings into a cultural center. The Ministry of Culture raised concerns about the poor condition of these buildings and is considering alternative sites.

According to the Ministry of Culture’s assessment report, the industrial buildings are in poor condition. Illegal use of the buildings, destruction of the water tower, removal of the Railway, and closing mine openings with concrete made them barely recognizable. The loss of major historical elements rendered the proposal invalid. Consequently, the MoC has refused to proceed with the buildings’ transformation, leading to another interruption.

The site, rich in historical and aesthetic value, has suffered neglect and decay. The lack of consistent involvement of stakeholders resulted in a complex network of interactions and conflicting visions, contributing to the stalling of the project. Moreover, the current underutilization and disrepair, exacerbated by the MoC’s recent refusal to transform as the new landowner, poses a significant hurdle.

While currently on hold, the parkification of the site still holds the promise of revitalizing and preserving this historically rich area, contingent upon overcoming the complex challenges and fostering collaborative efforts.
6.1.3.3 Process Mechanism

The mechanism layer delves into the stakeholders’ strategies and the decisions shaping the transition from post-industrial sites to urban parks, summarizing the mechanisms employed in this rehabilitation and parkification project.

The parkification process at this post-industrial site involved the incomplete transformation of a post-industrial site into a public park. It aimed to preserve and showcase the site’s industrial heritage presented in the buildings and old mines on site.

This approach combines cultural preservation, adaptive reuse, and community engagement. Here are the key mechanisms of this industrial heritage parkification process:

- **Industrial heritage recognition:** This involved recognizing the industrial value of the site, making site visits, and conducting a site assessment for all the industrial remnants and buildings within the site.

- **Parkification:** This implies the design of the park to preserve the geological, historical, and cultural heritage of this site while integrating recreational spaces and green areas within the park to enhance the community experience.

- **Expert involvement:** engage experts in geological and industrial heritage preservation. Therefore, a team of landscape architects, architects, and archeologists was formed to develop a tailored, adequate parkification plan.

- **Stakeholders’ engagement and collaboration:** it was essential to collaborate with different stakeholders to proceed with the industrial heritage preservation parkification process, including the JPMC, MoEnv, and possible funding agencies.
- **Adaptive reuse planning**: develop a strategy for adaptive reuse and identify how industrial buildings and structures can be repurposed within the geo-heritage park. Concepts had to integrate such functions as museums, exhibitions, and educational spaces.

- **Historical documentation**: This involved map surveying and documenting the historic structures, artifacts, and features on the post-industrial site, the parkification project proposal, and the process.

### 6.1.3.4 Perception of Process

The perspectives of key stakeholders on the parkification for preserving the industrial heritage of this site diverged, with some embracing the idea as a commendable effort to preserve its heritage and significance, revitalize structures, and reintroduce recreational and educational spaces to the community. Experts have positioned parkification as a pivotal strategy for safeguarding and repurposing the site.

One expert advocating for the creation of a geo-heritage park on site 3 expressed, “*Yes, indeed! Creating a park would have allowed us to preserve this site. By successful preservation, the government can replicate it in another location where a factory shuts down.*” E11, Expert.

Conversely, some stakeholders held a dissenting view, deeming the historic buildings unimportant and the site suitable for redevelopment. Opposition to parkification stemmed from a belief that it was an inefficient use of a valuable space. Concerns were also raised regarding the hazardous aspects of the mine tunnels and the poor condition of the existing buildings.

### 6.1.4 Parkification Processes: Patterns, Dynamics, Mechanisms & Perceptions

The influence of key players and series of events toward these parkification processes unfolds distinct landscape patterns, dynamics, mechanisms, and perceptions. The analysis examined these separate transformation processes within a cultural landscape framework, offering
a comprehensive lens to understand the underlying motivations and challenges in each parkification project.

Table 6.4 below examines these processes in the four layers of landscape, developing key driving factors for the parkification of these post-industrial sites.

Table 6.4: The summary of landscape patterns, transformation mechanism, dynamic interactions among key players, and varying perceptions involved in the parkification processes of the post-industrial sites.

<table>
<thead>
<tr>
<th>Site 1 - Pepsi Pond: Environmental Park</th>
<th>Landscape Patterns *</th>
<th>Dynamics **</th>
<th>Mechanisms ***</th>
<th>Perceptions ****</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Industrial Pond</td>
<td>GAM's dominant role and control, with minimal participation from other stakeholders.</td>
<td>The transformation of a contaminated lagoon into a green public park</td>
<td>• While GAM viewed the site mainly as an environmental issue to be resolved.</td>
<td></td>
</tr>
<tr>
<td>• Contaminated lagoon</td>
<td>This ‘one-man show’ process was initiated by a direct assignment from the prime minister, who demanded quick solutions to the site’s environmental problems.</td>
<td>Two phases project: engineered restoration and parkification</td>
<td>• Other stakeholders had different views of a natural element disturbed by postindustrial activities.</td>
<td></td>
</tr>
<tr>
<td>• Obstruction of natural wadi by industrial remnants of the phosphate mining.</td>
<td>Shift to Parkification to secure funding from the Bank.</td>
<td>Restoration of natural water flow by constructing a micro-tunnel under the phosphate landfill.</td>
<td>• Longstanding issues and complaints mainly shape the community's perception.</td>
<td></td>
</tr>
<tr>
<td>• Watershed</td>
<td>Despite the involvement of other entities like the MoEnv, Ruseifa Municipality, and the WAI, their roles were secondary to GAM's decisions.</td>
<td>Incorporating nature-based solutions, GAM remained committed to its initial plan.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Lack of open spaces</td>
<td>Limited community involvement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Landownership to GAM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Impact on community: health and Safety hazards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key drivers:** Securing fund, Environmental impact mitigation, Hide industrial remnant impact, Community demands, Direct order, Landownership.

<table>
<thead>
<tr>
<th>Site 2 - Phosphate Ore Hills: Environmental Park</th>
<th>Landscape Patterns *</th>
<th>Dynamics **</th>
<th>Mechanisms ***</th>
<th>Perceptions ****</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
- Visual, physical, and environmental problems.
- Huge piles of phosphate remnants.
- Extensive disturbed areas with changed terrain.
- Scattered industrial structures and buildings.
- Nestled in Ruseifa urban setting.
- Unstable land and prohibition of construction.
- Different landownership.

<table>
<thead>
<tr>
<th>Landscape Patterns *</th>
<th>Dynamics **</th>
<th>Mechanisms ***</th>
<th>Perceptions ****</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home for historical industrial structures and buildings from 1934, Strategic location, Historic structures in one site, Private ownership, Abandoned structure and risk of demolition.</td>
<td>The transformation process has been marked by discontinuous progress due to changing stakeholder interests, including governmental entities, local authorities, and academic institutions. The parkification initiative began with</td>
<td>Preserving the site by transforming it into a geo-heritage park, preserving historic industrial buildings, adaptive reuse, rehabilitating old mining tunnels, and enhancing the site's geological attributes. The process involved exploring different</td>
<td>experts emphasize the need to preserve its historical and industrial heritage, Worthy of preservation, Educational opportunity for development, while governmental entities focus on environmental issues.</td>
</tr>
</tbody>
</table>

Key drivers: Greening and afforestation, Environmental impact mitigation, hiding industrial remnant impact, Lack of green and open spaces, Unstable for construction, Collaboration.

Site 3 – Old Phosphate Mines & Administration Building: Geo-Heritage Park

- The Dynamics of the parkification process was marked by a high level of collaboration and coordination among various stakeholders.
- The transformation was initiated following a directive from the King, leading to the formation of a ministerial committee.
- The Ministry of Local Administration played a central role, with oversight from the Royal Court.
- The Jordan Phosphate Mine Company was responsible for rehabilitation.
- The multifaceted approach required integrating the expertise of various stakeholders.
- Landownership was significant to the process.

- The parkification of the phosphate ore hills site entailed transforming a post-industrial landscape into a public park.
- Three phases: rehabilitation, parkification and afforestation.
- Critical steps included the removal of phosphate ore hills and rehabilitating the site for afforestation.

- Solving Environmental problems.
- The Ministry of Environment envisioned the park to restore the site to its pre-industrial state, emphasizing ecological restoration.
- A suitable product to showcase the government’s achievement of rehabilitating the site.
- Covering previous industrial impact.
- Incentive for Community.
- Only suitable solution.
community members and NGOs recognizing the site’s value. Various stakeholders contributed to the conceptualization of the park, including MOEnv.

functions for the site, such as a museum and a public park, aligning with heritage preservation.

and waste to change it into a park.

- No Economical benefits from parkification

<table>
<thead>
<tr>
<th>Key drivers: Industrial heritage and geological importance, absence of precedent project, Risk of historic erasure, The need for preservation, Unique location</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>The landscape pattern describes the site elements and functions as a post-industrial</em>* Dynamics of key players, their behavior, and change of context in process ***Mechanism adopted by key players that shaped the process and approach ****Perception of key players toward the parkification decision</td>
</tr>
</tbody>
</table>

The landscape patterns of the Pepsi Pond site underwent a significant transformation from a contaminated lagoon to a public park. This process included the construction of a micro-tunnel under the phosphate landfill, aiming to restore natural water flow. The initial infrastructure project marked the first phase of this metamorphosis, establishing the foundation for future park use. Regarding dynamics, the parkification project at the Pepsi Pond site was characterized by the dominant role of the Greater Amman Municipality (GAM), with minimal involvement from other stakeholders, a leading role, and the urgency of addressing the prime minister’s directives.

The mechanisms driving the parkification process were primarily steered by restoring the natural wadi and environmental mitigation in addition to engineered infrastructure planning, environmental remediation, and parkification. Perceptions among stakeholders played a crucial role in shaping the parkification approach. GAM viewed the site as an environmental issue to be resolved.

The parkification of the Phosphate Ore Hills site involved a comprehensive transformation of a post-industrial landscape into a green public park. The project commenced with the removal of industrial remnants, including phosphate piles, and extensive land reshaping to restore ground
levels, ultimately converting the once industrial landfill into a recreational area with green spaces, aligning with environmental restoration goals.

The dynamics of the parkification process at Phosphate Ore Hills were characterized by a collaboration among various stakeholders. The Ministry of Local Administration played a central role, supported by oversight from the Royal Court and contributions from other entities. The process driving the transformation was initiated following a directive from the King, leading to the formation of a ministerial committee. The mechanisms oversee various phases, from environmental rehabilitation to parkification and afforestation. Critical steps involved site cleaning, greening strategies, and public park design, requiring the integration of expertise from various stakeholders.

The multifaceted approach emphasized environmental rehabilitation and adaptation to the site’s unique constraints. Stakeholders envisioned restoring this site to its pre-industrial state, focusing on ecological restoration. In contrast, the local community sought a recreational space, reflecting a desire for green areas in an urban setting.

The transformation of the Old Phosphate Mines & Administration Building site in Ruseifa into a Geo-Heritage Park represents a shift from its origins as a phosphate mine with historic structures dating back to 1934. The project focuses on preserving the site's historic industrial buildings, rehabilitating old mining tunnels, and enhancing its geological attributes.

The dynamics of the transformation process have been characterized by discontinuous progress, influenced by changing stakeholder interests. Governmental entities, local authorities, and academic institutions have played varying roles, leading to challenges such as shifting leadership, funding constraints, and the delicate balance between preserving historical and
industrial significance while addressing environmental and community needs. Mechanism combines cultural preservation, adaptive reuse, and community engagement.

Using Parkification as the main mechanism, along with adaptive reuse, Expert involvement, and Historical documentation Stakeholder perceptions of the site diverge, with the community emphasizing the need to preserve its historical and industrial heritage, while governmental entities focus on environmental and development aspects.

### 6.2 Key Driving Factors for parkification

With the analysis of the three parkification processes along the layers, the study synthesizes factors driving the parkification approach for transforming post-industrial sites in Ruseifa into public parks. The primary factors include environmental remediation needs, restoration of the sites’ previous status, and community demands. Additionally, the differing characteristics of post-industrial sites, lack of funding, the presence of a dominant key player, or specific requirements from funding agencies have played a significant role, as exemplified in the Pepsi Pond site.

Similar factors were at play for the second site (the Phosphate Ore Hills): environmental remediation needs, restoring the site’s original status, removing industrial activities impact, community demands, and the influence of a higher position key player. However, the availability of funding, in this case, and the collaboration of stakeholders were factors in proceeding with parkification. These factors might generally lead to site transformation; however, the decision of parkification was mainly due to site characteristics constraints, lack of expertise for dealing with these sites, and the fragility of the site not knowing its limitation for any other development rather than parks. Also, the community’s need for more open and green spaces is another main factor.

For the third site (the Phosphate Administration Building Site), key drivers were the historical and industrial significance, the level of community engagement, a noticeable lack of
governmental involvement, funding constraints, and the potential for adaptive reuse of industrial structures. Across all sites, there was a discernible desire to restore the original character of these post-industrial landscapes. This restoration effort aimed not only at environmental improvement but also at reconnecting the sites with their historical roots and adapting them to meet current and future community needs.

These factors combined to create a unique set of challenges and opportunities for parkification. The following are major key drivers for the parkification of post-industrial sites in Ruseifa:

1. Environmental remediation and restoration needs: the need to address environmental degradation caused by industrial activities is a primary factor in Ruseifa. Parkification offers a pathway to clean up contaminated sites, restore natural landscapes, and improve environmental quality.

2. Community needs and demands: the local community’s desire for green spaces, recreational areas, and improved quality of life plays a significant role. Parkification responds to these demands by converting industrial sites into public parks and community spaces.

3. Historical and cultural preservation: recognizing these post-industrial sites' historical and cultural significance is crucial. Parkification can preserve and integrate historical structures and narratives into the urban fabric, enhancing cultural heritage.

4. Lack of alternative development opportunities: post-industrial sites may not be suitable for other forms of development due to factors like contamination, location,
existing infrastructure, and lack of expertise. Parkification becomes a viable option when other development projects are not feasible.

5. Economic considerations: the potential for economic revitalization and tourism through parkification have been a driving factor for certain parkification projects in Ruseifa. Moreover, green spaces can increase property values, attract visitors, and stimulate local economies.

6. Lack of Governmental policies and initiatives: the lack of formal policies regarding the transformation of these sites, promoting green spaces, and urban renewal initiatives have encouraged the transformation of post-industrial sites into parks. Moreover, such policies can force the decision-makers to generate the easiest solution, such as parkification.

7. Public health benefits: Transforming post-industrial sites into parks can have significant public health benefits, offering residents opportunities for recreation, exercise, and relaxation, thus improving overall community well-being.

8. Adaptive reuse of industrial structures: the opportunity to creatively repurpose industrial structures and elements within park designs can be a compelling reason for parkification, adding unique aesthetic and historical value to the urban landscape.

9. Collaborative opportunities: parkification often involves collaboration between various stakeholders, including government bodies, environmental groups, community organizations, and developers, fostering a sense of community ownership and participation in the project.
These factors collectively contribute to the decision to pursue parkification as a strategy for managing post-industrial sites in Ruseifa, balancing environmental, social, economic, and cultural considerations.

6.3 Summary of Findings

Each site revealed unique processes, and although they all resulted in creating a public park, the main aims of transformation have served different approaches than these sites presented.

The study identified three distinctive parkification processes in Ruseifa featuring the transformation of post-industrial sites into urban parks: 1) Restoration and Parkification Process at the Pepsi Pond site, 2) Rehabilitation and Parkification Process at the Phosphate Ore Hills site, and 3) Industrial Heritage Preservation Parkification Process is at the Old Phosphate Mine and Administration Building site.

Each process represents a distinct approach to addressing Ruseifa’s post-industrial sites and exhibits uniqueness tailored to each site, summarized in Table 6.5.

Table 6.5: The identified parkification processes that represent the transformation of the three post-industrial sites in Ruseifa.

<table>
<thead>
<tr>
<th>Site 1 - Pepsi Pond: Restoration and Parkification Process</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Approach</strong></td>
</tr>
<tr>
<td><strong>Nature of Transformation</strong></td>
</tr>
<tr>
<td><strong>Key Characteristics</strong></td>
</tr>
</tbody>
</table>
Site 2 - Phosphate Ore Hills: Environmental Rehabilitation and parkification Process

<table>
<thead>
<tr>
<th>Approach</th>
<th>Creating an Environmental Park rehabilitation the site environmentally and transforming part of it into a public park.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of Transformation</td>
<td>This parkification project was unfolded in three phases: rehabilitation, parkification, and afforestation.</td>
</tr>
<tr>
<td>Key Characteristics</td>
<td>This process was characterized by collaboration among multiple disciplines and stakeholders, emphasizing ecological restoration and landscape rehabilitation.</td>
</tr>
</tbody>
</table>

Site 3 - Old Phosphate Mines & Administration Buildings: Industrial Heritage Preservation Parkification Process

<table>
<thead>
<tr>
<th>Approach</th>
<th>Creation of Geo-Heritage Park Adaptive Reuse of industrial buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of Transformation</td>
<td>Incomplete transformation, utilizing an adaptive reuse of industrial buildings. Documentation of physical elements.</td>
</tr>
<tr>
<td>Key Characteristics</td>
<td>This process was intermittently progressed. It involved adapting existing structures for new uses, preserving historical elements, and documenting the site's industrial heritage.</td>
</tr>
</tbody>
</table>

The parkification process at the Pepsi Pond site in Ruseifa is primarily a process of mitigating environmental issues of the post-industrial site by implementing a restoration project. Parkification was part of the project as an added incentive rather than a main goal. Its methodical progression navigated key stages, addressing environmental challenges, implementing crucial engineered infrastructure, and culminating in parkification.

The engineered phase, highlighted by the construction of a tunnel beneath the phosphate landfill, was pivotal in restoring water flow and mitigating contamination issues. Concurrently, strategic environmental remediation measures, including soil rehabilitation and water management, were meticulously executed, setting the stage for the subsequent parkification phase.
The parkification process of the Phosphate Ore Hills site in Ruseifa represents a collaborative, government-led effort focused on reclaiming this post-industrial site by rehabilitating the site environmentally and transforming part of it into a public park.

To address the site issues, a rehabilitation project was initiated in response to a royal order, with the primary objective being to rehabilitate the site, relocate phosphate ore hills, level the area, and remediate the soil. The subsequent transformation into an urban park through the parkification project aimed to mitigate the environmental impact and provide a positive change to the quality of life for the community. This parkification project was unfolded in three phases: rehabilitation, parkification, and afforestation.

The parkification process for the Phosphate Old Mines and Administration Building site is primarily a process of industrial heritage preservation through the adaptive reuse of buildings and parkification. The main goal was to transform the site into a geo-heritage park.

The project suggested transforming the site into a geo-heritage park and museum, which was presented to various stakeholders and decision-makers seeking support and funds. Adaptive reuse approaches have been employed in the design of the site and its buildings. Additionally, the design encompasses a museum that guides visitors through the area’s industrial heritage and geological significance.
CHAPTER SEVEN: THE COMPELLING ISSUES OF POST-INDUSTRIAL SITES IN RUSEIFA

This chapter examined the compelling issues of post-industrial sites in Ruseifa city as described by decision-makers and key players and explored how the parkification proposals addressed these issues. The compelling issues are twofold: issues related to the sites, encompassing both challenges or opportunities, and those related to the transformation process, focusing on how the decision of parkification contributed to resolving these issues.

7.1 Compelling Challenges of Parkification

7.1.1 Challenges Related to Post-industrial Sites

The main apparent issues associated with post-industrial sites in Ruseifa are confined to four main areas:

1) Environmental remediation & clean-up: The foremost challenge is the direct association of these sites with environmental issues, necessitating specific brownfield clean-up before any transformation can occur. This point is especially true in Ruseifa, where accumulated remnants of phosphate mining activities have imposed a significant environmental burden on the city and its community.

Dealing with post-industrial sites in Ruseifa often requires extensive clean-up efforts, which can be beyond governmental capabilities due to the sites’ vast areas and limited resources. At the Pepsi Pond site, environmental challenges manifested in the blockage of natural water flow, leading to flooding and odor problems due to sewage water mixing, which require effort from the government. For other sites, pollution from phosphate waste piles contributes to dust pollution, affecting public health.
The lack of supervision has exacerbated these issues, leading to misuse of the sites and additional pollution. The environmental impact encompasses visual, air, soil, and underwater contamination from phosphate residues.

However, environmental concerns were often overshadowed by the pursuit of economic benefits, leading to prolonged delays in addressing these issues. As noted by the Ministry of Environment:

*We continually strive to maintain an equilibrium between economic and environmental concerns, ensuring neither overshadows the other. I believe NOW is the right time to do this; in the past, our approach prioritized the economy, followed by environmental considerations. Referring to the phosphate hills and mines site represents Jordan's National treasure. Preventing people from working there affects the economic aspect.* D04, MoEnv

Additionally, issues like soil instability and the undocumented underground network of mines add to the site’s complexities. For Site 3, while major environmental problems may not be as pronounced, public safety concerns arise from open mine tunnels that extend for kilometers underground, posing hazards. Local communities have demanded compensation for environmental damage, including the loss of agricultural lands and health impacts from industry-related dust.

2) **Complex land ownership:** the second issue related to post-industrial sites in Ruseifa is that these sites are entangled in complex ownership and land tenure histories, posing challenges for securing development permissions. This complexity is due to having four unique land ownerships to post-industrial sites in Ruseifa, setting it apart from other Jordanian cities and adding an extra dimension to these sites. The ownership types include state treasury lands, private ownerships like those of JPMC or other governmental entities such as GAM, lands under concession to the
Phosphate Company, and areas under the jurisdiction of Ruseifa Municipality, As expressed by the Mayor of Ruseifa: “The greatest challenge in our city, unique from other cities in the kingdom, is the issue of land ownership. Ruseifa is distinguished by its variety of land types: those owned by citizens, by the state treasury, under the Phosphate Company's privilege, and directly by the Phosphate Company itself.” D09, Ruseifa Municipality.

These varied ownerships challenge the municipality to create a comprehensive master plan encompassing these sites. Conversely, this situation could be considered an opportunity, as it facilitates the transfer of certain areas to stakeholders without compensation, primarily when the government or companies own them. For example, the phosphate site, which encompasses a mixture of these four ownership types, has granted ownership to the MoEnv for the environmental park and to the Ministry of Culture (MoC) for the historical industrial building sites, despite previously privately owned by the company.

The complexity of land ownership and the lack of attention to these sites for over 40 years have led some locals to illegally build homes on what was perceived as unused government land and others to set up businesses. Numerous neighborhoods have developed on these sites, compelling the municipality and government to reissue new land ownerships to provide services. As these sites are in the heart of the urban fringe of Ruseifa, they are significantly affected by the ongoing residential and commercial development, as the Ruseifa Municipality stated:

Unfortunately, all the lands in Ruseifa have been populated without legal authorization because there are no regulatory plans. It’s like we’re operating on emergency response—when a problem arises, they reach an agreement, saying, 'Okay guys, we need to organize this issue.' D10, Ruseifa Municipality.
3) **Altered extensive landscape**: this issue refers to the challenge of managing a site that has already undergone significant development, resulting in instability and areas that ideally remain undisturbed due to uncertainties about how to handle these vast, transformed spaces. As these sites are represented as post-industrial sites in Ruseifa, their reformed terrains are deemed unsuitable for reuse, rebuilding, or restoration, requiring substantial time, effort, and resources.

Therefore, for that matter, these sites in Ruseifa have been utilized as unfavorable land uses, referring to them, and therefore Ruseifa, as the “back of the house” for Amman city. Various municipalities have utilized these sites as dumping grounds for Amman or Zarqa, landfills, and waste management projects. As the former vice mayor of Ruseifa municipality noted:

> The area south of the Amman-Zarqa highway was annexed to the Amman Municipality for factories. In the south, there were remnants of phosphate hills, so the Mayor of Amman decided to establish a waste dump there in Ruseifa. We suffered for years from it. That’s why they used to say Ruseifa was Amman’s dump; all the waste was brought here. From this standpoint, a negative reputation developed for the town. After the area was filled, there was no more space, so they closed it and covered it with phosphate and soil to hide it. C01, Ruseifa resident.

Experts have noted that this issue could be seen as a potential opportunity rather than just a challenge. Since the area has already been transformed, it holds potential for experimental development. A landscape archeology expert stated: “*Post-industrial sites, having been impacted negatively by industrial activities, are seen as scars on the landscape. However, these scars can be viewed as opportunities, as they are already an alteration of nature that provides the freedom to restore, modify, or repurpose these areas. This approach allows for the potential re-utilization of sites for the community's benefit*”. E10, Expert.
4) **History erasure:** this last issue is particularly relevant to post-industrial sites that house significant historical structures or elements such as silos, railways, or mining tunnels. The dilemma often lies in deciding whether to preserve these buildings or demolish them. Due to a general lack of expertise in integrating these elements into redevelopment plans and the lack of documentation, there’s a tendency to either erase or neglect their industrial significance and potential for tourism.

This issue is compounded when these structures are in poor condition or pose a risk of collapse. Across Jordan, numerous old factories have been demolished to make way for new developments despite their historical value being acknowledged by academics and experts. Yet, efforts to preserve or document these sites have been insufficient, leading many to view this as a case of historical erasure, where demolition is seen as the simplest solution. The designer architect for the Environmental Park in the Phosphate Ore Hills site has stated her concern about the lack of specific measures to recognize the significance of the site:

*Currently, no measures are in place to document or showcase the area's history. Even the administration building has been demolished, so I don't think there's anything left. However, there should be at least some documentation to reflect the site's history, such as acknowledging that the park was established on former phosphate hills. Back in the day, phosphate was important and contributed significantly to the country's economy and urban expansion. Now, it has left an environmental impact. Therefore, taking significant steps to improve and highlight this important history is crucial.* S07, Architect

Furthermore, a critical gap lies in documenting the site’s historical importance and evolution, including details about its design, construction, and operational history. This documentation should extend beyond mere physical aspects, encompassing the human experiences
and memories associated with the site, which are often lost in the absence of systematic record-keeping.

Preserving these sites is vital despite the pressure to discard them due to environmental damage. The problem is exacerbated when historical artifacts and evidence of past activities are removed without proper documentation. Moreover, seeing these sites as burdens due to ongoing maintenance leads to missed opportunities. Given Ruseifa’s global significance in phosphate production, it is imperative to recognize and utilize the site’s value, drawing lessons from successful precedents in site management and transformation.

7.1.2 Challenges Related to the Process

1) **Deficiency in legislation and policies**: one of the most challenging issues associated with these sites and their management processes in Ruseifa and across Jordan is the lack of appropriate legislation or policies concerning how to deal with these sites. The term ‘post-industrial sites’ itself is not recognized, nor are there clear guidelines on what should happen to these sites once they are closed, as evidenced in policies, master plans, or reports.

   This issue predominantly arose during the transformation process of these sites, particularly highlighted in the case of Ruseifa. Ruseifa, often overlooked in discussions of post-industrial management, encounters challenges following industry closures, exacerbated by the absence of practical strategies and a well-defined legal framework, which leads to unresolved questions regarding land use and management of legacy issues.

   Many of these post-industrial sites in Ruseifa are designated as green spaces, especially the treasury land ones, and not as heavy industry land use. When urban sprawl extends surrounding these sites, no environmental laws have been effectively active or valid due to that, such as leaving sufficient buffer zones between these heavy industries and residential areas. Moreover, engaging
the local community in decision-making about the future of these lands is crucial yet often neglected. “It is essential to highlight Ruseifa’s post-industrial sites because it has been marginalized in something called ‘post-site trauma.’ We need to address the issue of what happens when a factory closes, and we don’t know how to deal with the resulting situations.” E11, Expert.

The transformation of these sites into green buffers through parkification has responded to these challenges, preventing further construction or urban development expansion. Ruseifa Municipality, the Ministry of Local Administration (MoLA), and the Ministry of Environment (MoEnv) are reassessing Ruseifa’s master plan in light of how these projects have transformed post-industrial sites into public parks.

These sites predate the formal establishment of the Ministry of Environment in 2003. The Ministry began as a directorate within the Ministry of Municipal Affairs, evolved into the Public Authority for Environmental Protection, and was later formally established as the Ministry of Environment. Initially a department within the Ministry of Local Administration (previously known as the Ministry of Municipal and Rural Affairs and Environment), its evolution reflects the changing approach to environmental concerns.

In 1995, when I was appointed, we were taken to the Phosphate Hills and informed about the need for rehabilitation. I cannot pinpoint the exact reasons for past failures, but from my perspective, a key issue has been the lack of unanimous commitment among all involved parties. Achieving consensus is crucial; the entire effort can falter if one party is unwilling. D03, MoEnv.

2) Lack of experience and resources: In addressing the challenges of transforming post-industrial sites, a significant obstacle is the lack of expertise and resources. This issue is particularly evident in projects with huge landscape changes in Ruseifa, where the transition of
industrial sites into beneficial community spaces requires specialized knowledge and adequate funding to deal with these changes.

Firstly, expertise in managing the complexities of post-industrial sites is often scarce. These sites demand a multifaceted approach involving environmental remediation, historic preservation, and community development. However, the requisite skills and knowledge to effectively navigate these aspects are not always readily available or developed, leaving a gap in the capability to execute transformation projects successfully.

Moreover, the challenge is compounded by dealing with industrial heritage and repurposing its historical industrial structures heritage. However, with limited experience in such specialized redevelopment and constrained financial resources, the efforts to rejuvenate these sites often face significant obstacles.

Secondly, resources play a critical role in the transformation of these sites. The substantial financial investment needed to clean up environmental pollutants, repurpose old structures, and develop new infrastructures can be substantial. Often, these projects do not receive sufficient funding, leading to compromises in the quality and scope of the redevelopment. This lack of funding also hinders the ability to employ experts or conduct necessary research and planning.

*The Park was initially planned to be much larger, with the idea of creating a sustainable park incorporating all aspects of sustainability. It included significant treatments like a treatment plant and using green systems for the site, but the costs were high, and the budget was insufficient. Therefore, the project was postponed. When it was reopened in the final phase in 2021, they asked us to re-study the site and provide a cost report. In this case, we had to abandon many of the environmental applications we had*
planned. They requested to transform it into a park that would be closer to a public-use park while considering safety aspects related to the environment.” S07, Architect.

3) Lack of collaborations: another issue in the transformation of post-industrial site processes in Ruseifa has been the absence of effective collaboration among key stakeholders. This deficiency in cooperation is evident in the earlier phases after the closure of these sites. The collaboration in the Pepsi Pond and Phosphate Ore Hills sites would not have happened without a higher power order.

Previously to parkification, there was often a disconnect between various governmental bodies, such as the Ruseifa Municipality, the Ministry of Local Administration, and the Ministry of Environment. This lack of synergy resulted in disjointed efforts and fragmented strategies, leading to inefficiencies and delays in project execution. Furthermore, the involvement of local communities and other relevant stakeholders is frequently overlooked.

Community engagement is crucial in ensuring that the transformed sites meet the needs and expectations of the residents. However, lacking a structured framework for inclusive participation leads to missed opportunities to harness local insights and foster a sense of ownership and pride in the projects.

It requires a concerted effort from government, private sector, and community stakeholders to invest in building expertise and allocating adequate resources. Therefore, collaborating with stakeholders and key players is crucial for effectively redeveloping these sites.

7.2 Addressing Key Issues Through Parkification

The approach of parkification in post-industrial sites has played a crucial role in tackling some of the issues associated with these sites in Ruseifa City. For instance, parkification addressed the pressing need for green and open spaces, responding to community demands to resolve the
environmental impact caused by industrial activities. It also aimed to improve the quality of life in neighboring residential areas by creating recreational and green spaces for public use.

One of the driving factors behind parkification was the desire to restore the original character of these sites, recalling the days when they were agricultural and verdant areas. Parkification has also been instrumental in addressing environmental concerns. It prioritized the urgent need for environmental cleanup and removing industrial remnants, key in transforming the site into a safe, green, and accessible public space.

Regarding land ownership, parkification effectively addressed this by claiming and designating the sites as urban parks. This move eliminated the contestation as economically motivated land ownership, clearly defining ownership and preventing illegal trespassing; additionally, transforming these areas into parks fostered community vigilance against violations and leveraged public benefit.

The process of parkification navigated the legal complexities involved in transforming these sites into public parks, engaging in conversations and negotiations to align the interests of all parties and stakeholders. It addressed the challenges presented by disturbed and transformed sites by restoring natural topography and implementing afforestation, as seen in the project, to rehabilitate the phosphate ore hills, making parkification the only and safest approach.

Parkification also addressed the presence of structural building and remnant in an integrative way, maybe not as successful, but tried to. In the case of Site 3, efforts and proposals were made to preserve and repurpose buildings within the context of a geo-heritage park. The designing team creatively utilized the remnants of phosphate mines and piles to enhance the park's design, preserving historical significance while ensuring safety and aesthetics.
CHAPTER EIGHT: COMPARATIVE ANALYSIS OF PARKIFICATION PROCESSES IN RUSEIFA

Building on chapters 5 to 7, this chapter evaluates the three identified parkification processes in two main ways:

1) comparative analysis of the embedded mechanisms and power dynamics of the decision-making process involving these transformation projects and
2) places the decision of parkification in Ruseifa within a larger framework of transforming post-industrial sites.

By doing so, the comparative analysis aims to uncover the primary motivations driving the parkification of these sites in Ruseifa city and to reveal how parkification responds to various challenges of landscape change.

The first section identifies three main characteristics representing each parkification process. The second section contextualizes the decision of parkification within the general decision-making process of the transformation.

8.1 Parkification Processes framework: An Evaluation

General evaluation for these processes has exhibited the unique transformation journey reflective of its site’s circumstances and challenges associated with transforming post-industrial sites in Ruseifa. Moreover, each parkification process was influenced by a combination of factors, including the perception of key players towards the site and process, the nature of the site’s industrial activities, the extent and impact of industrial activities on the site, and the compelling challenges each site presented, in addition to factors associated with the decision-making process, such as the availability of resources, the degree of collaboration (or lack thereof) among stakeholders, and the level of community engagement.
The decision-making process was further influenced by competing interests and visions for the sites’ future, highlighting the complexity of transforming post-industrial landscapes into public parks that cater to the community’s and the environment’s needs. Additionally, the role of key players, ranging from local authorities and private stakeholders to community groups and concerned experts, significantly shaped the direction and outcome of each parkification process.

Using the overall evaluating framework presented in Section 4.2.3.1, the processes were projected for each site in this evaluation framework as follows:

### 8.1.1 Parkification Process 1 at the Pepsi Pond Site

An illustrated evaluation framework of the Pepsi Pond site parkification process is illustrated in Figure 8.1.

![Figure 8.1: Evaluation Framework for the parkification process at the Pepsi Pond site.](image)

The stakeholders and decision-makers perceived the Pepsi Pond site primarily as an environmental issue requiring resolution. Due to persistent community complaints, it was also regarded as a burden on the government, both in terms of resources and expertise. The site’s private
ownership by GAM added complexity, introducing challenges in recognizing responsibilities concerning its connection to Ruseifa and the local municipality. The post-industrial nature of the site brings forth significant challenges stemming from remnants of past phosphate mining activities.

Most notably, the site faces a significant challenge in the form of phosphate piles, the accumulation of phosphate waste obstructing natural water flow. Originally a natural water element, the site’s character has been altered by industrial impact, giving rise to prominent environmental concerns. This alteration has resulted in issues such as flooding and pollution, posing safety hazards and health concerns for the surrounding community.

Addressing these remnants has proven challenging, as the landscape pattern indicated, as they cannot be removed or altered due to urban development encroaching upon unstable land. Consequently, engineered infrastructure restoration solutions have been implemented to restore the natural Wadi. This approach is described as a mechanism within the project, aiming to both restore the wadi and rehabilitate the site.

Securing funds prompted GAM to introduce community-beneficial projects, shifting the project’s focus towards parkification. This transformation was catalyzed by the emergence of the bank as a key player in conditioning parkification to secure funds. Additionally, efforts to explore nature-based solutions were impeded by GAM's conviction that their proposed solution was the most feasible.

The dynamics of stakeholders and key players were characterized by a continuous one-way process, with GAM serving as the main decision-maker, responding directly to orders from the prime minister. This portrayed a one-man show scenario with limited collaboration with other stakeholders. Throughout the process, the perception of parkification evolved from being viewed
merely as a tool to secure funding and a low priority to becoming recognized as the best and only solution for developing this post-industrial site.

By implementing the park, the project aimed to alleviate environmental problems and overcome challenges posed by harsh infrastructure and micro tunneling projects on the natural site. Several factors influenced the decision for parkification, including a direct order from the prime minister, its role as a funding tool, addressing prolonged negative impacts on the community resulting from environmental problems at the site, and finally, the landownership of GAM outside their city jurisdiction, prompting the search for a more straightforward development solution with minimal maintenance.

Upon examining these layers, it leads to the conceptualization of the parkification process at the Pepsi Pond as a single-player process. This contextualization positions the approach as a tool and incentive for transforming the post-industrial site rather than an ultimate goal.

8.1.2 Parkification Process 2 at the Phosphate Ore Hills Site

In the study’s evaluation framework, the parkification process at the Phosphate Ore Hills site is projected, and an additional graph representing the second process is illustrated in Figure 8.2.

For this post-industrial site, stakeholders perceived it primarily as an environmental problem adversely affecting the community, natural environment, landscape, and terrain. Despite being an essential economic source for the country, the site generated numerous issues for the community, negatively impacting health, the visual aesthetics of the city, and the surrounding areas. It was also deemed burdensome due to the extensive actions required, surpassing the government's available resources for resolution or redevelopment—the involvement of numerous
stakeholders complicated collaboration and decision-making. Consequently, deciding to work on this site has been viewed as an opportunity for development.

Figure 8.2: Evaluation Framework for the parkification process at the Phosphate Ore Hills site.

Addressing the compelling issues of this post-industrial site primarily focused on significant piles of phosphate remains shaped into high hills, degraded unstable soil, and scattered industrial structures within vast, empty, disturbed areas. Environmental challenges, including health impacts, contamination of underground water, and air pollution, dominated the main issues affecting this site.

The hazardous construction issues prohibited redevelopment without addressing the mine tunnels around the city. Studying the landscape pattern highlighted the difficulty of dealing with these issues, requiring a collaborative, multidisciplinary decision-making process for various stakeholders. Although several committees were formed previously, the direct order from the King led to the final committee's work in completing this project.

The approach for transformation is threefold: rehabilitation led by the phosphate company, parkification led by the Ministry of Environment, and afforestation led by the Ministry of Local
Administration and Ruseifa Municipality. These mechanisms shaped the overarching goal of green rehabilitation and parkification. The decision for parkification was deemed an essential component of this project, showcasing the government's significant achievement in rehabilitating the site and mitigating the industrial impact by returning it to the community.

Driving factors for parkification at this site emerged due to the necessity of greening and afforestation, the lack of green spaces, the site's inability to handle other types of development, and the degraded, disturbed character of the site. Examining these layers leads to conceptualizing the parkification process at the Phosphate Ore Hills site as a multidisciplinary collaborative effort, positioning the approach as a strategy for transforming the post-industrial site into a green, rehabilitated area.

8.1.3 Parkification Process 3 at the Phosphate Old Mine & Administration Building Site

For the Phosphate Old Mine & Administration Building Site, the process has been evaluated within the framework shown in Figure 8.3.
Stakeholders perceived the site differently, with some viewing it as possessing an important industrial heritage worthy of preservation, while others saw it as an opportunity for development that required demolition and reuse. The area was also seen as contested, with several elements hindering its redevelopment.

The compelling issues of this post-industrial site primarily revolved around the poor condition of existing historical buildings and industrial structures within the site. This posed safety hazards, especially with the misuse of the site and the presence of mine tunnels exposing the geological layers of the phosphate mountains. The remains from the phosphate hills further complicated the site's challenges. The lack of policies or laws for preserving these buildings and promoting reuse created a risk of demolition.

The landscape pattern of this site, located in the middle of a terraced area overlooking the Zarqa River, brought an attractive character to it. Privately owned by the company, it was spared from demolition and temporary harmful actions by the government. Consequently, a team of experts was directed to initiate the project and propose a parkification project to transform it into a geo-heritage site, preserving the buildings and highlighting their geological and industrial significance.

The dynamics between stakeholders were not collaborative and continuous, leading to separate processes that did not reach completion. Different players took the lead in this project. The main approach for parkification was industrial preservation through the adaptive reuse of the buildings and documenting the site. Although this project has not evolved into an actual implemented plan yet, the change in the landowner signifies ongoing processes. The driving factors for this parkification effort are complex, involving the need to save the site, its buildings,
and the old mine from destruction and erasure. It also aims to recognize the historical heritage of this post-industrial site for Ruseifa, considering the absence of such a project.

Examining these layers leads to the conceptualization of the parkification process at the Phosphate Old Mine and Administration Building Site as a temporally interrupted effort, positioning the approach as a goal for preserving the post-industrial site.

8.2 Parkification Decision-Making Process & Dynamics

Moreover, this comparative analysis reveals that the parkification of each site in Ruseifa involved unique decision-making dynamics and strategic approaches employed for each site that contributed to their distinct parkification trajectories, as follows: a single-player process at the Pepsi Pond site, a multidisciplinary collaborative process at the phosphate ore hills site, and a temporal interrupted process at the old phosphate mine and administration building site.

Each process represents a distinct approach to addressing Ruseifa’s post-industrial sites.

8.2.1 A Single-player Parkification Process

The parkification of the Pepsi Pond site is characterized by the prominent role of a single key player guiding the transformation process of the remediated lagoon and industrial pond into a green urban park, attracting potential funders, stakeholders, and community interest.

Although parkification was not the initial objective of the site’s transformation, the unique characteristics of the post-industrial site and constrained resources dictated this as the most viable and appropriate course of action. This decision emerged primarily as an approach to secure funding, positioning parkification as a practical tool rather than an initial intent.

The process was predominantly led by the Greater Amman Municipality (GAM), under direct instructions from the Prime Minister, to address the environmental concerns associated with the site. They primarily progressed the project as an engineering endeavor to redirect the water
flow of the Wadi back to the Zarqa River via underground tunnels beneath the phosphate accumulations that had obstructed the valley’s natural flow.

Regardless of the partnership with different stakeholders and institutions, this process manifested as a “one-man show,” where GAM, the site’s landowner, took charge of the entire process. These power dynamics between the state entities were reflected in the transformation of the physical environment, underscoring that the landowner’s competence is the primary source of substantial tangible changes.

Figure 8.4 illustrates the parkification decision-making process, which outlines the major steps and series of events shaping the parkification decision, demonstrating the predominant influence of a single key actor. While other actors played secondary or passive roles, the site was transformed, and the park was established.

Figure 8.4: The single key-player parkification process transforms the Pepsi Pond site into an urban green park.

The process started with implementing several temporary measures to deal with the different environmental and social problems caused by the unmanaged post-industrial site. Then, GAM was redirected to bring permanent solutions with a direct order from a higher authority. It resulted in developing three possible alternatives for the remediation and cleaning of the site. At that stage, one of these proposals was aimed at parkification. It was not until the search for funds
and collaborators phase began that the EBRD conditioned the creation of an urban park on that site to obtain the funds. This led to the BIDs and design and implementation phases that witnessed the involvement of different stakeholders and governmental partners to construct the transformation project.

Throughout the process, GAM maintained a predominant role, exerting control and taking responsibility for the project’s execution as a primary client.

GAM’s perceived power made it challenging to collaborate with stakeholders outside of its departments in the early stages of the process. Moreover, dealing with the complex land ownership issues and jurisdictional challenges within Ruseifa Municipality has manifested this power. Both municipalities were under pressure to address longstanding site-related matters, resulting in prolonged temporary measures and neglect spanning over 40 years.

GAM’s authority at the forefront of the parkification project was further emphasized when requests to transfer ownership of the site to the Ruseifa Municipality were declined. These requests were based on the fact that the site falls within Ruseifa’s jurisdiction. The transfer would have shifted responsibilities and rights associated with the land to the Ruseifa Municipality, potentially altering the project’s trajectory.

Furthermore, the Ruseifa Municipality desired to assume ownership of the site post-project completion, intending to oversee its future maintenance and management. This demand demonstrated an acknowledgment of the site’s significance within their jurisdiction and a willingness to be more actively involved in its post-transformation phase.

However, GAM’s decision to retain control highlighted its primary role in shaping the site’s transformation, underscoring the disparities in influence and authority between these governmental bodies.
The Pepsi Pond site’s characteristics as a post-industrial site played a crucial role in its parkification process. The immense volume of waste generated by the phosphate industry formed hills ranging from 9 to 30 meters high, presenting a near-impossible removal task. Moreover, residential encroachments on these landfills have limited the alternatives for development. It led to innovative solutions to manage water flow dynamics, including constructing engineered tunnels and capped culverts as part of the lagoon’s remediation. However, the site’s surface instability, characterized by weak soil layers and exposed old mining tunnels, reinforced the decision to redevelop the area into a public park after its rehabilitation.

This process did not focus on the historical industrial heritage dimension associated with these sites. Instead, there was an apparent neglect of the site’s original usage without adequate preservation approaches. The restoration of the site’s original function as a water valley indicates an underlying intent, yet it was not perceived in the context of post-industrial transformation. Efforts to preserve, archive, or document the transformation or to integrate elements of the site’s initial purpose into the parkification project were lacking.

Subsequently, decision-makers manifested this transformation by reclassifying these locations under the green and urban parks’ land use on digital platforms. This rebranding highlights how the transformation of these post-industrial sites has impacted their land use, underscoring the parkification process. Its name has been changed, and ‘Pepsi Pond’ will no longer be referenced; instead, it will be known as ‘The Lagoon’ or ‘The Environmental Park.’

Although this parkification process at the Pepsi Pond site has achieved some success, it lacked active participation from a broader range of stakeholders and community members. The transparency of the decision-making process and the appropriateness of the chosen approach have been subjects of critique, with many experts and concerned stakeholders either unaware of the
project’s existence or unconcerned. The nature of the projects undertaken further emphasizes the influence and power of the central actor in these transformations.

Modest efforts to inform the community about the project’s development were taken during construction in 2022. These efforts underscore the significant impact of the decision-maker’s role, acknowledging this transformation as a notable achievement for Ruseifa: “We went through many preparatory stages, and it was a lengthy process. We didn't receive any compensation for the work on this site; however, the best reward is what happens to the site itself.” D11, GAM.

8.2.2 A Multi-disciplinary, Collaborative Parkification Process

The transformation of the phosphate Ore Hills site in Ruseifa City into a green area and a public park represents a significant collaborative and multi-disciplinary parkification process. The involvement of a diverse array of key players and stakeholders significantly shaped it and was pivotal in rehabilitating the post-industrial site. As illustrated in Figure 8.5, this collaborative process has introduced an alternative approach to parkification projects in Ruseifa.

*Figure 8.5: The collaborative parkification process of the Phosphate Ore Hills site into an environmental park as part of the greening and afforestation rehabilitation project.*
The decision to opt for parkification was shaped by various factors, each significantly influencing the final direction and outcome of the project. Given its status as treasury land, the absence of a single ownership entity facilitated a more inclusive and cooperative approach among the key players.

Moreover, the site’s characteristics informed the decision to pursue greening and parkification as the optimal solution; considering the limitations imposed by the site and adopting a greening strategy allowed for a multi-disciplinary approach, engaging various stakeholders in its development and ensuring the project’s completion.

The process began with scattered areas of industrial activities within the site, each closing at different times. These sites had a negative impact on the overall landscape of the entire site and Ruseifa City. In response to a direct order from a higher authority, King Abdullah II, a ministerial committee was compelled to formulate alternatives for rehabilitating the site for any future development and restoring the original status of the site.

Subsequently, different simultaneous projects and committees were established, involving other key players collaborating to implement these projects. The parkification project was a component of this initiative and followed its process led by one of the ministries overseen by the project’s leader and coordinator. This process encompassed seeking funding, design, and implementation involving collaboration with various stakeholders.

The power dynamics among the various entities were significantly influenced by their recognition of individual responsibility for the landscape changes caused by previous mining activities. Each player’s role in the initial landscape alteration and their potential contribution to the project played a part in laying the groundwork for redevelopment. This recognition of responsibility led JPMC to undertake substantial remedial actions, such as relocating massive
phosphate piles that had formed hills that reached 30 meters high, obstructing entire neighborhoods. Additionally, JPMC took steps to close the open pits from cast excavations at other sites.

Ruseifa Municipality advocated removing phosphate hills and influenced the project’s design and execution. Their deep understanding of the area allowed them to effectively represent the community’s interests, particularly in integrating environmental and heritage aspects into the project. They also oversaw the expansion of the green space and the redevelopment of the national park to serve the local community.

As for the municipality’s role, it was substantial and played a crucial part. We influenced many aspects of the project, as we had in-depth knowledge of the area both environmentally and administratively. In light of this, the company or ministry did not possess a similar level of understanding. Thus, many decisions and directions were informed by our input. We served as representatives of the local community, which gave us authority in the matter. D09, Municipality of Ruseifa.

As part of the efforts to restore the original ground level, JPMC independently added a soil layer over this rehabilitated area, preparing them for future afforestation strategies. This initiative was taken as the company acknowledged its responsibility for the environmental impact of its operations.

Collaborating with the Ministry of Environment (MoEnv), the Ministry of Public Works (MoPW), and the Ministry of Local Administration (MoLA), each entity played a distinct role in providing support and recognition for these crucial steps. This collective effort laid the foundation for the subsequent parkification project, demonstrating a coordinated approach to environmental restoration and urban redevelopment.
The urgency of transforming the Phosphate Ore Hills Site was notably intensified by the King’s directive, demanding immediate action to remediate the site. This high-level involvement added a critical layer of urgency, significantly influencing the direction of the landscape transformation.

This sense of urgency reshaped the parkification project of the 75-dunum site. The decision to integrate the park into the broader rehabilitation strategy was aligned with the committee’s overarching goal of greening and afforestation for the entire site. The establishment of the park at this specific location of the post-industrial site was initially proposed by the Ministry of Environment (MoEnv) in 2012, before the execution of this larger project. Consequently, its inclusion in the rehabilitation project represented a practical approach within this management plan, serving as a suitable façade for the project to the community and stakeholders.

Strategically situated at an entry point to Ruseifa city from Amman and Zarqa and located along the main road, the park’s placement was ideal for addressing the city’s need for green and open spaces while showcasing a significant government achievement.

Regarding the power dynamics for the Environmental Park, a dedicated committee and main stakeholders were formed, led by MoEnv as a new landowner for the park site. This leadership involved securing funding and making decisions for the design and execution of the park. This phase demonstrated how various key players could assume different roles and responsibilities yet collaboratively contribute to the project’s overarching objectives.

The site’s characteristics as a post-industrial area played a significant factor in guiding the parkification process. Challenges such as soil instability, land erosion, and the inability to maintain the original ground level necessitated the adoption of greening and afforestation as the sole viable solution. The park project on this site was initially proposed in 2012 but was postponed due to
radon contamination concerns, which posed a risk to public health. Moreover, the extensive area that has been rehabilitated has limited alternatives to what can be done there.

This collaborative approach to parkification represents a strategic response to the challenges posed by the post-industrial landscape. By focusing on environmental restoration and community compensation, the project underscores the potential for parkification to play a transformative role in reclaiming and rejuvenating spaces affected by industrial activities.

However, the collaborated actors significantly neglected the industrial heritage and historical dimensions. Comprehensive documentation or detailed mapping capturing the site’s original state and the planned transformation was conspicuously absent. This lack of historical recording has resulted in a gap in public understanding, with visitors remaining largely uninformed about the site’s rich industrial past and the full scope of its recent transformation.

Despite the gaps in capturing the site’s historical and industrial heritage, the process has nonetheless demonstrated that the local government adopted a collaborative and multi-disciplinary approach. While showing potential, this method highlights areas for enhancement and development in managing such sites more holistically in the future. While the focus on environmental restoration and community engagement has been commendable, the experience underscores the need to consider cultural and historical dimensions as integral components of such projects.

8.2.3 A Temporal, Interrupted Parkification Process: Multiple Processes of Parkification and Dispossession

The parkification process for the Old Phosphate Mines & Administration Building site encountered a distinct trajectory in the decision-making process. This site, still grappling with shaping the parkification project or its intended transformation, presents a different approach
compared to the other two sites. The parkification project and transformation have been marked by intermittent progress and frequent interruptions.

As illustrated in Figure 8.6, this process has been characterized by its disruptive nature. Initially, there was a clear intention to transform this site into a geo-heritage park to preserve its historical buildings and legacy. Unlike the other sites, this one has not received the same level of attention from the government and sustained advocacy. If not for the persistent efforts of the expert team who initiated the geo-heritage park project, the site risks falling into a state of neglect with no further development.

Figure 8.6: Temporal and interrupted parkification process of the Phosphate old mine and administration buildings site into a geo-heritage park.

The ongoing dispute regarding control and authority over the site was challenging in this process. The site, privately owned by the company, is subject to considerations about its future, including its willingness to donate the buildings within the site to benefit Ruseifa and the public.

Also, the site’s advantageous location, stunning views overlooking the river, and seclusion from residential areas make it an attractive prospect for various alternative projects. Moreover, the existence of historical buildings and industrial structures has been a challenge to develop and
maintain. With the debate of what to do with these structures, the site's buildings felt the danger of demolition.

Efforts by the expert team to collaborate with governmental stakeholders faced challenges that impeded progress: a lack of funding, concerns about radiation from phosphate residues, and opposition from parties favoring different developmental uses or leadership. Despite recognizing the project’s importance, the team struggled to secure support and leadership for nearly two years.

Once the project was put on hold, another issue arose to disrupt this process: the absence of an institutional initiative archive, leading to the loss of the project’s core vision. After many administrative positions and government changes, communication with the team ceased, even though the MoEnv continued discussions with JPMC and Ruseifa Municipality about the continuation of the project initially proposed by the GJU design team.

Additionally, the unsupervised use of these buildings and lack of maintenance have continued, leading to deterioration and the destruction of some structures, such as the water tower. Moreover, closing the old mine tunnel openings has changed the site's character. The breakdown in documentation and communication led to alteration and misinterpretation of the project’s intended direction and, therefore, the site’s future.

The team’s goal was to preserve the site’s integrity and highlight its industrial significance, yet the lack of a clear and transparent process has hindered the continuation of the project. The team leader said: “I wish I had approached this project differently. I felt sad when I revisited the site; I lost interest in the project” E12, GJU. To this end, they documented the project in a publishing paper on the proposed project (AlRayyan et al., 2019).

In a turn of events, while other projects were underway, the company donated the site to the Ministry of Culture to convert the buildings into a cultural center, diverging significantly from
the original geo-heritage park concept. This shift, marked by interruptions and the involvement of different key players, fundamentally altered the project’s original purpose and trajectory.

However, due to the deterioration of the buildings, their poor condition, and the lack of proper communication about the intended parkification project, the site is still closed with no actual action on its development.

The trajectory of the parkification process at the old phosphate mine and administration buildings site reflects the complexities and hurdles faced in repurposing such historically and industrially significant areas. The need for a clear and consistent vision, coupled with effective stakeholder management, is critical in ensuring the successful transformation of such sites.

8.2.4 Parkification As a Multi-faceted Approach

Comparing the three processes has revealed that transforming post-industrial sites into urban parks in Ruseifa showcases a multi-faceted approach, as evidenced by the diverse processes and series of events for the different sites. These processes, representing the complexities and varied dimensions of parkification, highlighted the role of collaboration among stakeholders, including local government, developers, and experts from various fields. Each group of players brought unique perspectives, objectives, and expertise, expediting the transformation and disturbing responsibilities effectively. Several facets that collectively describe this approach:

a) Understanding the differing site characteristics of post-industrial sites:

Post-industrial sites in Ruseifa present varying challenges that necessitate tailored strategies for each site. Therefore, it is essential to understand the different site characteristics for each site, despite the intention of transformation. For instance, the old phosphate mines and administration buildings site required a different approach compared to the Pepsi Pond site due to its physical, topographical, historical, and environmental context.
b) **Regulatory compliances:**

Regulatory compliances, including Zoning laws, environmental regulations, and local ordinances, add complexity to the parkification process. Compliance with these regulatory frameworks is crucial yet challenging. In the case of Ruseifa, the lack of regulations toward managing post-industrial sites and how they differ from other land uses was apparent. Once the environmental considerations were taken, it developed a different strategy that can’t be similar to other sites.

c) **Adopting a collaborative stakeholder engagement**

In some cases, the involvement of various stakeholders – from government bodies to local communities and specialists – was needed in shaping the parkification process.

d) **Developing interdisciplinary strategies**

The strategies employed in transforming post-industrial sites into urban parks, such as environmental remediation, infrastructure development, and public engagement, require developing interdisciplinary approaches to ensure sustainable development.

Integrating environmental, architectural, and cultural preservation strategies was crucial— for example, afforestation at the Phosphate Hills balanced environmental restoration with aesthetic enhancement. However, there's room for improvement in seamlessly integrating these strategies, particularly in preserving historical elements while modernizing the sites.

e) **Various Intentions, a similar result**

While the intentions behind parkification may differ, the results are similar – ranging from environmental restoration to economic development, cultural heritage preservation, and community well-being. Despite different initial intentions for each site, such as cultural preservation or environmental restoration, they all converge toward enhancing community spaces.
However, some intentions, like historical preservation, were not fully realized, suggesting a need for more balanced approaches in future projects.

f) Interactions between Processes

The interdependencies of various processes were absent, leading to inefficiencies. For instance, in the case of Ruseifa, despite having similar players for different processes, it didn’t interact. Recognizing these interdependencies early in planning can significantly enhance project development efficiency. These interactions involve sharing experiences, resources, lessons learned, and expertise.

Furthermore, considering the three sites located within an approximate range of 0.5 miles, it is reflected that these sites share similar landscapes. Collaborating on parkification projects within a shared masterplan can be advantageous, leveraging the commonalities in their surroundings for more cohesive and coordinated development efforts.

g) Decisive Government’s Role

These processes highlighted the role of government agencies in overseeing and regulating the parkification process, ensuring adherence to environmental and urban planning standards. Immediate action and taking decisions were decisive in these projects. What took 40 years has been done in 40 days. The government's decisive actions were commendable. However, this also highlighted the bureaucratic challenges that can stall such initiatives. Streamlining governmental procedures and improving inter-departmental coordination could enhance the efficiency of future parkification projects.

h) Cultural and industrial preservation & documentation

With a more comprehensive approach that includes historic preservation, community involvement, and environmental sustainability, future redevelopment efforts can create spaces that
are not only green and functional but also rich in historical significance and cultural value. This balanced approach will ensure that these transformed spaces resonate more deeply with the community and visitors, preserving the legacy of the past while embracing the potential of the future.

Additionally, to accurately map and trace the parkification process, engaging with a diverse range of key players and individuals was necessary. Outlining the process involved reaching out to various stakeholders to access documents, formal notes, and statements that shed light on the project and the site. This extensive outreach underscores the significance of this study.

8.3 Contextualizing Parkification Decision

As a last step of this comparative analysis, contextualizing the parkification approach within the overall decision-making process to understand the main intention behind the transformation was conducted.

The overall decision-making process encompassed four main steps: problem identification, alternatives development, final decision seeking funding, and design and implementation. Within these four main stages, the approach of parkification was placed along each site decision-making process for transforming post-industrial sites in Ruseifa.

Based on that, the study identified three main rationales for deciding on parkification for developing post-industrial sites in Ruseifa: as a tool, strategy, or intention. Each rationale reflects a complex interplay of factors within the post-industrial site, culminating in the ultimate decision to create an urban park.

The study places the parkification approach within these processes as follows:
8.3.1 Parkification As a Tool

According to the three analyzed parkification processes, this study found that one of the main reasons for transforming post-industrial sites in Ruseifa into urban parks took place as a tool. For example, the decision was not born in the early stages of the transformation of the sites and wasn’t part of the discussed alternatives on how to deal with post-industrial sites. Once the final decision was taken, the parkification happened as a means to seek funding or a pleasing approach to the stakeholders and the community.

On the Pepsi Pond project, GAM decided to parkify as a selling point for the EBRD, the funding agency for the project, which aligns with their goals and agenda of the urban green growth plan. They believed that enhancing the site and removing the environmental impact was not enough if not bringing benefits back to the community. Therefore, the park project was added as phase two.

I suggested we turn it into a public park and even named it the ‘Environmental Park. The bank wasn’t just interested in solving an environmental issue; they wanted to see its impact on the community. I presented my case as a problematic hotspot that had transformed into something positive! The first phase would address the environmental problem, and the second phase would be its transformation into a park. D11, GAM

[Diagram: Figure 8.7: Parkification as a tool.]
Figure 8.7 illustrates the relation of the parkification decision within the general decision-making process. The use of parkification as a tool to secure funding or approval of the alternative to proceed with the transformation process of the post-industrial site was evident in two of the parkification projects at Ruseifa.

In another aspect, parkification served as a façade to the community to minimize the impact of the ongoing environmental problems that the government couldn’t definitively solve. Back in 2008, GAM created Alfarah Park on the northwest edge of the Pepsi Pond site. While this project obtained positive support from the residents, it fell short of addressing the broader context of the post-industrial site and its inherent complexities. This oversight had repercussions, as it hindered the park’s effectiveness, leading to the underutilization of the space. Consequently, the site's underlying environmental issues persisted, and a holistic vision of the landscape remained elusive. In essence, parkification was employed as an added solution to mask 40 years of environmental challenges and community hardships.

The Greater Municipality of Amman began to work on the issue of rehabilitating the site a long time ago. It made a park called the Alfarah, in which a community center was added. I mean to reduce the bad impact of the issue and serve the local community. Accordingly, mitigate the impact and calm down the problem of the pond. D11, GAM

Also, parkification was used as an incentive to seek stakeholder collaboration and support. For the Geo-heritage Park, the Ministry of Environment requested the site's transformation into a park to ensure their support and control of the site.

We were on board with your project, but to gain approval, you needed to incorporate an environmental park or some form of greening to keep it under the Ministry
of Environment umbrella. You could call it a request for changes in the project to address environmental issues and enhance the area's environmental protection. E11, GJU

Also, it was used to preserve the site from demolition or erasure projects.

8.3.2 Parkification As a Strategy

Using the decision of parkification as a strategy represents the main approach taken for transforming the Phosphate Ore Hills site, where parkification is integrated into a larger project focusing on greening and afforestation. The parkification initiative seamlessly became a part of the rehabilitation project, aligning with the strategy of environmental enhancement.

The incorporation of parkification into the broader project, as illustrated in Figure 8.8, underscores its role as a fundamental strategy throughout the decision-making process. This strategic perspective influences the four main steps, contributing to a holistic understanding of how the site can be improved through this approach.

![Figure 8.8: Parkification as a strategy.](image)

In “The problem identification and assessment” phase, parkification serves as a guiding strategy, facilitating a generalization of how the site can benefit from this approach. It informs the steps needed to support and implement the decision.

During the “final decision and funding” phase, parkification is strategically positioned to collaborate with key players, emphasizing contributions rather than assuming a direct role. The
alignment with environmental sustainability considerations prompts selecting a design team capable of developing an environmental park while working within the site's limitations.

Furthermore, parkification as a strategy extends beyond the immediate project, considering the broader landscape. In the case of the three sites, collaborative efforts within a shared masterplan capitalize on the commonalities in their landscapes, fostering a more coordinated and synergistic parkification approach.

This strategic perspective highlights the influence of parkification on decision-making at multiple levels, emphasizing its role as a guiding strategy that shapes the entire transformation process. Using parkification as a strategy ensures that the project meets immediate goals and aligns with long-term objectives for sustainable and community-centric development.

8.3.3 Parkification as An Intention

In this context, parkification was decided to be the main goal from the beginning of the transformation process of post-industrial sites. It was evident in the case of Site 3, where the concept of transformation was intended to preserve the site from the outset of the process. The purpose was to establish a park as the primary goal, aligning with the reuse approach for industrial buildings within the site. This intentional use of parkification underscores a purposeful commitment to preserving and repurposing the site for community benefit.

![Figure 8.9: Parkification as an intention.](image)
Figure 8.9 illustrates the position of parkification within the overall process as an intention and a goal. Although this process didn’t reach the implementation phase, it has generated a possible proposal of how to use the parkification to integrate and reuse the buildings for the benefit of the site.

Perceiving parkification as an intention represents a thoughtful and purposeful approach to the transformation process. From the project’s inception, there has been a clear commitment to preserving the site, with the primary goal of creating a park. This intentional strategy aligns with a broader vision of reusing industrial spaces, emphasizing a conscious decision to contribute to sustainable urban development.

The intentional use of parkification goes beyond environmental considerations, focusing on enhancing the quality of life for the community. It reflects a vision prioritizing community well-being fostering a sense of belonging and engagement. This intentional approach aims to leave a lasting legacy, creating enduring spaces that positively contribute to the community’s identity and heritage.

Viewing parkification as an intention involves carefully balancing preserving the site’s historical and environmental aspects with its transformation into a functional and aesthetically pleasing park. This nuanced understanding of the site’s unique characteristics ensures a thoughtful and respectful approach to its revitalization.

Furthermore, stakeholder involvement is integral to shaping the intention of parkification. Engaging various stakeholders in a collaborative process ensures the community’s needs, expectations, and aspirations are considered.

This inclusive approach makes the intention reflective of diverse perspectives, contributing to a more meaningful and successful transformation.
Overall, parkification as an intention signifies a strategic and forward-looking perspective, where the transformation is guided by a purposeful commitment to preserving, repurposing, and enhancing the site for the benefit of both the environment and the community.
CHAPTER NINE: CONCLUSION

This chapter offers a brief overview of the research and its findings, starting with a general summary of the approach taken to analyze the study results. It is followed by a thorough reflection on the key findings of the research and the research contributions to knowledge. Finally, this chapter provides practical recommendations and discusses the limitations and future research.

9.1 Main Findings

The study delves into the parkification processes employed in transforming post-industrial sites in Ruseifa, shedding light on the intricate dynamics shaping landscape changes within this context. It uncovers and traces the multifaceted approach of parkification attributed to the transformed sites, investigating the landscape patterns, stakeholders’ dynamics, mechanisms, and perceptions of these landscapes by key players involved in the decision-making process.

The study underscores Ruseifa city’s industrial heritage, housing several post-industrial sites scattered within its industrial landscape. Moreover, the study has provided evidence of these sites’ historical and cultural importance to the city and Jordan.

Focusing on three designated sites—Pepsi Pond, Phosphate Ore Hills, and Old Phosphate Mine and Administration Building—the study substantiates their importance and advocates for their reclamation as post-industrial sites. Furthermore, it posits “parkification” as the approach that is taken to develop those three sites.

The study aims to contribute to a comprehensive understanding of the parkification process as benchmarks for developing post-industrial sites in Jordan. Drawing insights from key players’ perceptions and attitudes toward these sites, addressing compelling issues related to them, and unveiling the actual processes involved, it provides broad data to analyze and examine the parkification processes.
The study evaluated and compared the identified parkification processes to better understand the series of events, the role of involved key players, driving factors, and the impact on these sites. Ultimately, the study aspires to contribute to a better understanding of Jordan’s cultural landscape and industrial heritage, offering valuable insights for future development planning. Doing so aligns with landscape planning and preservation goals for the post-industrial landscape of Ruseifa and Jordan.

Following is a summary of the main findings of the study related to parkification processes on post-industrial sites at Ruseifa City:

1) By answering research question one, which aimed to explore key stakeholders’ perspectives and strategies concerning post-industrial sites in Ruseifa, the study revealed a nuanced understanding of these sites, portraying them as environmental challenges, developmental prospects, contested territories, burdens, and repositories of industrial heritage.

These diverse perceptions emphasize the intricate nature of issues surrounding post-industrial sites and the multifactorial influences shaping decision-making processes. The research exposes a notable deficiency in proactive and strategic planning, exemplified by the prevailing tendency to leave sites undisturbed due to the absence of clear policies.

This reactive approach, coupled with temporary measures and the absence of comprehensive strategies, contributes to persistent challenges in effective site management. Moreover, identifying these sites as burdens and disputed lands highlights obstacles in stakeholder collaboration and land ownership conflicts, adding layers of complexity to their development and transformation. The study’s insights underscore the environmental impact on decision-making, yet they emphasize the oversight of these sites’ cultural and historical
significance. The lack of integration of landscape architecture and industrial heritage expertise in transformation strategies becomes apparent.

The diverse array of perspectives and approaches toward post-industrial sites in Ruseifa signals a critical need for a more cohesive, inclusive, and strategic approach to their governance and revitalization. Despite challenges, these sites present unique opportunities for urban development and industrial heritage preservation.

The concept of parkification emerges as a viable response, offering a transformative pathway to turn these areas into valuable community assets. However, this necessitates meticulous consideration of historical, environmental, and social contexts to ensure sustainable, culturally sensitive redevelopment that benefits the local community.

2) Another key finding of this study revolves around identifying three distinct parkification processes in Ruseifa for transforming post-industrial sites into urban parks. Through an in-depth exploration of three designated locations—Pepsi Pond, phosphate ore hills, and old phosphate mine and administration building—unique approaches emerged, each tailored to address specific challenges and opportunities. The findings contribute significantly to the understanding of how these sites underwent a metamorphosis, considering the interplay of dynamics, mechanisms, perceptions, and landscape patterns inherent in the parkification processes, as follows:

The parkification process at the Pepsi Pond site includes a restoration approach, emphasizing the transformation of a contaminated lagoon into a green urban park. This process, characterized by an amalgamation of restoration techniques through engineered interventions, signifies a pivotal shift from the site’s post-industrial status. The landscape pattern analysis
reveals the site’s strategic importance and the dual aspects of ecological significance and industrial heritage.

Furthermore, the dynamics of the natural restoration parkification process unfold through the involvement of key players, with Greater Amman Municipality (GAM) exerting significant influence due to the site’s ownership. The decision-making process is driven by the prime minister’s directive to address urgent environmental challenges, leading to the formation of a technical committee and GAM’s dominant role in guiding the project.

a) The parkification process at the Phosphate Ore Hills site in Ruseifa adopted a collaborative approach to **environmentally rehabilitate** the post-industrial site and transform it into a public park. The approach involves reclaiming the site through planned measures, including removing phosphate waste hills, soil remediation, afforestation, and creating recreational areas aligned with environmental rehabilitation.

Pursuing three primary objectives—cleaning, afforestation, and public park creation—marks a notable departure from the site’s industrial past. Moreover, these goals shaped the mechanisms adopted in the process, addressing challenges like environmental issues and contamination through site assessment, multi-disciplinary collaboration, parkification, and environmental remediation measures.

The process was influenced by unstable land, the removal of phosphate piles, and the presence of old mining tunnels. Therefore, the park’s creation
symbolizes the government’s achievement in revitalizing the area, combining rehabilitation and restoration processes to return the site to its former recreational and green state.

The process unfolds its stakeholders’ dynamics through a multi-disciplinary collaboration involving various ministerial committees, harmoniously engaging governmental institutions and stakeholders. This committee was committed to restoring the site’s original ground level, mitigating environmental impacts, and crafting a vibrant green public space.

b) The parkification process at the Old Phosphate Mine and Administration Building site centers on preserving the industrial heritage. It was manifested by transforming it into a geo-heritage park. It utilized an adaptive reuse of the historical structures dating back to 1934. The industrial preservation approach involves recognizing the site’s historical, geological, and economic value, planning park design, engaging experts, and collaborating with stakeholders with similar interests.

The landscape pattern is influenced by the site’s location, which houses several historical industrial buildings and structures on a linear plateau overlooking the Zarqa River, presenting both challenges and opportunities. The lack of expertise or precedent projects, Communication gaps among the involved expert team and collaborating stakeholders, and the frequent turnover of key players have defined the dynamic nature of the parkification process. This site’s transformation into a park faced challenges, including the unplanned demolition of main features due to safety measures and
illegal activities. The process, initiated in 2016, ended with only a proposal for the park and no immediate action for implementation.

3) The study also identified three key driving factors influencing the parkification approach in Ruseifa’s post-industrial sites. Firstly, there is a prevalent need for environmental remediation and restoration to address the environmental degradation resulting from past industrial activities. This process involves cleaning contaminated sites, restoring natural landscapes, and enhancing environmental quality. Secondly, community demands for green spaces, recreational areas, and improved quality of life play a pivotal role in pursuing parkification. Responding to the local population’s desire, the transformation of industrial sites into public parks and community spaces aligns with these communal needs. Lastly, recognizing historical and cultural significance proves crucial, as parkification becomes a strategy to preserve and integrate historical structures and narratives into the urban fabric, thereby enhancing cultural heritage.

4) The study examined the compelling issues surrounding post-industrial sites in Ruseifa, exploring both challenges and opportunities inherent in these sites. Four main challenges are identified:

- Environmental remediation and clean-up,
- Complicated land ownership structures,
- Altered extensive landscapes,
- Risk of history erasure.

Environmental challenges stem from phosphate mining remnants, leading to environmental burdens and pollution, with economic interests often prioritized over addressing these issues. Complex land ownership involving varied entities adds difficulty in securing development
permissions. The altered extensive landscape, deemed unsuitable for reuse, has led to unfavorable land uses, while historical erasure threatens the preservation of significant structures. Additionally, the lack of legislation and policies regarding post-industrial site management poses challenges, with the term ‘post-industrial sites’ not formally recognized. The study highlights that the absence of legislation and policies and a lack of experience and resources further complicate the management processes.

5) The transformation of these sites into urban parks emerges as a strategic solution to these challenges. The parkification approach effectively addresses issues by responding to community demands for green spaces, resolving environmental impacts, and improving the quality of life. It navigates legal complexities, engages stakeholders, and tackles structural remnants creatively. Despite initial deficiencies in collaboration and community engagement, parkification emerges as a successful strategy, acknowledged by decision-makers, experts, and governmental representatives. The consensus among participants emphasizes the positive impact of parkification, affirming its suitability for transforming post-industrial sites into valuable and accessible public spaces, ultimately influencing the decision to proceed with this strategy.

6) Lastly, a comparative analysis of parkification processes in Ruseifa is presented, evaluating three identified parkification projects within these sites: Pepsi Pond, Phosphate Ore Hills, and Old Phosphate Mines & Administration Building. The assessment is conducted in two main dimensions: the embedded mechanisms and power dynamics of the decision-making process and the larger framework of transforming post-industrial sites. Each parkification process is unique, reflecting distinct characteristics and addressing challenges related to landscape change, as follows:
a) The parkification of Pepsi Pond is characterized by a single key player, the Greater Amman Municipality (GAM), taking charge of the transformation under direct instructions from the Prime Minister. Despite involving various stakeholders, GAM’s predominant role shaped the decision-making process, highlighting the influence of a central actor. Initially an engineering endeavor, the process shifted towards parkification as a practical tool to secure funding, emphasizing the role of economic considerations. While achieving environmental remediation, the project’s success faced criticism for lacking broader stakeholder participation and transparency in decision-making.

b) The Phosphate Ore Hills parkification represents a collaborative and multidisciplinary approach involving diverse stakeholders such as JPMC, Ruseifa Municipality, and ministries. The decision to pursue parkification was influenced by the site’s characteristics, status as treasury land, and the recognition of individual responsibilities for past landscape alterations. The collaborative effort successfully integrated environmental restoration and community compensation, demonstrating a strategic response to post-industrial challenges. However, the neglect of industrial heritage and historical dimensions highlights areas for improvement in future projects.

c) The parkification process for the Old Phosphate Mines & Administration Building site faced interruptions and a lack of sustained attention. Initial efforts to create a geo-heritage park were hindered by challenges such as private ownership, potential alternative projects, and historical preservation
dilemmas. The process encountered disruptions due to funding issues, concerns about radiation, and shifts in leadership. The absence of a clear vision, coupled with inadequate documentation, led to a loss of project direction and misinterpretation. Ultimately, the site’s donation to the Ministry of Culture for a cultural center marked a significant departure from the original geo-heritage park concept, showcasing the complexities of repurposing historically significant areas.

7) The final finding is that the study contextualizes the parkification approach within the overall decision-making process for transforming post-industrial sites in Ruseifa. Three main reasons for deciding on parkification are identified: as a tool, strategy, or intention.

Parkification as a tool is observed in cases where it is not initially considered in the early stages of transformation. Instead, it emerges as a means to secure funding, please stakeholders, or mask environmental challenges. Parkification as a strategy is exemplified in the Phosphate Ore Hills site, where it seamlessly integrates into a larger project focused on greening and afforestation. This strategic approach involves parkification as a guiding strategy throughout the decision-making process. Parkification as an intention represents a deliberate commitment to making a park the primary goal from the beginning of the transformation process. This intentional use of parkification involves preserving the site, repurposing industrial buildings, and contributing to sustainable urban development.

These findings describing the parkification processes in Ruseifa contribute to a comprehensive understanding of transforming post-industrial sites into urban parks. The unique approaches, whether natural restoration, environmental rehabilitation, or industrial heritage
preservation, highlight the importance of balancing ecological significance, stakeholder dynamics, and community engagement in achieving successful parkification.

Ruseifa’s rich history and geological significance offer cultural and economic benefits while preserving the area’s heritage. However, the current state of the site and the Ministry of Culture’s recent refusal to proceed with the transformation due to the poor condition of the buildings poses a major hurdle for the project’s continuation.

9.2 Evaluation framework

This study presents a pivotal contribution in the form of an evaluation framework designed to assess parkification processes for the transformation of post-industrial sites into urban parks. The framework, intricately aligned with the research questions posed, delineates a structured approach comprising three distinct stages for evaluating the transformation process.

The first stage of the framework focuses on gathering insights into the perceptions of decision-makers and stakeholders regarding post-industrial sites. This initial layer of assessment aims to develop a preliminary understanding of the significant issues associated with such sites and their potential impact on the transformation process.

In the second stage, the framework delves deeper into the process of parkification by examining four primary layers: the landscape patterns of the site, the mechanisms of transformation, including parkification processes, the dynamics of power relationships among key stakeholders, and their perceptions towards the parkification decision. This stage expands on the second research question, providing a comprehensive analysis of the multifaceted aspects involved in the transformation process.

The third and final stage scrutinizes the driving factors behind the parkification decision, thereby addressing the third research question. This phase of evaluation not only examines the
compelling issues addressed by the parkification process but also provides insights into the overarching motivations guiding the transformation.

By meticulously exploring these layers and dimensions, the evaluation framework facilitates a holistic understanding of the parkification process. It allows for the conceptualization and contextualization of the transformation, thereby enabling stakeholders to gain valuable insights into the underlying perceptions, process dynamics, and addressing the compelling issues of the site effectively.

9.3 Suggestions For Future Work

The methodology employed in this study holds the potential for replication in various post-industrial sites across Jordan, each with a different transformation approach. While the study focused on a specific city as a case study, future research should consider comparative studies involving more sites across different cities or municipalities with greater resources.

In this study, emphasis was placed on decision-makers and key stakeholders. Future research could further enhance its scope by surveying the community regarding post-industrial sites and the parkification approach to transformation.

Given the dominance of the political aspect and the unprecedented nature of these projects, incorporating a quantitative data collection method might be beneficial. This ensures a more nuanced understanding of the opinions of various participants without embellishment.

Despite its importance as a benchmark, this study falls short in demonstrating the historical struggle and impact resulting from the abandonment of these sites and the lack of action towards their development. Therefore, it might be a follow-up study to map the oral stories and historical witnesses of the residents and local authorities attempting to resolve these issues within post-industrial sites.
Furthermore, this study can further explore the implemented parks within these sites and examine the role of this transformation in the preservation, protection, and development of post-industrial sites in Jordan.

9.4 Study Limitations

Some limitations have emerged during the conducted interviews and participants. The study primarily engaged decision-makers in administrative positions, presenting a challenge in incorporating perspectives from employees in other departments within the same institution. The inclusion of key players from various positions within the same institution involved in parkification processes hindered obtaining other types of documented data.

Approval from higher-ranking personnel was necessary, and limitations existed regarding the information that could be shared. This constraint restricted the ability to capture broader insights from different roles within the institution. Moreover, many participants refused to conduct any interviews or share any information without a formal letter from the researcher’s university or institute.

Throughout the study, some interview questions regarding the limitations of the parkification process and approaches led to discomfort among some participants. Concerns were expressed about the potential impact on institutions and achievements upon publication if it was not appropriately interpreted. Therefore, the researcher needed to ensure that none would be misinterpreted, and names were excluded.

Also, the nature of the interviews conducted with decision-makers tended to be more formal, requiring careful phrasing to guide questions toward the study’s objectives rather than showcasing the governmental achievements of parkification projects.
In terms of the data, there was a notable lack of comprehensive data pertaining to post-industrial sites in Ruseifa, along with the inaccessibility of archival data to non-governmental employees. Additionally, the deficiency of policies or laws specifically addressing closed industrial sites created a gap in understanding the regulatory framework governing these areas.

The scattered nature of projects related to post-industrial sites further complicated the data-gathering process. The absence of documented information, coupled with the absence of clear definitions or discussions within governmental records, posed a significant challenge. The formal documents available were unorganized, and there was no centralized source for obtaining relevant information.

This inconsistency, with the same information sourced from different outlets, presented challenges in establishing a cohesive understanding of the subject matter. While some data could be obtained through networking and connections, the overall lack of structured data limited the comprehensiveness of the study.

### 9.5 Recommendations

To foster the optimal development of post-industrial sites in Jordan, several measures should be implemented to enhance their growth and safeguard these areas.

1) **Incorporate landscape and cultural landscape education:**

Introduce landscape and cultural landscape education into the Jordanian curriculum and governmental institutions agenda to enhance understanding and community awareness of natural resources and the environment. This educational initiative would serve as a foundational step toward fostering a deeper connection with the environment, cultural landscape, and cultural heritage.

2) **Engage landscape architects and experts:**
Make the involvement and consultation of landscape architects and related experts integral to any landscape change or transformation. Their expertise can contribute significantly to sustainable and aesthetically pleasing developments. This becomes particularly crucial when addressing heritage landscape sites, necessitating an interdisciplinary approach.

3) Establish clear and unified Definitions:

Define industrial landscape, post-industrial sites, and cultural landscape clearly and uniformly in a Jordanian context. This standardized terminology will provide a common understanding and facilitate effective communication among stakeholders.

4) Incorporate landscape character database in governmental institutions:

Ensure that landscape character becomes an integral aspect of governmental institutions. Establish a comprehensive database for recognizing sites earmarked for governmental development. For post-industrial sites, initial recognition using specific terminology, thorough site assessments, and evaluations should be mandatory. This database should include a geo-spatial component to comprehensively document landscape changes and status over time. Additionally, establishing a shared database accessible to all governmental entities would facilitate seamless collaboration in landscape transformation endeavors.

5) Formulate legislation and regulation:

Develop legislation and regulations that recognize post-industrial sites, natural resources, and land use. This dual-purpose legislation should strive to preserve Jordanian cultural landscapes and heritage while allowing for future sustainable development. Engage the public in this legislative process to ensure inclusivity.

Moreover, coordinate efforts between relevant agencies and ministries, such as the Ministry of Local Administration and the Ministry of Environment. Extend policies to cover all
types of land use and sites with disturbed nature—Foster collaboration across disciplines to align national policies and ensure a shared vision.

6) Capacity-Building for Officials and Staff:

Initiate a capacity-building program for officials and staff from relevant ministries, equipping them with enhanced skills for more effective involvement in the management and planning processes. This program should specifically address the distinctive aspects of post-industrial sites and their transformation, recognizing the gaps in expertise related to restoration, conservation, and preservation within the Jordanian governmental focus.

7) Institutional Archival and process transparency:

Establishing an institutional archival system is imperative to ensure a thorough record of studies, past proposals, and development projects associated with these sites. This initiative not only safeguards valuable knowledge and experiences but also promotes transparency in the processes undertaken. By archiving the collective expertise of government entities, academics, scholars, and experts, this collaborative effort contributes to the transparency of the decision-making and intervention processes, ultimately benefiting these sites’ comprehensive understanding and development.

8) Implement Cultural Landscape Inventory:

Introduce new mechanisms specific to transforming post-industrial sites, focusing on a cultural landscape inventory. This approach aims to enhance and preserve historical heritage during development, diverging from conventional land development strategies.

In essence, this research contributes valuable insights into the parkification processes in Ruseifa, providing a foundation for further exploration and action to enhance the development and preservation of post-industrial sites in Jorda.
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APPENDICES
APPENDIX A

Participants List & Codes

The final list of the interviewed key actors is presented below, giving each individual a specific code that was used for ease of reference in citations.

These interviewed participants have been actively involved fully or partially in the development projects of the three following sites and their parkification project:
- Site 1: The Lagoon Site, transformed into the Pepsi Pond Park
- Site 2: The phosphate ore hill site, redeveloped into the Environmental Park
- Site 3: The site encompasses the Phosphate Company Administration Buildings and the Old Mine, now known as the Geo-heritage Park.

For efficient referencing, each interviewee has been assigned a unique code. These codes correlate with the primary group or sector they represent in the context of these parkification projects.

The participants have been categorized and coded as follows:
E: expert; D: decision-maker; C: local community; S: non-direct decision-maker.

<table>
<thead>
<tr>
<th>Identified actor</th>
<th>department</th>
<th>Role description</th>
<th>Concerned site area</th>
<th>Methods/aim</th>
<th>Interview description</th>
<th>date of interview</th>
<th>Code</th>
</tr>
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<td>Admin. Department at the Amman headquarter.</td>
<td>Produce, authorize, and fund projects. The primary decision maker for the phosphate industry projects in Jordan, including Ruseifa, and cleaning the sites.</td>
<td>Site 2 Site 3</td>
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<td>July 7th, 2022</td>
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<td>Research and Quality Dept in Ruseifa</td>
<td>EIA reports and quality assurance. Implementing projects in Ruseifa.</td>
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<td>Interviews, site visit, focus group &amp; gatekeeper</td>
<td>Head of the department</td>
<td>June 26th, 2022 &amp; January 23rd, 2023</td>
<td>D01</td>
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<td>Jordan Phosphate Mines Company (JPMC)</td>
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<td></td>
<td>Site 1 Site 2 Site 3</td>
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<td>General supervisor on the phosphate project.</td>
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<td>D02</td>
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<td>Environment advisory department</td>
<td>Produce, approval on decision for projects on environmental concern, EIA reports, advocate. Assessment. Fund</td>
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<td>Documents and interview</td>
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<td>January 22nd 2023</td>
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<td>Site 2</td>
<td>Site 3</td>
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<td>Regulations, technical reports.</td>
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<td>Department of design and project</td>
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<td>project &amp; execution manage</td>
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<td>January 25th, 2023</td>
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<td>Implement, design, and produce. Project manager</td>
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<td>Archive department</td>
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<td>Library and Archival principle</td>
<td>June 2022</td>
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<td>The Royal Court</td>
<td>-</td>
<td>The higher authority</td>
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<td>Site 2</td>
<td>Site 3</td>
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<td>Site 2</td>
<td>Site 3</td>
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APPENDIX B

Documents List & Codes

List of Coded Documents Acquired for Research Purposes: The research encompasses a comprehensive examination of three distinct and detailed decision-making processes pertaining to the following sites:

- Pepsi Pond Park Site
- Environmental Park Site
- Geo-Heritage Park Site

The documents have been categorized and coded as follows: T: Formal Documents, G: Maps and Geographic Information System (GIS) Layers, A: Articles, V: Videos.

<table>
<thead>
<tr>
<th>Type of document</th>
<th>Document Title</th>
<th>Source &amp; year</th>
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<tr>
<td>TOR, construction supervision document by Client</td>
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<td>Minutes of Meeting formal report</td>
<td>The environmental impact of the Phosphate Ore Hills</td>
<td>Ruseifa Municipality, 2007</td>
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<td>Progress Report</td>
<td>The phosphate Ore hills rehabilitation project: the greening phases</td>
<td>Ministry of Public Works, 2021</td>
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<td>Req no. (1) for 2022: edited Building system and organization of cities and villages.</td>
<td>Ruseifa Municipality, Ministry of Local Administration 2019</td>
<td>A printed copy of the code on industrial land use was provided by Ruseifa municipality in June 2022</td>
<td><a href="https://www">https://www</a> møla.gov.jo/Ar/List</td>
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<td>Statutory Regulation &amp; Codes</td>
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285
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<tr>
<th><strong>Departmental Presentations &amp; reports</strong></th>
<th><strong>Maps and layers</strong></th>
<th><strong>Aerial photo map</strong></th>
<th><strong>Progress report</strong></th>
<th><strong>Bids document</strong></th>
<th><strong>Design plans</strong></th>
<th><strong>Monthly progress report</strong></th>
<th><strong>Community Invitation letter for progress update</strong></th>
<th><strong>Management Plan (ESMP) and Environmental Incident Reporting</strong></th>
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<td>Report on the rehabilitation of the industrial area in Amman</td>
<td>Ruseifa city Land Use map</td>
<td>Ruseifa city</td>
<td>Phosphate Ore hill Rehabilitation Site progress report</td>
<td>Central Bid No. 2013 for preparing studies, designs, and implementation bid documents for the project to establish the environmental Park in Zarqa</td>
<td>Working documents for the Environmental Park project</td>
<td>Establishment of the Ecological Park / Phosphate Hills Monthly Report for February /</td>
<td>Invitation to the community centers and school manager to collaborate and progress update</td>
<td>Ruseifa Lagoon Remediation Project - Phase 1 Feasibility Study, Technical and Functional Specifications, and</td>
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<td>was provided by Ruseifa municipality in June 2022</td>
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**Minutes of meeting reports**
- The stakeholder engagement plan
  - Contractor, Terratest & GCS, 2022
  - A digital copy of the Word document, Jan 2023
  - T14

**Presentation**
- Description of the phases of the Phosphate Ore Hills rehabilitation project
  - Jordan Phosphate Mines Company, 2022
  - A digital copy of the PowerPoint presentation
  - T15

**Ministerial Formal book**
- Land ownership by phosphate company to the Ministry of Local Administration overseen by Municipality of Ruseifa for developing masterplan.
  - Prime Ministry to the Ministry of Environment, 2015
  - A hard copy of the formal document.
  - T16

**Technical committee report**
- Recommendation and distribution tasks on different parts of the land. Proposing development projects
  - Ministry of Environment 2015
  - A hard copy of the document
  - T17

**Technical committee report**
- A report of land ownership for the phosphate mine post-industrial lands in Ruseifa
  - The Jordan Phosphate Mine Company 2018
  - A hard copy of the document
  - T18

**Ministerial Formal report**
- A report from the Ministry of Culture surveyed the condition of the buildings within the site, which were given to them by the phosphate mining company.
  - The Ministry of Culture 2022
  - A hard copy
  - T19

**Newspaper article**
- Al- Farah Park, a den of thugs and terror creeping into the hearts of the residents of the Mushayrifa neighborhood
  - Jordan Zad News 24-12-2010
  - A01

**Newspaper article**
- The Pepsi Pond has transformed from a picnic park into a wastewater pond over time.
  - Nesan News 2019-11-05
  - https://nesan.net/?id=138792
  - A02
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<th>Alghad Newspaper 02-01-2021</th>
<th><a href="https://alghad.com/910-">https://alghad.com/910-</a> &lt;br&gt;2053</th>
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<td>The head of the Royal Court inspects the implementation stages of the Phosphate Hills Rehabilitation Project.</td>
<td>Al mamlaka tv 03 -12- 2022</td>
<td><a href="https://www.almamlakatv.com/news/5">https://www.almamlakatv.com/news/5</a> &lt;br&gt;2053</td>
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<td>50% completion rate of the Phosphate Hills Rehabilitation Project.</td>
<td>Al mamlaka tv 30 -09- 2019</td>
<td><a href="https://www.almamlakatv.com/news/2">https://www.almamlakatv.com/news/2</a> &lt;br&gt;6581-50- &lt;br&gt;2021</td>
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<td>The “radiant” hills of Ruseifa: work above the ground and danger lurking beneath it.</td>
<td>Al mamlaka tv 22 -10- 2018</td>
<td><a href="https://www.almamlakatv.com/news-">https://www.almamlakatv.com/news-</a> &lt;br&gt;8044</td>
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<td>Newspaper article</td>
<td>Check out the implementation stages of the Phosphate Hills Project in Ruseifa District.</td>
<td>Al mamlaka tv 31 -01- 2021</td>
<td><a href="https://www.almamlakatv.com/news/5">https://www.almamlakatv.com/news/5</a> &lt;br&gt;587- &lt;br&gt;2021</td>
<td>A08</td>
</tr>
<tr>
<td>Newspaper article</td>
<td>Ruseifa: Chronic environmental pollution due to phosphate hills and the Pepsi Pond.</td>
<td>Alghad Newspaper 07-07-2020</td>
<td><a href="https://alghad.com/Section-165">https://alghad.com/Section-165</a></td>
<td>A09</td>
</tr>
<tr>
<td>Newspaper article</td>
<td>“Phosphate” has pledged to complete the rehabilitation of “Tarh Al-Kamkh” in Ruseifa.</td>
<td>Alghad Newspaper 30-01-2021</td>
<td><a href="https://alghad.com/Section-18-">https://alghad.com/Section-18-</a> &lt;br&gt;961112</td>
<td>A10</td>
</tr>
<tr>
<td>Newspaper article</td>
<td>A joint agreement to establish an environmental park in the Phosphate Hills for 2.5 million dinars.</td>
<td>Al mamlaka tv 18 -10- 2021</td>
<td><a href="https://www.almamlakatv.com/news/7">https://www.almamlakatv.com/news/7</a> &lt;br&gt;6569</td>
<td>A11</td>
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<tr>
<td>Newspaper article</td>
<td>Approval of the referral of the tender to rehabilitate the infrastructure of the “Pepsi” pond in Ruseifa</td>
<td>Al mamlaka tv 28 -04- 2021</td>
<td><a href="https://www.almamlakatv.com/news/6">https://www.almamlakatv.com/news/6</a> &lt;br&gt;2042</td>
<td>A12</td>
</tr>
<tr>
<td>Newspaper article</td>
<td>The environmental park project in Ruseifa is expected to be</td>
<td>Al mamlaka tv 21 -01- 2022</td>
<td><a href="https://www.almamlakatv.com/news/8">https://www.almamlakatv.com/news/8</a> &lt;br&gt;6842-2022</td>
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completed in the first half of 2022.

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<tr>
<td>News video</td>
<td>The general supervisor of the Phosphate Hills rehabilitation project at the Jordanian Phosphate Mines Company, Bilal Al-Ghueiri, spoke about the project, its importance, and the company’s role in completing its stages, and another.</td>
<td>Al hadath News 08-12-2022</td>
<td><a href="https://www.facebook.com/alhadathnewsio/videos/2386757788141127">https://www.facebook.com/alhadathnewsio/videos/2386757788141127</a></td>
<td>V03</td>
</tr>
</tbody>
</table>
APPENDIX C

Reflexivity Report

I am a 35-year-old female architect from Jordan, born and raised in a middle-class family within an urban Muslim community in Amman. As an independent woman, I have had the privilege of pursuing my doctoral studies in the Landscape Architecture department at Virginia Tech, focusing on the cultural landscape and its significance to our community. The aim is to have it recognized and preserved by the local government. Before beginning my studies, I taught at the German Jordanian University for seven years, which was the main reason for obtaining a Ph.D. to influence the future generation working in architecture.

The post-industrial cultural landscape is the result of the interaction between man and nature, penetrating deep into our history and heritage. In contrast, Jordan’s local policies have been constructed with no regard for their significance. Therefore, my research will try to understand the phenomenon of how decisions are made by the local government and authority regarding post-industrial sites in Jordan.

In terms of my beliefs and assumptions about the phenomenon I am investigating, First, I believe that Jordan’s local policies have been insensitive to cultural sites and their local community. Local policies have taken decisions, whether to rebuild, demolish, or restore, without sufficient assessment of their impact on the community that has affected cultural sites. With no regard for the local community’s participation in policymaking, the citizens' experience is incomplete regarding policymaking, mainly in protecting the Cultural landscape, or misinterpreted.

Second, I believe that Jordanian citizens are ignorant about their right to be part of the decision-making process, which resulted in the shaping of inconsiderate projects to their interest. Not having many citizens aware of this right has led the local governments and policymakers to reshape cultural sites according to their own interests and shape policies that serve only tourism-oriented areas that generate economic profits. Therefore, cultural sites are losing their significance due to the poor planning and position of power given by the local community’s lack of participation, which overcomes the need for community input.

Third, I believe that the main reason for citizens not advocating their natural role in policymaking is due to the lack of transparency between the government and the community. In
earlier times, the Municipality used to have regular meetings sharing their future projects and hearing out the community’s opinion. The Municipality stopped this action since the citizens stopped activating that role, giving the government easy access to the power of change. Therefore, the lack of transparency makes it difficult to translate the community's need for these cultural sites.

Fourth, I believe that the most significant impact of the absence of citizens' input in policies is the dramatic change of cultural sites into an economic-oriented project benefiting only tourism and tourists. In some instances, it eliminates the cultural site’s primary identity and displaces the community engagement of that site in the first place, which affected the social cohesion in locations of particular archaeological heritage.

Fifth, I believe that the major obstacle towards realizing best practices in preserving the cultural landscape sites in Jordan is the lack of a central official organization for intangible and tangible cultural heritage. Based on my experience, it also became evident that there are weaknesses in integrating cultural design aspects and issues into the national management plans. Besides, the government’s awareness efforts, at institutional and public levels, about the importance of cultural heritage and its value have not been carried out satisfactorily.

Lastly, I believe that policies and local management plans should protect the cultural landscape sites. Those policies should incorporate the community and collect their perceptions of the cultural sites to understand the site’s significance to the people, history, and heritage, which can’t be achieved without the two parties (government and citizens) working together. Nevertheless, not many sites have been properly protected in Jordan with a proper management plan and no local community of all stakeholders to consider policymaking.
APPENDIX D

Interview Questions

I am Kawthar Alrayyan, and I am here to investigate the parkification process of post-industrial sites in Ruseifa. I would also like to ask you about three specific sites that are under construction to be transformed into a park (the Pepsi Pond, the Phosphate landfill site, and the Phosphate Mining Site). Can you answer the following questions depending on your knowledge, experience, and role as part of the process and the site you worked on?

1) Demographics and background:

I would like to begin by asking you a couple of questions about your background and how you came to be working with the (institution). Also, can you describe the position you held during your time at the Municipality and during the project?

1. What is your current job position in the (governmental institution)?
2. How long have you been working with (governmental institution)?
3. Where do you live? Have you ever visited Ruseifa city?
4. Your educational level?

2) Questions about their perceptions of post-industrial sites

1. can you define post-industrial sites? What do you think of these sites?
2. how do you think we should treat these sites?
3. What main challenges come with these sites?
4. Do you think these sites obtain an industrial heritage; are they worthy of preservation?

3) Questions about the parkification process and the implication of the parkification towards preserving the site’s industrial heritage:

These questions will differ according to the site and the institution to which the participant is referred. Not all questions will be asked but will be guided by the nature of the interview and the information gained.

As (his position in the institute) at the (institution name) in Ruseifa, I would like to start asking some questions about your work experience, knowledge, and practices towards the parkification process of (___the specific site__).

Can you tell me, in general, what was the main reason behind the decision to rehabilitate the site?
· Can you give a general background about the site, its history, and its importance?

· Since when was it closed or not in its former use? Site ownership and land use regulations?

· Why was it closed? Why did it take 30 years to deal with this site?

· What were the main compelling issues that caused the call for change?

· When did the decision of parkification take place? What was the primary process?

· What were the main evaluation tools for this project?

· What was your role in the process?

· Why urban Park? What was the main reason behind the change of this site?

· How did the park proposal address the compelling issue of this post-industrial site?

· Were there any alternative solutions besides the park proposal?

· Were landscape architects involved in this process?

· Who are the main decision-makers for this decision and process?

· Were there other key players besides your institution?

· Can you take me through the process of parkification?

· How did they come up with the decision?

· Who took the final decision?

· How long did each phase take?

· Who funded the project?

· Main Obstacles?

· Does the project show any tool for preserving the post status of these sites?

· Does the process preserve any trace of its previous condition as a post-industrial site?

I appreciate the time you have taken today to speak with me. Do you have anything you would like to add? Documents to provide?

Are there any people you know we should interview for this research? Would you be willing to introduce them?
APPENDIX E

Recruitment Letter

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Invitation to Research Interviews-recruitment letter/e-mail

(Sent in an e-mail to individual participants or by hand)

Hello, my name is Kawthar Alrayyan, and I am conducting research in the process of parkification of post-industrial sites in Ruseifa, Jordan. The specific title of my research is Parkification of Disturbed Landscapes: Uncovering the Process of Transforming Post-Industrial Sites into Parks at Ruseifa. This research is part of my Doctoral studies at Virginia Tech University, and its purpose is to unravel the story of the transformation of the post-industrial landscape into parks in Ruseifa, in addition to how decision-makers make value and treatment approaches towards these sites and, therefore, to Understand how the compelling issues of post-industrial being addressed by the parkification proposals.

Based on your experience with decision-making and the parkification projects on the post-industrial site and as a municipality official, expert, or stakeholder, I would like to invite you to participate in this research. The nature of the questions will be focused on post-industrial sites and your knowledge and experience of these sites. You are free to terminate the interview at any point in the process.

If you agree to participate, I will schedule an interview time and location based on your preference. I will interview you for a period of sixty to ninety minutes. You can choose to be interviewed in either Arabic or English. I will audio record the interviews so that I can document what is said during the interview. Once the research is completed, the recording will be deleted. Your identity and position will be used as part of uncovering the process unless chosen not to be revealed by you.

**Your participation is voluntary, and you may withdraw from this study at any time and for any reason.**

Given the nature of the interviews, I do not foresee any harm to individuals or institutions. Should you have any questions about any aspect of the research, I am available to respond at any time. Once the interview has been completed, I will take your responses and transcribe them. Your transcript will be analyzed in conjunction with other interview results in an effort to develop a theory and an understanding of the decision-making in governmental institutions with post-industrial sites. Your name will not be included in this transcript in order to ensure anonymity. The transcripts will be saved as a code number in an encrypted file, and your name will not appear in any documentation following the interview. If you are interested in participating in this study, please contact me (Kawthar Alrayyan) at (909) 316-9825 or e-mail me at kawthar85@vt.edu. I will follow up to schedule the interview.

The results of this research project will be published in a doctoral dissertation that will be publicly accessed through Virginia Tech Digital Archive. The results might also be disseminated at public and academic conferences and presentations. I hope that you may agree to participate in this exciting research. If you are interested, please reply to this invitation e-mail and a follow-up e-mail to set a time and place. My academic supervisors are Professor CL Bohannon and Professor Terry Clements, and they may be contacted should you wish to verify the authenticity of my request. Furthermore, this project has received Approval from Vt’s Institutional Review Board (IRB). If you have any questions regarding your rights as a research participant, please contact the IRB office at irb@vt.edu or (540) 231-3732. Thank you for your consideration. Kawthar Alrayyan, Doctoral Research Candidate
APPENDIX F

Consent Letter

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent for Participants

Title of the Research Study: Parkification of Disturbed Landscapes: Uncovering the Process of Transforming Post-Industrial Sites into Parks at Ruseifa.

Investigator: [Kawthar Alrayyan], [Landscape Architecture], Virginia Polytechnic Institute and State University (e-mail: [kawthar85@vt.edu], phone: [____________])

☐ Hi, my name is Kawthar Alrayyan, and I am a Ph.D. Candidate from Virginia Tech University. Thank you for participating in my study.

☐ To begin, I would like to inform you that this research study has been reviewed and approved by Vt’s Institutional Review Board (IRB). As part of the IRB approval, I am required to obtain your informed or verbal consent to participate in this study. I am going to read a brief description of the research to you, and once I am done, you can ask me any clarifying questions you have. If you are still interested in participating, we can begin the interview.

☐ My research is about the parkification of the post-industrial landscape process in Ruseifa city. Post-industrial sites refer to the sites of industrial remains that are of historical, technological, social, architectural, or scientific value that acquire particular management from the local government to deal with these sites. The current situation of these sites is affected by the role of government and the decisions made by people in authority to transform them into urban parks. The main purpose of the interview is to explore the different processes, events, key players, and reasons that municipal officials and stakeholders used for the decisions made to deal with post-industrial landscapes in Ruseifa.

☐ The interview will last approximately 60-90 minutes. With your permission, I will make notes during the interview. I will also audio-record our conversation. The interview will be translated, transcribed, and analyzed for this study. Your name will not be shared and used in this study, and I assure you that your identity will remain confidential throughout this study. All your answers will be recorded without your name assigned to them to minimize the risk of participating in the interview. Once the research is completed, the recording will be deleted. In addition, the information and data collected will not be shared with others.

☐ There are no expected risks to participating in this study. However, if you feel uncomfortable in any way during the interview session, please remember that your participation is voluntary and that you have the right to refuse to answer any question, stop the interview, or withdraw completely from the study at any time and without any consequences. I will also offer to stop the interview and take a break if necessary.

☐ If you have questions, you can ask me any time during the interview. If you have questions at some later date, my contact phone number is (______). Should you have any questions about this study or your rights as a research participant or concerns or complaints about the study and wish to speak with someone who is not directly associated with the study, you can contact the Virginia Tech IRB at irb@vt.edu or (540) 231-3732.
☐ Please note that I do not represent nor work with any government agency or officials: I am researching as a doctoral student, and I hope that my research will benefit the local community.

Based on the above statement of informed consent, kindly confirm that you understand:

☐ The purpose of the research ___________ [Yes or No]

☐ Your rights as a participant, specifically that ___________ [Initials]
  o Your participation is voluntary.
  o You are free to withdraw at any time without giving any reasons.

You agree to grant Kawthar Alrayyan permission to:

☐ Interview you as described above ___________ [Initials]

☐ Take notes as described above ___________ [Initials]

☐ Audio record the interview. ___________ [Initials]

☐ Use the information from the interview in proposals, presentations, and publications ______ [Initials]

I have read the Consent Form and the conditions associated with this study. I have also had all of my questions answered. I hereby acknowledge the above and give my verbally voluntary consent:

_____________________________________________ Date __________________

Printed Name of Participant
APPENDIX G

IRB Approval Letter

MEMORANDUM

DATE: January 11, 2023
TO: Terry Lynn Clements, Kawther Mazin Alrayyan
FROM: Virginia Tech Institutional Review Board (FVA00000572)

PROTOCOL TITLE: Parkification of Disturbed Landscapes: Uncovering the Process of Transforming Post-Industrial Sites into Parks at Russeifa

IRB NUMBER: 22-1105

Effective January 11, 2023, the Virginia Tech Human Research Protection Program (HRPP) determined that this protocol meets the criteria for exemption from IRB review under 45 CFR 46.104 (d) category(ies) 2(ii),4(i).

Ongoing IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities impact the exempt determination, please submit an amendment to the HRPP for a determination.

This exempt determination does not apply to any collaborating institution(s). The Virginia Tech HRPP and IRB cannot provide an exemption that overrides the jurisdiction of a local IRB or other institutional mechanism for determining exemptions.

All investigators (listed above) are required to comply with the researcher requirements outlined at: https://secure.research.vt.edu/external/hrb/responsibilities.htm

(Please review responsibilities before beginning your research.)

PROTOCOL INFORMATION:

Determined As: Exempt, under 45 CFR 46.104(d) category(ies) 2(ii),4(i)
Protocol Determination Date: January 11, 2023

ASSOCIATED FUNDING:

The table on the following page indicates whether grant proposals are related to this protocol, and which of the listed proposals, if any, have been compared to this protocol, if required.
### Post-industrial Sites in Ruseifa Timeline

<table>
<thead>
<tr>
<th>Date/Timeline</th>
<th>Pepsi Pond site</th>
<th>The Phosphate Ore Hills site</th>
<th>The old phosphate mine &amp; administration building site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1902</td>
<td></td>
<td></td>
<td>The construction of Hijazi railway</td>
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<tr>
<td>1908</td>
<td></td>
<td>The discovery of the phosphate mine in Ruseifa</td>
<td></td>
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<tr>
<td>1935</td>
<td></td>
<td>The beginning of mining work in Ruseifa and commercial extraction by underground mining. On a total of 1108 dunum area</td>
<td>Mr. Amin Kawar, discovered a promising phosphate ore in Ruseifa and established the first prospect in 1935</td>
</tr>
<tr>
<td>1943</td>
<td></td>
<td>As the company expanded, there became a need for a permanent building. Construction work started in 1943 on the clearance opposite the mines and consisted of several buildings (a water tower and a two-story building)</td>
<td></td>
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<tr>
<td>1949</td>
<td></td>
<td>The building was opened officially in 1949.</td>
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<tr>
<td>1952</td>
<td></td>
<td>The establishment of the Jordan phosphate mines company responsible for extracting, mining, and distributing the ore. Extraction shifted to open-cast mining.</td>
<td></td>
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<tr>
<td>1953</td>
<td></td>
<td>with the expansion of exploration, the company was turned into a public shareholding company registered as Jordan Phosphate Mines Co.</td>
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<tr>
<td>1967</td>
<td></td>
<td>Hittin Camp was established.</td>
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<tr>
<td>1970</td>
<td></td>
<td>In the 1970s, more expansions were made to the site, and new storage silos, toasters, and oven dryers were built at the edge of the site.</td>
<td></td>
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<tr>
<td>Year</td>
<td>Event Description</td>
<td>Details</td>
<td></td>
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<tr>
<td>1985</td>
<td>The formation of the Pepsi Pond problem was caused by mining residue blocking the natural stream and the dumbing of the Pepsi factory waste in the pond.</td>
<td>Phosphate mining activities were suspended in Ruseifa due to the depletion of phosphate reserves, environmental concerns, urban sprawl, and residential encroachments. The mines were temporarily closed, abandoning thus both the mines and the old company’s headquarters buildings, leading to their gradual degradation.</td>
<td></td>
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<tr>
<td>2005</td>
<td></td>
<td>Mining at Ruseifa was forbidden.</td>
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<tr>
<td>2008</td>
<td>The execution and implantation of phase 1 of Alfarah Park. It included the fencing of the pond to protect the residents from drowning. The library, multi-purpose building, and the main plaza. Phases 2 and 3, which included planting and greening the area and building a dam to collect rainwater, didn't proceed.</td>
<td>2005 Mining at Ruseifa was forbidden. 2008 The execution and implantation of phase 1 of Alfarah Park. It included the fencing of the pond to protect the residents from drowning. The library, multi-purpose building, and the main plaza. Phases 2 and 3, which included planting and greening the area and building a dam to collect rainwater, didn't proceed. Ruseifa and its hills were mentioned in a WikiLeaks document leaked from correspondence from the US Embassy in Amman to the US State Department and the US Environmental Protection Agency. Radan contamination hazardous from phosphate extraction</td>
<td></td>
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<tr>
<td>2012</td>
<td></td>
<td>Environmental impact assessments for the area from an American study. Hazardous area</td>
<td></td>
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<tr>
<td>2013</td>
<td>The future consultant did a preliminary design for the environmental park</td>
<td>A proposal for preserving the site and a museum project initiated by A geological museum proposal was presented to the Ministry of Environment for the site by the (CSNACH) at the German Jordanian University (GJU)</td>
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<tr>
<td>2016</td>
<td></td>
<td>Environmental impact assessment from British. Approved that there is no harm from contamination. The Ministry of Municipal Affairs expressed interest in the project and is planning to include it in the master plan of Ruseifa for the year 2017/2018.</td>
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<tr>
<td>2018</td>
<td>The prime minister visited the area (Omar Razzaz) and promised a rehabilitation project and a public park for the community to solve the Pepsi Pond problem. The partially covering the pond (buried) and proposing a park</td>
<td>Royal guidance and directive to rehabilitate the site. The proposal for the geo-heritage -park was published</td>
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<tr>
<td>Sep. 2018</td>
<td>After the 40-day deadline, the greater Amman municipality got approval from the</td>
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<td>Year</td>
<td>Description</td>
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<tr>
<td>2019</td>
<td>The initial of phase 2 for the Pepsi Pond Park project and the micro tunneling. The beginning of phase 1 from the rehabilitation project on the phosphate ore pile site by the Jordan phosphate mine company to remove the residue and flatten the area.</td>
<td></td>
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<tr>
<td>2020</td>
<td>Continuous complaints about the environmental problem of the Pepsi Pond area (bad smell, bugs, and drowning). Complaints about the delay in the starting of the project 73% work progress The Site were given to the Ministry of Culture to transform it into a cultural center within the geo-heritage park.</td>
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<tr>
<td>2021</td>
<td>Declaring the Project bid submission. 18 months’ timeline and 12-million-dinar cost Ministry of Public Works started phase 2 of the project to implement the public park project on the northern part of the rehabilitated site as a Royal Initiatives Garden.</td>
<td></td>
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<tr>
<td>2023</td>
<td>In March, the opening of the public park to the community</td>
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## APPENDIX I

**Preliminary list of key players, institutions, and informants in the preparatory phase**

A) Governmental and non-governmental institutions related to Projects and planning sites in Ruseifa:

<table>
<thead>
<tr>
<th>Number</th>
<th>Institute/Department</th>
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<tbody>
<tr>
<td>1.</td>
<td>Jordan Phosphate Mines Company (JPMC)</td>
</tr>
<tr>
<td>a.</td>
<td>Amman headquarter</td>
</tr>
<tr>
<td>b.</td>
<td>Research and Quality Dept in Ruseifa</td>
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<tr>
<td>2.</td>
<td>Ministry of Environment (MoEnv)</td>
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<tr>
<td>3.</td>
<td>Ministry of Public Works and Housing</td>
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<tr>
<td>4.</td>
<td>Ministry of Local Administration</td>
</tr>
<tr>
<td>5.</td>
<td>Department of Lands and Survey</td>
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<tr>
<td>6.</td>
<td>The Royal Society for The Conservation of Nature (RSCN)</td>
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<tr>
<td>7.</td>
<td>The Center for the Study of the Built Environment (CSBE)</td>
</tr>
<tr>
<td>8.</td>
<td>Department of Public Antiquity (DOA)</td>
</tr>
<tr>
<td>9.</td>
<td>The Hashemite Royal Court (HRC)</td>
</tr>
<tr>
<td>10.</td>
<td>Zarqa governorate Municipality</td>
</tr>
<tr>
<td>11.</td>
<td>Ruseifa Municipality</td>
</tr>
<tr>
<td>a.</td>
<td>Planning &amp; area department</td>
</tr>
<tr>
<td>b.</td>
<td>Head of the Studies Department</td>
</tr>
<tr>
<td>c.</td>
<td>The mayor Office</td>
</tr>
<tr>
<td>12.</td>
<td>Greater Amman Municipality (GAM)</td>
</tr>
<tr>
<td>a.</td>
<td>GIS Department</td>
</tr>
<tr>
<td>b.</td>
<td>Amman masterplan department</td>
</tr>
<tr>
<td>c.</td>
<td>Engineering studies department</td>
</tr>
<tr>
<td>d.</td>
<td>Comprehensive planning department</td>
</tr>
<tr>
<td>13.</td>
<td>Zarqa Chamber of Industry</td>
</tr>
<tr>
<td>14.</td>
<td>Zarqa chamber of commerce</td>
</tr>
<tr>
<td>15.</td>
<td>The Ministry of Culture</td>
</tr>
</tbody>
</table>

B) Experts and local community

<table>
<thead>
<tr>
<th>Number</th>
<th>Experts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ruseifa area Experts</td>
</tr>
<tr>
<td>a.</td>
<td>former CEO of Jordan phosphate mine company</td>
</tr>
<tr>
<td>b.</td>
<td>Municipality legal department, Ruseifa resident</td>
</tr>
<tr>
<td>2.</td>
<td>Consultants &amp; Experts: who have worked directly and none directly on projects in Ruseifa</td>
</tr>
<tr>
<td>a.</td>
<td>Architect Ammar Khammash, the designer and head of Ammar Khammash Architects, is the main designer for RSCN projects. He proposed a counter project in the Pepsi Pond at the Ruseifa and Abu-Sayah sites.</td>
</tr>
<tr>
<td>b.</td>
<td>Dr. Nizar Abed al-Jaber, a Jordanian Geologist who has worked on the phosphate site project.</td>
</tr>
<tr>
<td>c.</td>
<td>Dr. Catreena Hamarneh, a Landscape archeology expert, also worked on projects on the phosphate site in Ruseifa.</td>
</tr>
</tbody>
</table>
APPENDIX J

The final list of key players approached for the interview in the empirical phase

<table>
<thead>
<tr>
<th>Site 1: Pepsi Pond Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governmental and non-governmental institutions related to this Project in Ruseifa:</td>
</tr>
<tr>
<td>1. Jordan Phosphate Mines Company (PLC)</td>
</tr>
<tr>
<td>a. Amman headquarter</td>
</tr>
<tr>
<td>b. Research and Quality Dept in Ruseifa</td>
</tr>
<tr>
<td>2. Ministry of Environment (MoEnv)</td>
</tr>
<tr>
<td>3. Engicon engineering consultation</td>
</tr>
<tr>
<td>4. EDRB (European Bank)</td>
</tr>
<tr>
<td>5. The Hashemite Royal Court</td>
</tr>
<tr>
<td>6. Ruseifa Municipality</td>
</tr>
<tr>
<td>a. Planning &amp; area department</td>
</tr>
<tr>
<td>b. Mayor</td>
</tr>
<tr>
<td>c. Head of the Studies Department</td>
</tr>
<tr>
<td>7. Greater Amman Municipality (GAM)</td>
</tr>
<tr>
<td>a. GIS Department</td>
</tr>
<tr>
<td>b. Amman masterplan department</td>
</tr>
<tr>
<td>c. Head of the Studies Department</td>
</tr>
</tbody>
</table>

Experts and local community

1. Ruseifa area Experts who have worked directly and none directly on projects in Ruseifa. |
   a. Architect Ammar Khammash, the designer and head of Ammar Khammash Architects, is the main designer for RSCN projects. He proposed a counter project in the Pepsi Pond at Ruseifa and Abu-Sayah sites. |
   b. Mohammad Asfour, botanist and environmentalist. |
2. Local community |
   a. Saleh Khalilah, Municipality legal department, Ruseifa resident |
   b. Majed Hattab, former mayor and vice of the municipality of Ruseifa

<table>
<thead>
<tr>
<th>Site 2: Environmental Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governmental and non-governmental institutions related to this Project in Ruseifa:</td>
</tr>
<tr>
<td>1. Jordan Phosphate Mines Company (PLC)</td>
</tr>
<tr>
<td>a. Research and Quality Dept in Ruseifa</td>
</tr>
<tr>
<td>2. Ministry of Environment (MoEnv) (fund, landowner)</td>
</tr>
<tr>
<td>3. The future of architecture and environmental consultation (designer)</td>
</tr>
<tr>
<td>4. The Ministry of Planning (fund)</td>
</tr>
<tr>
<td>5. The Hashemite Royal Court</td>
</tr>
<tr>
<td>6. The Ministry of Public Works and Housing (execution and construction)</td>
</tr>
<tr>
<td>a. The architecture department</td>
</tr>
<tr>
<td>b. The project manager, On-site.</td>
</tr>
</tbody>
</table>
7. Ministry of Local Administration (project manager and coordinator)
8. Ruseifa Municipality (supervising)
   a. Planning & area department
   b. Mayor
   c. Head of the Studies Department
9. Greater Amman Municipality (GAM) (landowner of other sites)
   a. Amman masterplan department
   b. Head of the Studies Department

**Experts and local community**

1. Agricultural Research Center
2. Ruseifa area Expert: who has worked directly and none directly on projects in Ruseifa.
   a. Former CEO of Jordan phosphate mine company
3. Local community
   a. Saleh Khalilah, Municipality legal department, Ruseifa resident
   b. Majed Hattab, former mayor and vice of the municipality of Ruseifa

### Site 3: Geo-heritage park

**Governmental and non-governmental institutions related to this Project in Ruseifa:**

1. Jordan Phosphate Mines Company (PLC)
   a. Research and Quality Dept in Ruseifa
2. Ministry of Environment (MoEnv) (fund, landowner)
3. The German Jordanian University (design team)
4. The Hashemite Royal Court
5. Ruseifa Municipality
6. Ministry of Culture
7. Ministry of Tourism
8. Department of Antiquity

**Experts and local community**

2. Ruseifa area Expert: who has worked directly and none directly on projects in Ruseifa.
   a. Dr. Nizar Abed al-Jaber is a Jordanian Geologist who has worked on the geo-heritage park project. Head of Center for the Study of Natural and Cultural Heritage at the German Jordanian University
   b. Dr. Catreena Hamarneh, a Landscape archeology expert, has worked on the geo-heritage park project in Ruseifa.