

PARKIFICATION AS POLICY INNOVATION: TRANSFORMING POST-INDUSTRIAL LANDSCAPES IN JORDAN

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ABSTRACT

This study examines the transformation of the Pepsi Pond site in Ruseifa, Jordan, into a public park through a process of “parkification”—the adaptive reuse of post-industrial landscapes for ecological and social benefit. While parkification is widely studied in contexts with strong institutional frameworks, this case highlights its emergence in a policy-poor environment marked by informal governance, political urgency, and constrained development options. Drawing on a qualitative case study methodology, the research analyzes planning documents and twelve semi-structured interviews with key stakeholders across governmental, technical, and community sectors. Findings reveal that the project unfolded through an improvised, multi-phased process driven by ecological degradation, political directives, community pressure, and international funding requirements. Parkification was not initially envisioned but became a strategic adaptation to secure funding and address public health and environmental risks. The study frames this process within informal governance theory, showing how actors improvised decision-making and land-use strategies in the absence of formal planning tools. The Pepsi Pond project offers critical insights into how landscape transformation occurs in constrained settings, contributing to broader debates in landscape architecture, urban planning, and post-industrial redevelopment. It demonstrates how informal processes can be leveraged as viable governance mechanisms for shaping public space in the Global South.

Keywords

Post-Industrial Sites, Landscape Transformation, Parkification, Informal Governance Theory, Jordan

1 INTRODUCTION

Post-industrial landscapes present unique challenges and opportunities for urban development, particularly in regions where formal planning structures are weak or absent. In many developing countries, abandoned industrial sites—often scarred by decades of environmental degradation—exist within an institutional void, lacking formal mechanisms for their transformation. These neglected landscapes require innovative, context-sensitive strategies for revitalization. One emerging response is parkification, the transformation and adaptive reuse of former industrial areas into urban public parks (Lee, 2019). While parkification is commonly discussed in relation to landscape design and ecological restoration, in settings with limited institutional capacity, it also functions as a governance solution—a flexible, consensus-oriented approach to managing contested spaces.

In Jordan, although formal urban planning frameworks are in place, they often give limited attention to the reuse of post-industrial landscapes, resulting in a lack of clear policy direction for such sites (Alrayyan, 2024; Daher, 1999). Instead, decisions are often made through ad hoc negotiations among government bodies, developers, and civil society actors (Daher, 1999). This aligns with what informal governance theory defines as “self-organizing or substitutive arrangements” that emerge in the absence of strong regulatory systems (Helmke & Levitsky, 2012; Davies, 2024).

The transformation of post-industrial sites like Pepsi Pond in Ruseifa represents a novel mechanism within the Jordanian planning context. Rather than following a top-down planning model or being guided by long-term strategic design, the process of parkification emerged as a collectively accepted solution—shaped by ecological urgency, limited resources, and cross-sectoral cooperation. This case illustrates how new, adaptive forms of landscape governance can operate alongside existing planning frameworks to address overlooked urban challenges.

While parkification has been well-documented in major cities of the Global North—such as New York's High Line, Berlin's Tempelhofer Feld, and Toronto's Don River Valley Park (Schwartz, 1995; Loures & Burley, 2012; Li, 2023)—its adaptation in the Global South, and especially in politically constrained environments like Jordan, remains underexplored.

In landscape architecture, the literature on post-industrial reuse has largely focused on design outcomes and aesthetic strategies, especially in the context of large urban parks and landscape urbanism (Corner, 1999; Waldheim, 2012; Loures, 2015). These works highlight flexibility, horizontality, and long-term adaptability as core design responses to urban complexity. Yet few have interrogated how parkification operates in environments where formal planning tools are weak or absent—and even fewer have connected it to issues of policy improvisation or informal governance. It emphasizes the multifunctionality of these parks, highlighting their ability to integrate ecological remediation with community needs and urban aesthetics (Sporn, 1995; Harnik, 2012).

In Jordan, few academic studies have critically engaged with post-industrial reuse from a landscape perspective. While recent research (e.g., Alkhalilah, 2019; Jarrar & Jaradat, 2022) has discussed urban renewal and post-industrial challenges but has not examined parkification as a viable governance or landscape strategy. Moreover, they fall short of analyzing how the complex governance structure and contested land ownership shape implementation processes. This study addresses that gap by analyzing the Pepsi Pond project—not only as a case of physical transformation but also as a case of adaptive governance, where parkification emerged as the most feasible and collectively accepted outcome.

By foregrounding the informal processes and institutional negotiations that enabled the site's transformation, this paper contributes to debates in landscape architecture and urban governance on how public landscapes can be shaped in contexts where formal policies are absent or limited. It also reflects on the potential for such pragmatic, adaptive strategies to serve as replicable models in similarly constrained urban environments.

1.1 Theoretical Framework

This study draws upon informal governance theory to frame the transformation of post-industrial sites in Jordan, particularly in the absence of formal planning frameworks and policy mandates. Informal governance refers to rule-making, decision-making, and implementation processes that operate outside formal institutional structures, often relying on unofficial agreements, personal networks, and adaptive

responses to uncertainty (Helmke & Levitsky, 2012; Davies, 2024). This concept is especially relevant in developing contexts where formal policies are weak, fragmented, or entirely absent, yet important landscape transformations still occur.

In urban planning and landscape regeneration, informal governance has been increasingly recognized as a central mechanism through which actors—such as local municipalities, NGOs, and private developers—navigate constraints like institutional fragmentation, funding limitations, and political ambiguity (van Meerkerk & Edelenbos, 2018). These informal arrangements often lead to flexible and context-sensitive solutions, though they may also reinforce opacity and reduce long-term accountability.

In Jordan, the case of the Pepsi Pond demonstrates how parkification was pursued not through a codified planning strategy, but rather through negotiated decisions, opportunistic timing, and sectoral alignment. This study proposes that informal governance acted as both a constraint and a catalyst: while the absence of binding policies initially limited systematic responses to industrial degradation, it also allowed stakeholders to adopt parkification as a widely agreeable, low-conflict solution to long-standing environmental and social pressures. As Legatzke et al. (2025) argue, landscape governance is often shaped by the interplay between formal policy institutions and informal organizational practices, particularly in resource-constrained contexts. This dual structure is especially relevant in post-industrial transformations, where informal coordination can compensate for weak regulatory mechanisms or institutional silos.

By applying informal governance theory, this paper contributes to emerging debates in urban and landscape scholarships about how spatial change is brokered in contexts where formal planning instruments are weak. It builds a conceptual bridge between real-world drivers—such as political intervention, funding scarcity, and land ownership complications—and broader discussions on governance, adaptability, and participatory space-making.

1.2 Study Area

Ruseifa city, located northeast of Amman in Zarqa Governorate (see Figure 1), has undergone a significant transformation since the discovery of phosphate in the 1930s. Originally lush with agricultural terraces, the city evolved into a major industrial hub, with phosphate mining shaping its landscape. By 2015, Ruseifa had become Jordan's fourth-largest city, with over 481,900 residents (Municipality, 2020).

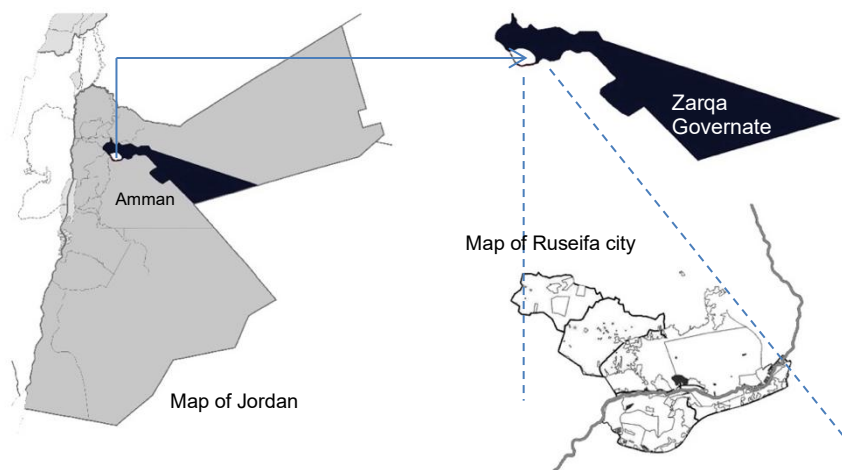


Figure 1. Map of Jordan and Ruseifa city within the Zarqa Governorate (2021). Source: the author.

Phosphate excavation in Ruseifa began in 1934, drastically altering the city's topography. The shift from manual tunneling to open-pit mining by The Jordan Phosphate Mines Company (JPMC) in the 1950s transformed the environment and urban structure. By 1985, mining operations ceased, leaving behind large piles of waste, tunnels, and industrial remnants, which continue to present significant environmental, social, and urban challenges (Alkhalailah, 2019; Razzaz, 1991). These abandoned industrial sites are scattered throughout Ruseifa, especially in the southeastern part of the city, and have contributed to the environmental degradation and fragmentation of the urban fabric.

One such site is the Pepsi Pond, which exemplifies the challenges associated with the city's post-industrial landscapes. This site is an industrial pond formed on a natural water stream since the 1970s, created due to phosphate mining activities in the area obstructed the natural water flow. Later, it was used by the Pepsi factory to clean their bottles, utilizing the water from the stream that used to flow from Wadi Marka (a rainwater catchment area southwest of the lagoon) into the Zarqa River (northeast of the lagoon, see Figure 2). While it served its purpose for some time, the formation of the pond obstructed the flow of the natural stream and led to its contamination by waste from the phosphate mining activities.

The obstruction caused by 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, as well as debris, odors, insects, trash, and other contaminants.

The situation at the site has significantly deteriorated, exacerbated by the refugee crisis, which has placed unprecedented pressure on the surrounding wastewater network, leading to 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 have 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.

As shown in Figure 3, the entire Pepsi Pond site area covers 197 dunums (17.5 hectares), with 35 dunums (3.5 hectares) designated 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 Greater Amman Municipality (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 attempts to resolve the issue have failed to yield a lasting and sustainable solution.

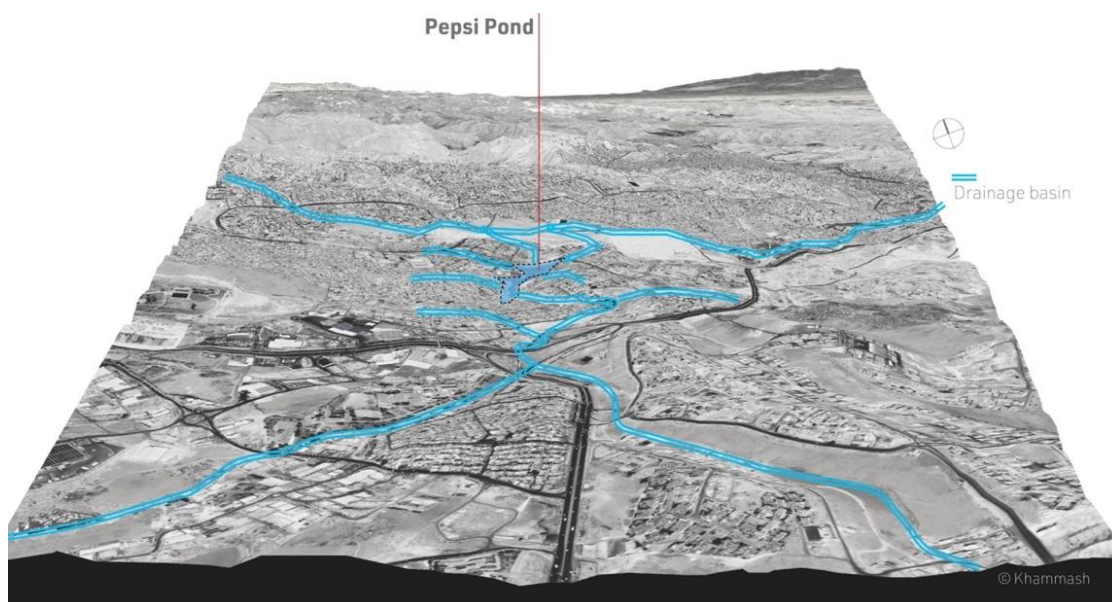


Figure 2. The Hydrological flow of Ruseifa city creating the Pond (2018). Source: GAM.



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

Figure 3. Satellite images of the Pepsi Pond site before and after parkification. The table shows general information for the site and parkification project (2023). Developed by the author.

1.3 Research Objectives

This study aims to uncover the transformation processes that led to parkification in post-industrial sites in Jordan. It addresses two main research questions, 1) What were the processes through which post-industrial sites in Ruseifa were transformed into public parks through parkification? And 2) What were the key political, environmental, and institutional factors that shaped the decision to pursue parkification in the absence of formal post-industrial planning frameworks?

2 METHODS

This study adopts a qualitative case study methodology to examine the parkification process of the Pepsi Pond project in Ruseifa, Jordan. A case study approach is particularly suitable for exploring complex, context-dependent transformations, allowing in-depth analysis of decision-making processes, governance dynamics, and stakeholder negotiations in the absence of formal post-industrial redevelopment policy.

Two primary methods were employed: semi-structured interviews and document analysis. Semi-structured interviews were chosen for their flexibility in eliciting detailed responses while allowing for comparison across participants. Interviews were guided by a set of open-ended questions structured around three core themes: (1) the motivations and goals behind the site transformation, (2) institutional roles and governance dynamics, and (3) challenges and outcomes. Interviews also explored participants' views on environmental urgency, funding constraints, and land ownership issues.

A total of 12 participants, listed in Table 1, were interviewed using snowball sampling, beginning with officials from the Ruseifa Municipality and the Ministry of Environment. Participants were grouped into two categories:

- 1) Immediate Key Players – including government officials and municipal staff directly involved in decision-making.
- 2) Supporting Key Players – such as landscape architects, urban planners, private sector consultants, and NGO representatives who supported or advised the process.

Snowball sampling was necessary in the Jordanian context due to limitations in accessing decision-makers without prior personal or institutional connections, making referrals essential for reaching key stakeholders involved in the project. The final list of key players who were visited and interviewed in relation to the site and the parkification project involved in transforming the area into an urban park.

Table 1. Levels of influence per type for several sensitive functions.

Site 1: Pepsi Pond Site	
- Governmental and non-governmental institutions related to this Project: - Jordan Phosphate Mines Company (JPMC) - Amman headquarters - Research and Quality Dept in Ruseifa - Ministry of Environment (MoEnv) - Engicon engineering consultation - EDRB (European Bank) - The Hashemite Royal Court - Ruseifa Municipality - Planning & area department - Mayor - Head of the Studies Department - Greater Amman Municipality (GAM) - GIS Department - Amman masterplan department - Head of the studies department	
- Experts and local community: - Ruseifa area Experts who have worked directly and indirectly on projects in Ruseifa. - 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. - Mohammad Asfour, botanist and environmentalist. - Local community - Saleh Khalilah, Municipality legal department, Ruseifa resident - Majed Hattab, former mayor and vice of the municipality of Ruseifa	

Each interview lasted 30–60 minutes and was recorded and transcribed. Thematic analysis was conducted through open coding, followed by grouping codes into key themes related to governance, process, and landscape transformation.

In parallel, document analysis was conducted to triangulate findings and provide context. The documents reviewed included:

- Ruseifa city planning and development reports (2018–2021)
- Project proposals and environmental assessments
- Meeting notes and correspondence between stakeholders
- News articles, press releases, and local media coverage related to the project

A total of 15 documents were analyzed. Data from documents were coded alongside interview transcripts, using a qualitative thematic coding matrix to identify cross-cutting themes and patterns.

This mixed-method approach strengthens the study's reliability by integrating multiple data sources and perspectives, allowing a comprehensive understanding of the parkification process and its broader policy implications.

3 FINDINGS

The parkification of Pepsi Pond represents a significant effort to transform a degraded post-industrial site into a revitalized public space. This process combines environmental remediation with the creation of a green space that serves the needs of the surrounding community. Although parkification was not the original intention, it became an embedded solution that helped secure funding for the project. By integrating the unique post-industrial characteristics of the site and addressing the community's needs, parkification evolved as a viable approach to revitalize the area. The following is a process analysis of the key steps taken to achieve this transformation:

3.1 The Development of Environmental Challenges at Pepsi Pond (1970-2018)

The transformation of Pepsi Pond from a natural watercourse to a contaminated basin highlights decades of industrial neglect. Large piles of phosphate waste blocked the natural water flow, and the encroachment of residential neighborhoods made it difficult to remove these waste piles. As a result, a range of environmental, social, and ecological issues developed, including flooding, drowning hazards, and contamination, Figure 4.



**Figure 4: The previous status of the Pepsi Pond site with contaminated water in 2018 (2021).
Source: GAM.**

According to the executive director of the engineering department at GAM, the main factors contributing to the environmental problems are as follows:

- The presence of various factories nearby, including the Pepsi factory, which discharged waste into the site and used the water for product cleaning.
- The proximity of the Hittin Palestinian refugee camp, which caused the mixing of sewage with the rainwater collection system, leading to pond flooding with contaminated water.
- The lack of maintenance of the existing culverts by the Ruseifa Municipality.

GAM noted that contamination would not have been as severe if there had been consistent water flow. Sewage levels, compared to rainwater, would not have been a major pollution concern. Despite efforts to collaborate with relevant stakeholders, such as the Water Authority of Jordan, GAM's attempts were largely unanswered. As the landowner, GAM felt it was their responsibility to find a solution.

In response, GAM's initial plan was to transform the northwest part of the site (18 dunums or 4.5 acres) into Alfarah Park to mitigate some of the negative impacts the pond had on the community. Constructed in 2008, the park reclaimed a portion of the pond's land, featuring a multi-purpose building, a football field, and a tree planting area.

Although Alfarah Park received positive support from residents, it failed to address the broader challenges of the post-industrial site and its complex environmental issues. This oversight limited the park's effectiveness, resulting in underutilization and the persistence of the site's environmental problems. In essence, parkification was introduced as an additional solution to mask over 40 years of environmental degradation and community hardships.

Furthermore, phases two and three of the Alfarah Park project, which included further tree planting and the construction of a rainwater tank, were never realized. The park was fenced to control access, but issues like poor design, insufficient lighting, and security concerns led to vandalism and disruptive behavior, which discouraged residents from using the park. Despite these efforts, the park did not resolve the primary environmental issues at the Pepsi Pond site.

In 2018, following continued complaints from the community, the prime minister visited the site and issued a direct order for GAM to resolve the issue immediately. His visit underscored the urgency for swift action. During his visit, the prime minister promised the public that the Pepsi Pond issue would be addressed, placing increased pressure on GAM to act without delay. In response, GAM formed a committee comprising representatives from various governmental entities, tasked with proposing solutions within a 40-day timeframe.

3.2 The Engineered Transformation: Micro-Tunneling

Following that directive order from the Prime Minister to find a lasting solution to the issues at Pepsi Pond, GAM launched a project aimed at addressing the site's environmental concerns while setting the groundwork for future revitalization. At this stage, the focus was not initially on the parkification or long-term development, but rather on mitigating the immediate environmental problems and creating a stable foundation for future projects that could benefit the community of Ruseifa.

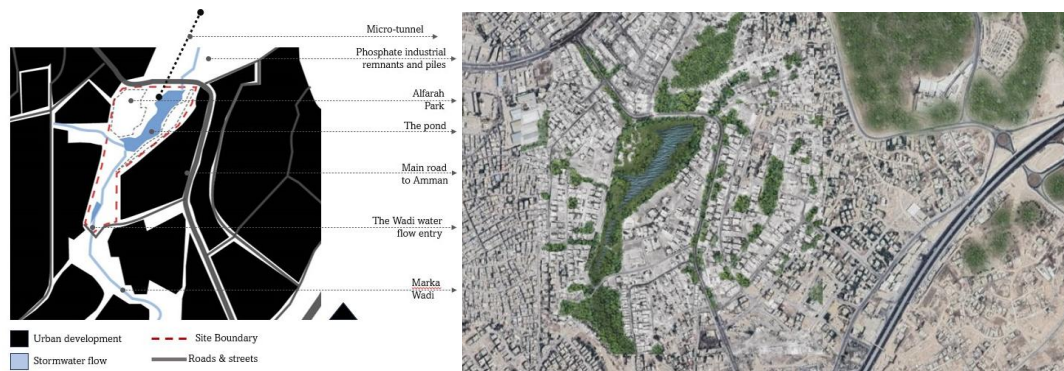


Figure 5: The two graphics show: (left) the Pepsi Pond Site plan and (right) the Parkification & greening project (2023). Source: Author.

Several potential solutions were evaluated, each analyzed based on its engineering complexity, cost, and time requirements. After a thorough review, the top three proposals were presented to the Prime Minister and a committee established by GAM, which included representatives from the Ministry of Environment, Ruseifa Municipality, Zarqa Governorate, and GAM itself.

Interestingly, none of the proposals at this point included the transformation of the site into a public park (Figure 5). Instead, all the proposed solutions were focused on engineering strategies to restore the natural water flow and address the challenges caused by the accumulation of phosphate waste.

The primary engineering solution adopted was micro-tunneling, which was designed to restore the natural flow of water and eliminate the stagnant pond. It involved the construction of a 1,200-meter-long tunnel beneath the phosphate waste piles, which had blocked the water flow and led to the creation of the contaminated pond. The micro-tunnel would be excavated 20-30 meters below ground, thus minimizing disruption to the surrounding urban development.

In addition to the tunneling work, a clay soil layer was to be added as a barrier to prevent rainwater and irrigation from seeping through the phosphate remains and contaminating the Amman-Zarqa groundwater basin. This step was critical for the subsequent backfilling of the Pond and creating the necessary foundation for any greening or planting steps later.

Other engineering measures included diverting incoming sewage to the existing sewer network, building a stormwater storage and balancing system within the lagoon, and redirecting the stormwater to the Zarqa River. This would be followed by the establishment of an integrated environmental park that would act as

a positive change for the site and provide long-term benefits to the local community. After several meetings, the Prime Minister approved a preferred solution, and the project moved into its implementation phase.

3.3 A Nature-Based Solution for the Pepsi Pond Site

A decisive turn in the project's trajectory occurred when the Prime Minister advocated for a nature-based solution after consulting with an expert familiar with the site. The expert raised concerns about the intensive engineering solution, particularly the construction of a tunnel beneath the site and the Phosphate Landfill. The expert emphasized that such an approach could potentially disrupt the site's intrinsic value as an industrial pond.

In response to these concerns, the Prime Minister convened a meeting with GAM to explore the feasibility of adopting a more natural-based approach, as recommended by the expert. This shift led to the consideration transforming the site into a wetland that would leverage the natural features of the pond (Figure 6).

The envisioned wetland was designed to serve multiple functions: supporting wildlife, enhancing local biodiversity, and providing opportunities for agricultural use. Additionally, plans included the establishment of educational research centers on the site, affiliated with local universities and departments such as agriculture and landscape architecture.

Other potential solutions were also discussed, including the construction of a dam to control water accumulation in the pond or the installation of natural dams along the valley to regulate water flow. However, GAM maintained its stance on the original micro-tunneling proposal for several reasons:

- GAM lacked the expertise and resources to effectively manage and implement a nature-based solution and was not prepared to lead such a project.
- The existing infrastructure in Ruseifa was insufficient to support the proposed natural solutions.
- Pursuing these ideas was considered too time-consuming and resource-intensive, posing a risk of delaying the project beyond the planned timeframe.



Figure 6: The proposed wetland project at the Pepsi Pond site, developed by Ammar Khammash design team (2018). Source: Ammar Khammash Architect.

As a result, GAM remained committed to its initial mitigation proposal, believing it to be the most feasible solution given the available resources.

Therefore, the project proceeded as planned with the micro-tunneling solution, setting the necessary plans in motion and securing funding for its implementation.

3.4 The Shift Towards Parkification to Secure Funding

Another critical turning point in the project occurred when it was transformed into a proposal for an urban park, strategically designed to secure funding. Initially, the focus was on environmental remediation and infrastructure restoration, but the need to align with funding criteria led to a shift towards parkification.

The proposed solution for the Pepsi Pond site required an estimated budget of \$17 million. With the tight timeframe set by the Prime Minister, securing external funding became an immediate priority. After

receiving initial project approval, GAM approached the European Bank for Reconstruction and Development (EBRD), a key partner from previous engagements in Ruseifa. The aim was to secure a sub-sovereign loan to address contamination issues and fund environmental remediation efforts at the site.

The EBRD's approval was contingent upon the project aligning with sustainability goals and delivering tangible benefits to the local community. This requirement prompted GAM to transition from solely focusing on the engineering solution to restore water flow to incorporating the creation of a public park.

To meet the EBRD's sustainability criteria, GAM adjusted the project's focus to propose the redevelopment of the site as an urban park. This shift became a crucial selling point for securing funding, marking the project's evolution into two distinct phases: the engineered infrastructure phase, aimed at resolving environmental issues, and the parkification phase, which would transform the site into a recreational public space.

Once completed, the envisioned park will be a green space open to the public, providing recreational areas supported by an integrated stormwater system. With the infrastructure phase funded, the project was set on its path to revitalizing the Pepsi Pond site, combining environmental remediation with community-centered development.

Thus, the parkification of Pepsi Pond unfolded in two distinct phases, driven by urgent environmental needs and the requirement for conditional funding. The first phase (2020–2021) focused on crisis mitigation through engineered solutions: a 1,200-meter micro-tunnel was constructed beneath the phosphate waste piles to restore natural water flow, while clay capping and wastewater tanks helped contain contamination. Although delays due to COVID-19 and soil instability extended timelines, the infrastructure successfully reduced flooding by 80%.

The second phase (2022–2023) shifted towards park design, blending functionality with community needs. While this phase remains incomplete, it marked a shift from hazard remediation to social revitalization.

The project's adaptive approach showcased both creativity and constraints. While the tunnel successfully addressed immediate ecological risks, the park's design was compromised by rushed planning and political turnover. Initial visions of wetlands or research centers were abandoned in favor of more cost-effective greenery, revealing the tension between idealistic planning and pragmatic execution. Despite these challenges, the park stands as a symbol of resilience, with Phase 1's infrastructure paving the way for Phase 2's community-focused vision—even if the latter remains partially unrealized.

3.5 Stakeholder Dynamics: Power and Compromise

The transformation of Pepsi Pond was heavily influenced by power dynamics among various stakeholders, each with its own interests and priorities. GAM, as the landowner and primary funder, played a dominant role in decision-making, often sidelining local municipalities and environmental experts in favor of rapid, engineering-driven solutions. Their preference for micro-tunneling, despite the availability of nature-based alternatives, underscored a tendency to prioritize technical control over more participatory or sustainable approaches.

In 2018, the project's trajectory took a decisive turn when the Prime Minister issued a directive order demanding an immediate solution to the environmental crisis at Pepsi Pond. This top-down intervention pressured GAM to act swiftly, shifting the focus from long-term, community-driven planning to immediate remediation efforts. The directive order emphasized the urgency of the situation, forcing GAM to prioritize engineering solutions like micro-tunneling, which could be implemented more quickly than nature-based alternatives.

The European Bank for Reconstruction and Development (EBRD) emerged as an important secondary player, leveraging funding to mandate parkification as a condition for its support. To meet the EBRD's sustainability criteria, GAM was required to incorporate green spaces into the project. However, these green elements were often added as an afterthought, rather than being integrated as part of a cohesive, long-term vision for the site. Community engagement was largely peripheral until the later stages of the project. While the residents welcomed the idea of a park, their involvement came only after major decisions had already been made. This lack of early consultation led to missed opportunities for

incorporating features like wetland conservation or educational facilities into the design, both of which could have further benefited the community.

Political factors also played a role in shaping the project's direction. The Prime Minister's directive in 2021 temporarily aligned the priorities of GAM and other stakeholders, urging an accelerated project timeline. However, this momentum quickly faltered with subsequent leadership changes, highlighting the challenges posed by political turnover. These shifting priorities exposed the tension between top-down control and the need for more flexible, inclusive planning processes. The Pepsi Pond project thus offers a valuable case study in the complexities of post-industrial parkification, revealing how power imbalances, rushed decision-making, and limited community involvement can hinder the realization of more inclusive and sustainable urban transformations. It also underscores the need for a more adaptive approach to urban governance, one that takes into account not only technical feasibility but also social and environmental considerations.

3.6 Decision-Making Process for the Parkification

The decision-making process behind the parkification of the Pepsi Pond site was driven by a complex mix of urgency, funding requirements, and the need to address environmental issues. Initially, stakeholders viewed parkification primarily as a means to secure necessary funding rather than as a primary objective for the site's transformation. Once the idea was integrated into the broader project, however, it became a strategically logical step, aligning with environmental and nature-based goals aimed at mitigating the site's problems. The Greater Amman Municipality emphasized that while the form the site would take was not a central concern, the urgent priority was to resolve the environmental crisis. As one GAM representative stated, "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".

For GAM, the decision to turn the site into a park was an easy land-use change—transforming it from a post-industrial site with significant environmental issues into a public park that would contribute to environmental restoration. As one GAM official put it, "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". This marked a significant shift in the site's landscape—from a contaminated lagoon to a public park, a transformation that included the construction of a micro-tunnel beneath the phosphate landfill to restore natural water flow.

The project unfolded in two phases. The first phase, the engineered infrastructure, was aimed at mitigating environmental risks and restoring the site's ecological function. This phase, which included the micro-tunnel construction, laid the groundwork for the park's eventual development. The parkification was viewed as the logical second phase, providing a solution that could address environmental issues while transforming the site into a space for public use. Despite the parkification being a secondary goal, it became a key feature of the overall project, partly due to the need for external funding, which was contingent on meeting sustainability criteria.

The parkification process at the Pepsi Pond site was driven primarily by GAM, with minimal involvement from other stakeholders. The municipality's dominant role and the pressure to act quickly in response to the Prime Minister's directive resulted in a decision-making process that was highly centralized and focused on immediate remediation. While the project aimed to restore the natural water flow and mitigate contamination, the shift towards parkification was primarily a strategy to address the environmental issues of the post-industrial site, rather than a vision for long-term community development. The addition of park elements was intended to complement the remediation efforts, incorporating elements of the site's industrial past while providing public access to green space.

The process unfolded methodically, addressing environmental challenges through engineered infrastructure, including the restoration of the natural wadi, soil rehabilitation, and water management measures. Parkification followed as the final phase, ensuring that the site was not only restored environmentally but also revitalized as a public space, blending ecological restoration with urban development.

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. Table 2 breaks down the 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.

Table 2. Breakdown of the Parkification project at the Pepsi Pond Site

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

4 DISCUSSION

4.1 Drivers of Parkification at Pepsi Pond

Building on the findings, several intersecting factors explain why parkification emerged as the most viable strategy for the transformation of Pepsi Pond. The transformation of the Pepsi Pond site into a public park was driven by a convergence of environmental, social, political, and financial factors that reflect the complexities of post-industrial redevelopment in a context of institutional constraints. Environmental degradation was the most pressing catalyst. Decades of phosphate mining and industrial neglect had left the site severely contaminated and physically unstable, effectively ruling out traditional redevelopment options such as residential or commercial uses. In this light, parkification emerged not only as a practical response to mitigate ecological risks but also as a strategic approach to reclaim and rehabilitate a highly compromised landscape.

Social demands for green public space further reinforced the shift toward parkification. Residents from neighboring communities, particularly the neighboring Hittin Palestinian refugee camp, voiced a clear need for accessible, healthy outdoor areas that could improve living conditions and community wellbeing. The parkification process, therefore, aligned with local aspirations, transforming what had been an environmental hazard into a shared amenity that could foster social inclusion and urban renewal.

Political dynamics played a decisive role in advancing the project. The Prime Minister's directive in 2018 injected urgency and a top-down mandate to resolve the longstanding crisis, prioritizing rapid remediation over extended community consultation or more experimental solutions. This political pressure accelerated decision-making and shaped project priorities around feasibility and speed. Moreover, international financial support from the European Bank for Reconstruction and Development (EBRD) was instrumental, conditioning funding on the inclusion of sustainability goals and community benefits. The necessity to meet these funding criteria effectively mandated the incorporation of park elements, intertwining financial imperatives with environmental and social objectives.

Lastly, the inherent technical challenges of the site influenced the selection of parkification as the most viable option. The physical and chemical instability of the phosphate waste and groundwater contamination posed significant health and safety risks, limiting the feasibility of more intensive land uses. In contrast, parkification provided a low-risk, multifunctional solution that integrated environmental remediation with public access, creating long-term value for the community within existing resource and institutional constraints.

Together, these factors illustrate how parkification at Pepsi Pond was shaped by a complex interplay of ecological necessity, community demand, political influence, and financial conditionality. The case underscores the importance of viewing parkification not simply as a design or ecological intervention but as a governance strategy responsive to multiple and sometimes competing pressures in post-industrial contexts with limited formal planning capacity. This integrated perspective contributes to broader discussions about adaptive landscape governance in developing urban environments, emphasizing the role of pragmatic solutions negotiated amid environmental, social, and political challenges.

4.2 Parkification as Adaptive Governance

The parkification of Pepsi Pond demonstrates how adaptive governance can emerge in contexts where formal planning and regulatory frameworks are weak or fragmented. In this case, decision-making relied heavily on informal networks, negotiated compromises, and flexible responses to evolving political and environmental challenges. The absence of a codified, long-term plan allowed stakeholders, particularly the Greater Amman Municipality (GAM), to pivot strategies—from engineering-heavy remediation to incorporating green space—based on funding opportunities and political directives. This reflects informal governance theory's assertion that urban transformations in constrained institutional settings often depend on "self-organizing" arrangements rather than formal policies. While such adaptability can enable swift responses, it may also reduce transparency and limit inclusive participation. The Pepsi Pond case illustrates how, in the absence of clear regulatory mandates and formal planning mechanisms for post-industrial redevelopment, actors engaged in informal negotiation and improvised coordination to move the project forward. This self-organizing process aligns with informal governance theory, which highlights how unofficial arrangements often arise to compensate for institutional shortcomings.

4.3 Strategic Use of Parkification for Funding

A critical driver of the Pepsi Pond parkification was its strategic role in securing international funding, particularly from the European Bank for Reconstruction and Development (EBRD). The EBRD's sustainability criteria required the integration of community benefits and green infrastructure, effectively making the creation of an urban park a condition for financial support. This funding imperative transformed parkification from a secondary or aspirational goal into a central project component. While this enabled the realization of much-needed environmental remediation and public space, it also introduced constraints—such as accelerated timelines and budget limitations—that influenced design choices. The park's green elements were often retrofitted to meet funding conditions rather than conceived as part of a comprehensive ecological and social vision. This dynamic exemplifies how external financing mechanisms can shape redevelopment projects, especially in contexts where local resources and capacities are limited.

4.4 Power Imbalances and Missed Opportunities

The parkification process was shaped by significant power imbalances among stakeholders, with the Greater Amman Municipality (GAM) exerting predominant influence over decisions. GAM's control reflected its role as landowner and primary funder, but this centralized authority often marginalized other actors—including local municipalities, environmental experts, and community members. Political

pressures, particularly the Prime Minister's directive for swift action, prioritized rapid engineered solutions like micro-tunneling, sidelining more participatory or nature-based approaches. Moreover, shifts in political leadership disrupted continuity, highlighting the vulnerability of such projects to governance instability. The European Bank for Reconstruction and Development's funding requirements added another layer of influence, pushing parkification forward but sometimes as an afterthought rather than a fully integrated design goal.

Although the Greater Amman Municipality is a formal urban actor, its responses—such as relying on a Prime Ministerial directive to catalyze action or reshaping the project narrative to secure funding—illustrate how informal governance operates within and alongside formal institutions. These practices demonstrate how informal power structures influence spatial transformation in environments where bureaucratic clarity is limited. Limited early community engagement led to missed opportunities for incorporating features such as wetland conservation or educational programs, which could have enhanced both ecological value and social inclusivity. Overall, the project illustrates the challenges of balancing technical feasibility, political expediency, and community needs within fragmented governance systems.

4.5 Implications for Landscape Architecture and Practice

The Pepsi Pond case underscores the need for landscape architects and urban planners to engage more deeply with governance and political realities in post-industrial redevelopment. Traditional design-focused approaches that emphasize aesthetics and ecological restoration must be complemented by strategies that navigate institutional constraints, stakeholder dynamics, and funding frameworks. Practitioners should advocate for more inclusive planning processes that engage communities early and incorporate diverse expertise to realize multifunctional landscapes. The case also points to the value of flexible, adaptive design strategies that can respond to changing political and economic conditions without compromising long-term ecological and social goals. Learning from projects like Pepsi Pond can help develop frameworks for parkification that are both context-sensitive and governance-aware, particularly in Global South cities facing similar institutional challenges.

This study contributes to the growing discourse on how informal governance can be leveraged as a legitimate mode of landscape intervention in policy-poor environments. By recognizing the role of informal processes in enabling transformative outcomes, particularly in constrained urban contexts, this research highlights new directions for landscape architecture and urban planning theory.

5 CONCLUSION

The transformation of the Pepsi Pond site into an urban park exemplifies the complexities of addressing environmental and social challenges in post-industrial landscapes, especially within policy-constrained contexts. Once an active industrial site, the Pepsi Pond area now bears the long-term consequences of phosphate waste accumulation and institutional neglect. This case study underscores the potential of parkification—as both a physical intervention and a governance mechanism—to repurpose contaminated and contested sites into multifunctional public spaces.

In the case of Ruseifa, parkification emerged not as a premeditated design vision, but as a pragmatic compromise shaped by ecological urgency, political pressure, and funding conditions. The project unfolded through two phases: first, environmental remediation via micro-tunneling and stormwater control; and second, the partial development of a public park to fulfill community and sustainability goals required by international donors. The study revealed several key drivers behind this transformation, including environmental degradation, political mandates, land ownership dynamics, and the constraints of industrial legacies. It also highlighted the dominance of centralized decision-making, the reactive rather than participatory nature of governance, and the eventual sidelining of more ecologically ambitious alternatives such as wetland conservation.

Despite its achievements, the Pepsi Pond project also reflects notable limitations. The final design compromised the ecological potential of the site by abandoning nature-based solutions. Community participation was minimal in early phases, limiting opportunities for inclusive planning. Political turnover introduced discontinuities in project momentum, illustrating the fragility of top-down directives. These

shortcomings suggest the need for more integrated, inclusive, and ecologically robust frameworks for post-industrial reuse in similar contexts.

This research contributes to broader landscape architecture and urban governance discourse by demonstrating how parkification can act as an adaptive response in regions lacking coherent planning structures. It also offers insight into how informal governance practices, donor requirements, and institutional improvisation intersect to shape urban space. As cities around the world grapple with derelict industrial legacies, the lessons from Ruseifa's Pepsi Pond highlight both the potential and constraints of parkification in the Global South. Future efforts should emphasize participatory planning, prioritize ecological resilience, and seek governance models that empower local stakeholders while navigating institutional fragmentation.

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