

Urban Development, Heritage Preservation, and Stakeholder Dynamics in the M'Zab Valley: A Strategic Analysis Using the MACTOR Tool

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ABSTRACT

This research examines governance challenges in the UNESCO World Heritage site of M'Zab Valley in Algeria, renowned for its historic pentapolis and palm groves. The study investigates tensions between urban development imperatives and heritage preservation needs, focusing on communication barriers between central authorities, local administration, and civil society organizations.

Through a mixed-methods approach combining documentary analysis, stakeholder interviews, and Mactor analysis, the research reveals critical governance deficiencies. Findings demonstrate that institutional stakeholders typically prioritize urban expansion over heritage conservation, while foundations for effective co-governance remain underdeveloped. These challenges are exacerbated by inadequate legal frameworks, poor coordination between institutions, and limited technical capacity within public organizations.

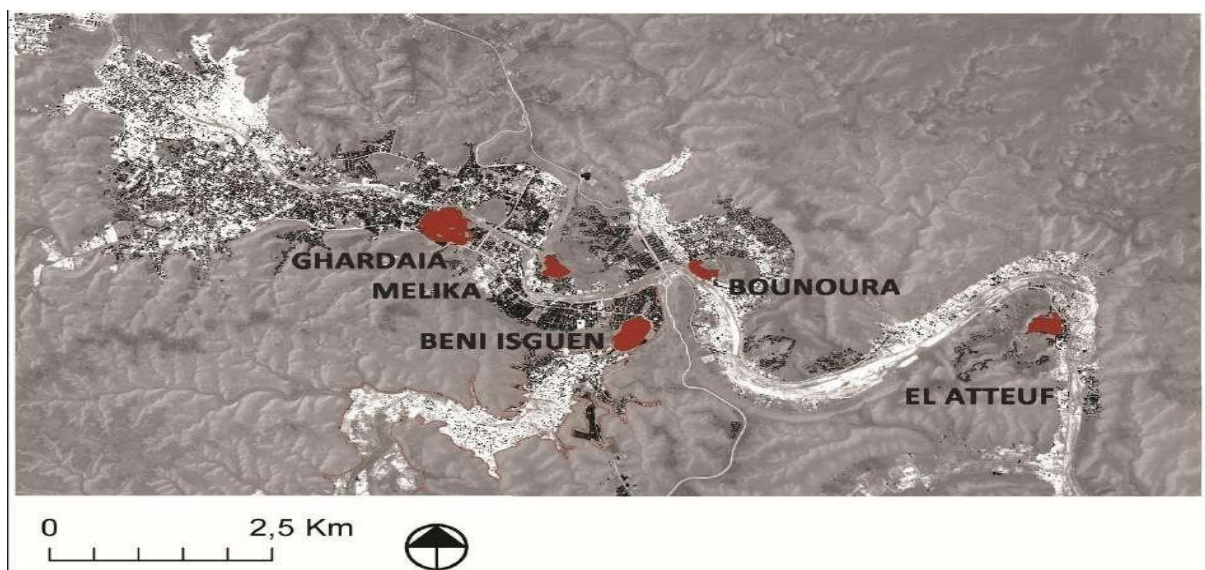
The study proposes strategic interventions to enhance governance mechanisms that balance development needs with cultural preservation. Key recommendations include integrating diverse stakeholders, coordinating sectoral policies, fostering participatory decision-making processes, and upgrading legal and technical instruments to address contemporary sustainability challenges.

By illuminating complex interactions between institutional priorities, stakeholder dynamics, and sustainable heritage management, this work contributes significantly to discourse on managing heritage sites facing urbanization pressures. The emphasis on inclusive governance frameworks and capacity-building initiatives advances understanding of heritage conservation within urban contexts, offering insights applicable to culturally significant areas globally facing similar development-preservation tensions.

1. INTRODUCTION

The evolution of urban heritage preservation has undergone significant transformation over time, expanding from a focus on individual historic monuments to encompass entire urban ensembles (Choay, 1998). This shift from ‘historic monument’ to ‘urban heritage’ reflects a constantly renewed approach to heritage preservation, as Drouin noted through Brochu (2011). However, this evolution has faced considerable challenges, particularly in the context of rapid urbanization and development pressures. The industrial revolution's urban planning in the 19th century often led to the demolition of historic monuments and urban fabrics. According to Choay (1998), recognizing old urban ensembles as historic monuments was a "long and difficult adventure" spanning 75 years, from Ruskin's "Seven Lamps of Architecture" (1849) to Giovannoni's concept of urban heritage in Italy (1914). This progressive recognition eventually led to international standardization, culminating in the UNESCO World Heritage Convention (1972), which formally defined urban ensembles as groups of buildings with "outstanding universal value" in terms of history, art, or science. The Algerian experience offers a unique perspective on these global developments. As Guerroudj (2020) emphasizes, heritage represents both an opportunity and a national imperative for the country. Post-independence, Algeria initially focused on establishing political institutions, leaving heritage preservation largely unexplored. Early protection mainly covered ancient Roman sites, with the 1970s marking increased awareness as the M'Zab Valley Ksour (Figure 1) were classified as national heritage (1971) and subsequently received UNESCO World Heritage status (1982).

Figure1- Satellite image of the pentapole of the M'Zab Valley



Source: Bouali-Messahel (2019); updated from the basemap of the Algerian National Institute of Cartography.

Urban development and heritage protection in the UNESCO site of the M'Zab Valley are now characterized by growing tensions. Despite its exceptional historical heritage, interventions in Algeria remain sporadic and lack a forward-looking vision (Benmicia, 2022). The heritage of the M'Zab Valley, historically stable and well-organized (Ravéreau et al., 1987), maintained its integrity and homogeneity for centuries, meeting population needs while respecting the natural and cultural context (Gueliane, 2019). However, according to Chorfi (2019), accelerated and poorly planned urbanization now threatens its integrity, risking removal from the UNESCO World Heritage list. Urban interventions, often driven by public authorities, have generated urban chaos, weakening the oasis ecosystem and compromising social and economic needs (Srir & Abdelatif, 2016; Bachar, 2021). This process involves various stakeholders, institutional actors, elected officials, technical experts, and civil society, whose ability to preserve heritage depends on their perception and commitment (Benmicia, 2022). Heritage thus becomes a source of power dynamics and conflict (Zerarka & Messaoudene, 2019). Although supported by international institutions (UNESCO, ICOMOS, ICCROM), the heritage project requires stronger involvement from Algerian authorities, aligned with local identity and socio-economic needs. A participatory approach, adapted to the local context, is essential for engaging all stakeholders (Casanova, 2012).

Research Questions and Hypotheses:

This study revolves around three main questions:

- How is governance of the M'Zab Valley operated? What is its scope and what are its limitations? What challenges does this approach raise at decision-making and operational levels?
- How can we reconcile the imperatives of local urban development with concerns for heritage preservation in the M'Zab Valley?
- What model of renovated governance could combine local urban development and heritage preservation in the M'Zab Valley?

Our research puts forward two main hypotheses:

- A duality exists between heritage protection (which is losing ground) and urban local development (supported by influential political authorities), which has generated accelerated urbanization to the detriment of heritage.
- Dysfunctions in the management of the M'Zab Valley heritage site are mainly due to the problem of centralized, fragmented, and non-participatory decision-making processes, which marginalize traditional management systems.

This paper is structured as follows:

Section 2 provides a comprehensive literature review, establishing the theoretical and contextual foundation for the study. Section 3 elaborates on the methodological framework, meticulously detailing the mixed-methods research approach that integrates documentary analysis, in-depth stakeholder interviews, and the MACTOR (Method for Actors' Strategies, Objectives, and Correlations) strategic analysis technique. Section 4 delves into the organizational landscape of the study, systematically identifying and mapping the key actors and their strategic objectives within the complex governance ecosystem of the M'Zab Valley. Section 5 presents a nuanced analysis of the research findings, critically examining the intricate power dynamics, strategic convergences, and potential divergences among the diverse stakeholders involved in the region's governance. The concluding Section 6 synthesizes the research insights by proposing strategic recommendations for harmonizing urban development imperatives with heritage preservation objectives, ultimately offering pragmatic and actionable pathways for sustainable management of this UNESCO World Heritage site.

2. LITERATURE REVIEW

Existing research on heritage preservation in the M'Zab Valley highlights several key areas of concern and potential intervention strategies. Studies consistently emphasize the need for enhanced regulatory frameworks to better align urban development with heritage preservation. This includes refining planning instruments such as the Plan de Développement et d'Aménagement Urbain (PDAU) and the Plan de Protection et de Sauvegarde des Sites et Monuments (PPSMVSS) to ensure clearer articulation between development goals and conservation efforts (Bouchenaki, 2003; UNESCO, 2016). These planning tools, while comprehensive in theory, often suffer from implementation gaps and coordination deficiencies. Governance models represent another critical area of focus in the literature. Research by Oufriha (2018) and analyses from the World Bank (2020) emphasize that fragmented coordination among stakeholders necessitates a new governance model, specifically one that creates a multi-stakeholder platform fostering collaboration among central authorities, local administrations, governmental institutions, and civil society. This approach represents a significant departure from traditional top-down governance structures that have proven ineffective in managing complex heritage sites. Capacity building emerges as a third key theme in the literature. Studies by FAO (2017) and UNDP (2019) demonstrate that awareness-raising and training programs can significantly enhance stakeholders' abilities to adapt to new techniques and technologies. These initiatives serve not only to improve technical competencies but also to foster a sense of ownership and responsibility toward the valley's cultural and natural heritage. The

concept of inclusive governance receives considerable attention in contemporary research. Drawing inspiration from traditional systems like Umana Essayl water management, studies by Boualem (2015) and UNESCO (2016) argue that local communities must be actively involved in decision-making processes to ensure the sustainability and cultural appropriateness of heritage management initiatives. This perspective aligns with broader trends in heritage studies that recognize the importance of integrating local knowledge and practices into governance frameworks. Environmental sustainability constitutes another significant focus in the literature. Bouchenaki (2003) and IUCN (2018) highlight how promoting traditional environmental knowledge and practices can integrate cultural identity with modern environmental challenges, creating synergies between heritage preservation and sustainable development. This integration is particularly relevant in the M'Zab Valley, where traditional architectural and agricultural practices embody principles of environmental adaptation. Infrastructure rehabilitation, particularly of traditional hydraulic systems, represents a critical intervention area identified by researchers. Studies by Boualem (2015) show water scarcity and soil erosion resulting from urbanization and neglect of traditional systems threaten both the ecological balance and cultural landscape of the valley. Investment in rehabilitating these systems is therefore seen as essential for both heritage conservation and sustainable development.

Finally, urban planning strategies that integrate sustainable design principles are emphasized as necessary to align new development projects with the valley's cultural and environmental context (Oufriha, 2018; UNESCO, 2016). These approaches advocate for a comprehensive framework combining regulatory reforms, stakeholder coordination, capacity building, community involvement, and sustainable development initiatives to achieve balance between development and preservation, ensuring the valley's cultural and environmental sustainability.

3. METHODOLOGY

To address these complex issues, this study employs a mixed-methods approach incorporating three complementary elements: participant observation, semi-structured interviews, and stakeholder analysis using the MACTOR method. This integrated methodological approach enables us to establish a precise diagnosis of issues related to heritage governance in the M'Zab Valley, cross-referencing data from different sources to identify convergences and divergences among actors, thus offering a deep understanding of local governance issues, citizen participation, and operational challenges related to the preservation of this exceptional historic urban heritage.

Through a cross-referencing of data: we first analysed the role of each category of actors (institutional, technical, elected officials and associative movements) in addressing issues related to local urban development, heritage safeguarding and governance, each according to its objectives, missions and prerogatives. Then we highlighted the prioritization of objectives and issues by category of actor. The intersection between these objectives and priority issues in terms of local urban development, heritage preservation and governance made it possible to highlight the shared alliances as well as the dissonances of the different groups and types of actors, as well as to visualize the balance of power between them. This cross-referencing of data proved to be particularly difficult in present research, because the governance and analysis of the system of actors is commonly a relatively new and little-known subject, based on unquantifiable local political and ideological aspects, characterized by the difficult access to the information necessary to achieve it and this goes beyond the objectives of our research. We approached it based on qualitative interviews conducted with the actors concerned (institutional, technical, elected officials and associations). To support the analysis procedures, we used triangulation to ensure data validation. The objective was to check the concordance of information between all the actors and between the technical documents (urban planning, heritage and discourse). The direct observations were supplemented by the results of open interviews with users (local heritage protection associations in particular).

3.1. Participant Observation

The research methodology employed immersive fieldwork to collect comprehensive data, combining participant observation with iterative analysis (Mucchielli, 1991). The study involved systematic daily observations, detailed field notes, documentary research, and archival investigation, while actively engaging with the governance networks of key stakeholders in the M'Zab Valley, including institutional actors, technical experts, elected officials, and civil society representatives. Data collection encompassed multiple sources, drawing from both international organizations (UNESCO, ICOMOS) and local governance bodies (Wilaya, People's Provincial Assembly [APW], People's Municipal Assembly [APC], executive departments, the M'Zab Valley Promotion Office, the Council of Azzaba, and community associations). This multi-layered observational approach enabled the development of a detailed diagnostic assessment of the governance challenges, providing a robust foundation for subsequent analysis.

3.2. Semi-Structured Interviews

This research employs a qualitative methodology that integrates documentary analysis with field research. The documentary analysis examined key planning instruments and

regulatory frameworks, including the Master Plan for Urban Planning and Development (PDAU), Land Use Plans (POS), the Permanent Plan for Safeguarding and Enhancement of Safeguarded Sectors (PPSMVSS), urban planning legislation, and wilaya and municipal codes. This was complemented by semi-structured interviews conducted between 2023 and 2024 with 14 key stakeholders representing institutional bodies, technical services, elected officials, civil society organizations, and the Council of Azzaba - all central actors in the urban development and heritage preservation of the M'Zab Valley. Following Mucchielli's (1991) methodological framework, the interviews were designed to elicit detailed insights into stakeholders' perspectives, objectives, and challenges. This approach facilitated exploration of their operational strategies, management tools, funding mechanisms, and consultation practices (Srir & Messaoudene, 2022). Interview data was systematically triangulated with official documentation to verify accuracy and identify patterns of convergence and divergence among stakeholder perspectives. This comprehensive methodological approach enabled deep analysis of local governance dynamics, participatory mechanisms, and operational challenges in preserving the M'Zab Valley's historical urban heritage.

3.3. The MACTOR Method: A Strategic Foresight Tool

The MACTOR (Matrix of Alliances and Conflicts: Tactics, Objectives, and Recommendations) method, developed between 1989 and 1990, provides a systematic framework for analyzing stakeholder dynamics through the examination of power relations, convergences, and divergences regarding specific objectives. This analytical tool generates detailed intermediate results that illuminate complex stakeholder interactions, enabling researchers to structure and interpret multi-actor dynamics (Boudoukha & Kachef, 2022a). The method serves as a strategic planning tool, helping stakeholders identify potential alliances and conflicts while supporting evidence-based policy implementation (Godet, 1997). Through its seven-phase analytical process, MACTOR facilitates comprehensive understanding of actor relationships within complex governance systems.

4. STUDY ORGANIZATION

The stakeholder analysis in the M'Zab Valley, conducted using the Mactor method, took place in four main stages:

- Identification of main actors (between 10 and 20) and their objectives.
- Analysis of direct influences between actors and their positions regarding objectives.
- Data processing to understand the systemic dynamics (dominant/dominated actors, relevant -objectives, conflicts of interest).

-Result interpretation to define future action paths.

This method enabled the identification of fourteen key actors with a central role in managing the M'Zab Valley (Table 1).

Table 1- List of the main actors involved in the M'Zab Valley.

N°	Actors	Long title	Short title
01	Institutional	UNESCO	UNESCO
02		Wali of Ghardaïa	Wali 47
03		APW of Ghardaïa	APW 47
04	Technical	Directorate of Urban Planning and Architecture and Construction	D.U.P.A.C
05		Directorate of Culture	D.C
06		Water Resources Department	W.R.D
07		Directorate of Agriculture	D.A
08		Directorate of the Environment	D.E
09		Housing Directorate	H.D
10		Office for the Promotion of the M'Zab Valley	OPMV
11		National Agency for Protected Sectors	N.A.P.S
12	Elect	Presidents of Communal People's Assemblies (Ghardaïa, El Atteuf, Bounoura and Dhaya Ben Dhahoua)	P.C.P.A
13	Civil society	Azzaba Council	Azzaba
14		Local Protection Associations Heritage	L.P.A.H

Source: Author(s).

Despite potential shortcomings, the list of actors and objectives was developed using a qualitative methodological approach, based on semi-structured interviews with key stakeholders in the M'Zab Valley. The identification and precise conceptualization of objectives was achieved through investigation of actors, considering each actor's role and position in the Valley. Fourteen (14) objectives were identified (Table 2), covering two major domains related to the future of the preserved sector: local urban development and heritage preservation. The common denominators were the governance model and the actor system.

Table 2- List of main objectives.

N°	Objectives	Abbréviations
01	Defense and protection of heritage	Déf.protec.her
02	Safeguarding the Ibadi identity	Saf..ibadi.ident
03	Development of water resources	Dév.wat.ress
04	Protection and regulation of agricultural land	Prot.regul.agr
05	Housing construction	Hous.cons
06	Pollution protection	Pol.prot
07	Enforcement of cultural regulations	Enf.cult.reg
08	Safeguarding cultural heritage	Safe.cul.her
09	Urban development through the UAPs/POS	Urb.dev (PDAU/POS)
10	Implementation of the PPSMVSS	Impl.PPSMVSS
11	Development of the PDAU and SOP	Dev.PDAU/POS
12	Adoption of the PPSMVSS	Adop.PPSMVSS
13	Local development	Local.dév
14	Protection of universal heritage	Prot.univ.her

Source: Author(s).

These Fourteen objectives can mostly be grouped into three main objective families concerning:

- Local urban development: Objectives 3, 5, 9, 11, and 13.
- Heritage preservation: Objectives 1, 2, 4, 6, 7, 8, 10, 12, and 14.
- Governance and actor system: Objectives 1 through 14.

The articulation of all issues and associated objectives converges on a major challenge: Governance system in managing the M'Zab Valley.

4.1. Input Matrices

Qualitative survey results will serve quantitative analysis via MACTOR software, using three matrices developed for M'Zab Valley actors. The actor system will depend on their positions, strengths, dependencies, and mutual influence capacities regarding the preserved sector's objectives, in accordance with the fundamental texts of the 1972 World Heritage Convention.

Three input data tables for the Mactor model were populated:

- ✓ A matrix of power relations "actors x actors" representing each actor's direct influence capabilities on others (Table 3).

Table 3- Direct Stakeholder Influence Matrix (MID)

Use of MACTOR software.

MID	UNESCO	Wali 47	APW 47	P.C.P.A	N.A.P.S	D.U.P.A.C	D.C	OPMV	D.E	H.D	D.A	W.R.D	Azzaba	L.P.A.H
UNESCO	0	2	0	0	0	0	2	2	0	0	2	2	0	0
Wali 47	0	0	2	2	0	2	2	2	2	2	2	2	0	4
APW 47	0	2	0	1	1	2	2	2	2	2	2	2	0	0
P.C.P.A	0	0	0	0	0	1	1	1	1	1	1	1	0	2
N.A.P.S	0	0	0	0	0	0	2	2	0	0	0	0	0	0
D.U.P.A.C	0	0	0	2	0	0	1	1	1	2	2	2	0	0
D.C	0	0	0	2	1	2	0	2	1	2	2	2	0	0
OPMV	0	0	0	1	1	1	1	0	1	1	1	1	0	2
D.E	0	0	0	1	0	2	1	1	0	2	2	2	0	2
H.D	0	0	0	1	0	1	0	0	0	0	1	1	0	2
D.A	0	0	0	1	0	1	0	0	0	1	0	1	0	2
W.R.D	0	0	0	1	0	1	0	0	0	1	1	0	0	2
Azzaba	0	2	2	2	0	0	0	0	2	2	2	2	0	2
L.P.A.H	0	0	0	2	0	0	0	0	0	0	0	0	0	0

Source: Author(s).

Through these indicators, the direct influence of one actor on another varies according to their logic, regulatory possibilities, legitimacy, role, and especially hierarchy (Godet, 1997).

The evaluation follows this protocol:

- 0: Actor "i" has no influence on actor "j".
- 1: Actor "i" can question the operational management process of actor "j".
- 2: Actor "i" can challenge the success of actor "j"'s projects.
- 3: Actor "i" can question the performance of actor "j"'s missions.
- 4: Actor "i" can question the existence of actor "j".

Key actors include:

UNESCO: Determined by legal force and political position as a universal UN institution for classifying/declassifying heritage sites.

Wali 47: State representative in the wilaya of Ghardaïa, supervising territorial development and public policy coordination.

APW47: Elected assembly forming permanent commissions for urbanism, housing, environment, and local development.

Executive Directions: Decentralized ministerial services implementing sectoral programs under Wali's authority.

Communes (P.C.P.A): Basic territorial communities managing local development and planning.

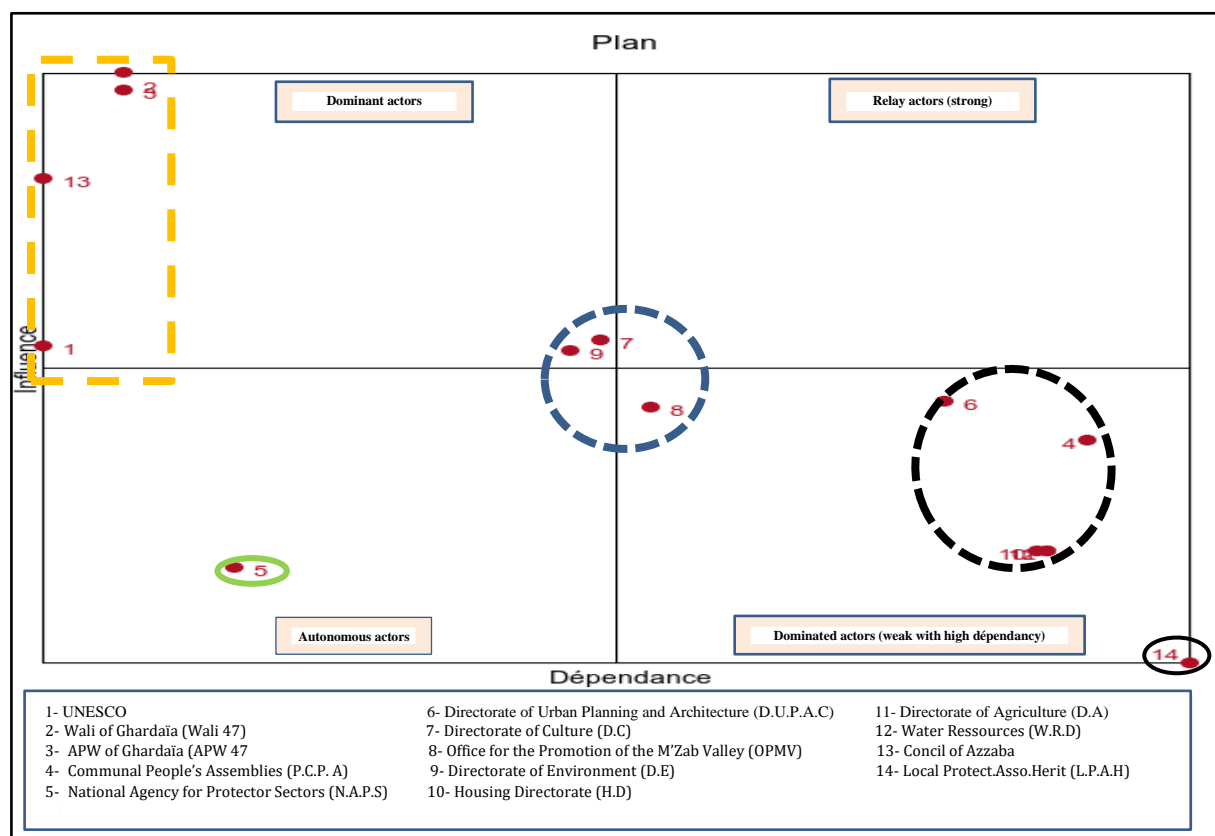
Azzaba: Traditional Ibadite institution managing ksour and palm groves since the 11th century.

OPMV: Ministerial office protecting valley heritage and adapting traditional customs to modern constructions.

Associations: Local actors participating in heritage protection with limited influence.

✓ A matrix showing direct and indirect influences between actors, measured by the MACTOR software through direct influence (MIDI) indicators.

**Figure 2- Influence and dependencies between actors
Use of MACTOR software.**



Source: Author(s).

The interpretation of Figure 2, which maps the influences and dependencies among actors, revealed the strength of one group of actors compared to another. The Mactor

analysis demonstrated the dominant position of the group of **dominant actors** (represented by discontinuous yellow lines), composed of:

- **UNESCO** (1),
- **Wali 47** (2),
- **APW 47** (3),
- **Council of Azzaba** (13), a politico-religious authority established since the 11th century in the M'Zab Valley.

The group of dominated actors (represented by discontinuous black lines) includes:

- **P.C.P.A** (4),
- **D.U.P.A.C** (6),
- **Housing Directorate** (10),
- **Directorate of Agriculture** (11),
- **Water Resources** (12).

This group is under the direct authority of the "Wali 47" due to their affiliation with the Wilaya's executive branch, whose primary role is the implementation of projects related to local development. Furthermore, the "weak link" in the governance system remains civil society, represented by local heritage protection associations (14) (in solid black). These associations are marginalized and excluded from the local governance process.

The group of actors comprising the Directorates of Culture, Environment, and OPMV plays an intermediary role in heritage and environmental protection. These structures remain hindered by the absence of the PPSMVSS. According to the matrix of direct and indirect influences, certain actors stand out as particularly influential in the governance of the M'Zab Valley. In this regard, the Mactor analysis, as shown in Table 4, highlighted the power dynamics among actors in the M'Zab Valley.

- **Dominant Actors (High Influence):**

- **Wali 47** (115 points): The supreme authority representing the state, with its own budget.
- **APW 47** (112 points): The major deliberative body of the Wilaya.
- **Azzaba** (96 points): A traditional institution managing heritage according to "orf" (customary law) since the 11th century.
- **UNESCO** (66 points): International influence through the World Heritage listing since 1982.

- Dependent Actors (Low Influence):

- **Directorate of Culture** (67 points).
- **D.U.P.A.C** (56 points): Responsible for monitoring PDAU (Master Plans for Urban Development) but lacks resources.
- **Housing, Agriculture, Water Resources** (29 points each).
- **P.C.PA** (49 points): Local communities limited by a lack of resources and expertise.
- **Local Associations** (9 points): Weak involvement in decision-making and a source of tensions.

Table 4- Direct and Indirect Influences Matrix (MIDI: actors x actors)
Using the MACTOR software.

MIDI	UNESCO	Wali 47	APW 47	P.C.P.A	N.A.P.S	D.U.P.A.C	D.C	OPMV	D.E	H.D	D.A	W.R.D	Azzaba	L.P.A.H	li
UNESCO	0	2	2	7	2	7	5	6	4	7	8	8	0	8	66
Wali 47	0	0	2	14	3	13	8	9	8	14	14	14	0	16	115
APW 47	0	2	0	12	3	13	9	10	8	14	14	14	0	13	112
P.C.P.A	0	0	0	0	2	7	4	4	4	7	7	7	0	7	49
N.A.P.S	0	0	0	3	0	3	3	4	2	3	3	3	0	2	26
D.U.P.A.C	0	0	0	8	2	0	4	4	4	8	8	8	0	10	56
D.C	0	0	0	9	2	8	0	6	4	9	9	9	0	11	67
OPMV	0	0	0	9	2	7	5	0	4	7	7	7	0	7	55
D.E	0	0	0	10	2	8	4	4	0	9	9	9	0	10	65
H.D	0	0	0	6	0	4	2	2	2	0	4	4	0	5	29
D.A	0	0	0	6	0	4	2	2	2	4	0	4	0	5	29
W.R.D	0	0	0	6	0	4	2	2	2	4	4	0	0	5	29
Azzaba	0	4	4	11	1	10	6	6	7	11	11	11	0	14	96
L.P.A.H	0	0	0	2	0	1	1	1	1	1	1	1	0	0	9
di	0	8	8	103	19	89	55	60	52	98	99	99	0	113	803

Source : Author(s).

- ✓ A Matrix "Actors x Objectives" (1MAO, Table 5 below) represents the simple positions of actors regarding the objectives, based on the following protocol:

- (-1): Actor opposed of the objective.
- (0) : Neutral position.
- (1): Actor in favor of the objective.

This analysis provides a clear overview of the alignment or divergence of actors interests and priorities, which is crucial for understanding the dynamics and potential conflicts in the governance of the M'Zab Valley.

Table 5- Matrix of simple positions of actors on objectives (1MAO)
Using the MACTOR software.

1MAO	Déf.protec.her	Saf.ibadi.ident.	dev.wat.ress	prot.régul.ag	Hous.cons	Pol.prot	Enf.cult.règl	Safe.cul.her	Urb.dév (PDAU/POS)	Impl.PPSMV	Dev. PDAU/POS	Adop.PPSMV/SS	Local.dev	prot.univ.her	Absolute Sum
UNESCO	1	1	1	1	-1	1	1	1	-1	1	-1	1	1	1	14
Wali 47	-1	1	1	-1	1	1	-1	-1	1	-1	1	-1	1	-1	14
APW 47	-1	1	1	-1	1	1	-1	-1	1	-1	1	-1	1	-1	14
P.C.P.A	-1	1	1	-1	1	1	-1	-1	1	-1	1	-1	1	-1	14
N.A.P.S	1	1	0	1	-1	1	1	1	-1	1	-1	1	-1	1	13
D.U.P.A.C	-1	1	1	-1	1	1	-1	-1	1	-1	1	-1	1	-1	14
D.C	1	1	1	1	-1	1	1	1	-1	1	1	1	-1	1	14
OPMV	1	1	1	1	-1	1	1	1	-1	1	1	1	-1	1	14
D.E	1	1	1	1	-1	1	1	1	-1	1	1	1	1	1	14
H.D	-1	1	1	-1	1	1	-1	-1	1	-1	1	-1	1	-1	14
D.A	1	1	1	1	-1	1	1	1	-1	1	1	1	-1	1	14
W.R.D	1	1	1	1	1	1	-1	1	1	-1	1	-1	1	-1	14
Azzaba	1	1	1	1	1	1	1	1	-1	1	-1	1	-1	1	14
L.P.A.H	1	1	1	1	1	1	1	1	-1	1	-1	1	-1	1	14
Number of agreements	9	14	13	9	8	14	8	9	6	8	10	8	8	8	132
Number of disagreements	-5	0	0	-5	-6	0	-6	-5	-8	-6	-4	-6	-6	-6	63
Number of positions	14	14	13	14	14	14	14	14	14	14	14	14	14	14	195

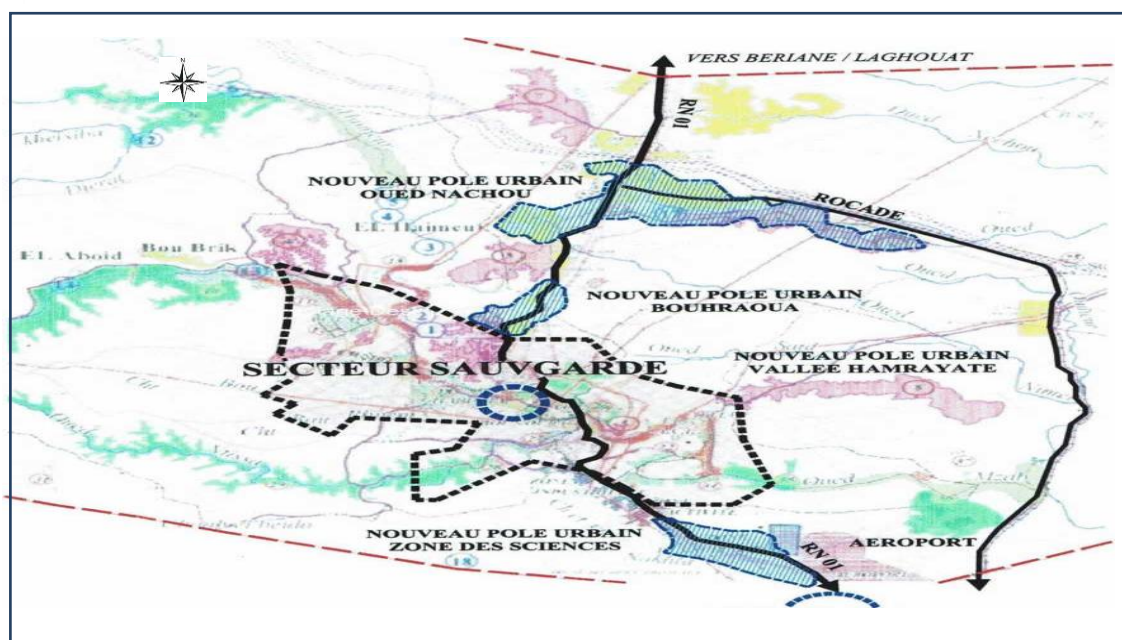
Source: Author(s).

Analysis of the Matrix ‘‘1MAO’’ shows that all fourteen stakeholders in the M'Zab Valley are directly engaged with urban local development and heritage protection objectives. The matrix reveals **195** total positions, comprising **132 agreements** and **63 disagreements**. Among the agreements, **32** support urban local development, while **100** favor heritage protection.

However, recent developments, specifically the adoption of four Master Plans for Urban Development (PDAU) by Wali decree in October 2024 (Figure 3), demonstrate the practical dominance of development priorities in the Valley. The power dynamics favor actors with expansionist agendas (D.U.P.A.C, Housing Directorate, Water Resources Department, and P.C.P.A), who receive crucial support from the most influential stakeholders:

- The Wali 47 (State Representative and Government Delegate, per Article 110, Law 12-07)
- The People's Provincial Assembly (APW 47) Deliberative Body, per Article 12, Law 12-07).

Figure 3- Current status of the safeguarded sector in M'Zab Valley in relation to new extra-muros urban centers



Source: URBAT Ghardaïa Agency (2017).

These institutional actors prioritize development initiatives, often viewing heritage preservation as an impediment to their missions. Heritage protection advocates face diminished influence, particularly following the suspension of the Permanent Plan for

Safeguarding and Enhancing Protected Sectors (PPSMVSS). This decision, confirmed by the Wilaya of Ghardaïa (reference NF5 752 1 262 147 07 01, November 8, 2023), has significantly impeded heritage preservation efforts relative to development initiatives.

The 63 identified disagreements further illustrate these tensions:

- 24 positions oppose local urban development objectives.
- 39 positions contest heritage protection goals.

Notably, the analysis reveals unanimous support among all 14 stakeholders for preserving the Valley's Ibadite identity, which is fundamental to the Mozabite community's historical foundation (Benyoucef, 2010). This consensus on cultural preservation presents a potential foundation for reconciling development imperatives with heritage conservation objectives.

5. ANALYSIS OF RESULTS

5.1 Direct and Indirect Influences between Actors

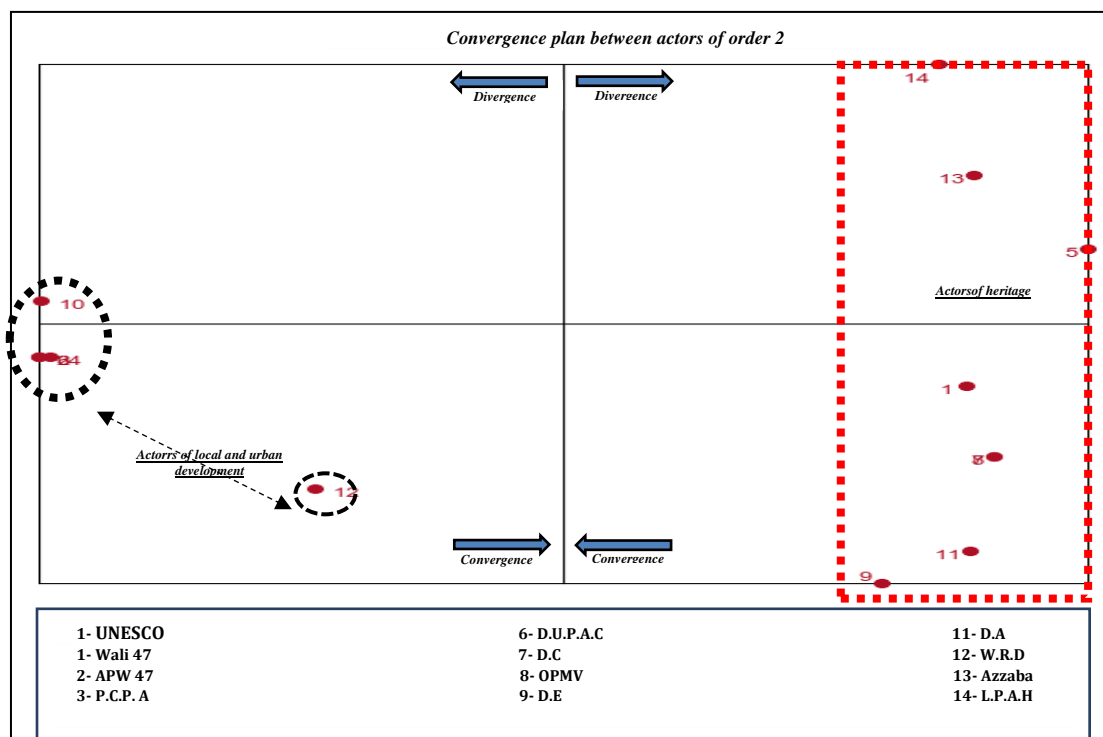
The actor/actor matrices (Figure 2 and Table 4) identified two types of actors: **"heritage protectors"** and **"developers"**, which allowed for the calculation of their degrees of influence and dependence. These data, processed using the Mactor software, classify the actors into four categories: dominant, relay, dominated, and autonomous.

The governance of the M'Zab Valley is characterized by strong centralization around the "Wali 47" and institutional actors, while local and technical actors remain marginalized. For sustainable management, better coordination and increased participation of civil society are essential.

5.2 Convergences and divergences between Actors

5.2.1 Actor-Actor Convergence of Order (2CAA)

Figure 4- Plan of Assessed Convergences of Objectives between Actors (2CAA) Using the MACTOR software.



Source: Author(s)

This Matrix, also known as the simple convergence matrix "Actors X Actors," helps represent the convergence links between actors. It is particularly useful for identifying potential alliances and conflicts (Bouzaïane & Mouelhi, 2008). The interpretation identifies two types of actors converging based on their objectives:

- **Actors focused on heritage protection:** UNESCO, N.A.P.S, Directorates of Culture, Environment, Agriculture, Azzaba, OPMV, and Local Protection Associations Heritage.

- **Development-oriented actors:** Wali 47, APW 47, P.C.P.A, D.U.P.A.C, and Directorates of Housing and Water Resources.

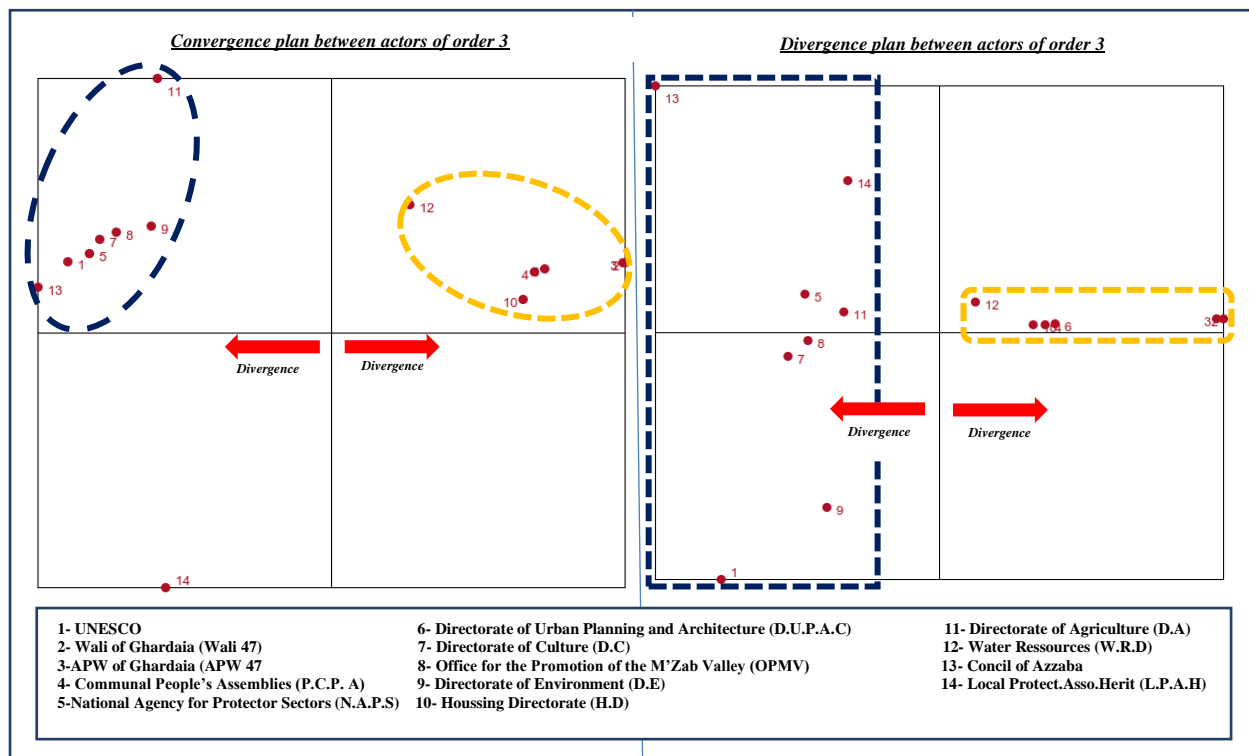
These convergences around heritage-related objectives have not been sufficient to safeguard the potential of the M'Zab Valley in the absence of the PPSMVSS (Permanent Plan for Safeguarding and Enhancing Protected Sectors), which outlines specific measures for heritage protection (Article 2, D/E 03-324). This has led to the Valley's heritage losing ground compared to the accelerated urbanization affecting its protected sector.

5.2.2 Convergences and Divergences of Actors on Third-Order Objectives (3MAO).

The degree of mobilization of each actor in the process of achieving objectives is determined by multiplying the power relations (R) by the level of involvement (2MAO), using the formula: $3MAO = 2MAO \times R$ (Godet, 1997). Simply considering the level of actor involvement in achieving objectives through the matrix (2MAO) is insufficient to highlight the center of gravity in the actors' interactions or to identify the most mobilizing objectives (Bouzaïane & Mouelhi, 2008). To achieve this, it is essential to account for the power relations (R) between actors to determine their respective degrees of mobilization across all objectives (3MAO).

The analysis of the results presented in Figure 5 (3MAO) reveals a predominantly divergent actor dynamic. This has led to the categorization of actors not only based on their objectives and positions but also on their commitments and mobilizations for their stakes within the actor system. There is a clear imbalance in the governance model adopted by stakeholders in the M'Zab Valley, between actors favoring local and urban development and those advocating for heritage protection.

**Figure 5- Map of Third-Order Convergences and Divergences (3MAO)
Using the MACTOR software.**



Source: Author(s).

The comparative analysis also confirmed that the governance model practiced in the M'Zab Valley is characterized by a complex actor system primarily centered around two major issues:

- **Urban Development:** Supported by influential political and institutional actors (such as the Wali 47, APW 47, and P.C.P.A), this issue focuses on the expansion and modernization of urban infrastructure to meet the growing needs of the population. However, this development often occurs at the expense of heritage preservation, leading to tensions between progress and conservation.

- **Heritage Preservation:** Championed by heritage defenders (including UNESCO, Local Protection Associations Heritage, and Cultural and Environmental Directorates), this issue emphasizes the protection and enhancement of the Valley's unique cultural and historical heritage. The goal is to safeguard the architectural and social integrity of the M'Zab Valley, which is recognized as a UNESCO World Heritage Site.

These two issues reflect a fundamental duality in the governance of the M'Zab Valley, where the push for urban development clashes with the imperative to preserve its rich cultural heritage. This tension is further exacerbated by a lack of coordination, intersectoral collaboration, and participatory decision-making, highlighting the need for a more balanced and inclusive governance approach.

- **Local and urban development:** The developers are actors with the highest power ratio. They align in achieving local and urban development objectives. This alliance includes strong actors with no dependencies (Wali 47 and APW 47) and their Executive Directions. Their commitment enabled multiple urban renovation projects in Ghardaïa alone, including 29 Land Occupation Plans (POS) covering 2000 ha (D.U.P.A.C, 2025). Their primary focus is emergency management rather than heritage protection.

- **Heritage protection:** The protector actors have weaker influence in M'Zab Valley governance (UNESCO, Azzaba, Culture Direction, OPMV, Environment Directions, Agriculture, N.A.P.S, and local heritage protection associations). Their impact remains insignificant without the unpromulgated PPSMVSS, positioning them as "Less involved" actors in valley development led by the Wali, who deprioritizes cultural preservation. The Azzaba and local heritage associations remain marginalized, with roles limited to managing ancient Ksour and participating in religious and national celebrations respectively.

6. KEY PROSPECTIVE QUESTIONS AND STRATEGIC RECOMMENDATIONS

Historic cities embody cultural identity through their heritage. Managing heritage sites is crucial for their preservation and sustainability (Ouaali & Anouche, 2024). The central challenge in this case study is balancing urbanization with heritage preservation, particularly in urban planning practices. The analysis examines how rapid urban growth misaligns with spatial structure and social evolution, questioning current urban planning approaches (Srir & Messaoudene, 2022). This raises questions about urban planning's institutional, instrumental, and social dimensions, especially regarding organizational and participatory logic (Signoles et al., 1999). However, the current approach lacks a true stakeholder consultation framework. Local actors often face top-down decision-making that contradicts stated principles (Srir & Messaoudene, 2022). As noted by former UNESCO Director-General Koïchiro Matsuura (1999-2009), heritage requires collective awareness to reach its full potential.

Strategic Recommendations for the M'Zab Valley

To achieve sustainable urban development while preserving the Valley's unique heritage, we propose the following comprehensive strategy:

Establish Participatory Governance Mechanisms Implementation of a multi-stakeholder governance framework that integrates local communities, civil society organizations, and technical experts into decision-making processes. This should include regular consultations, formalized feedback channels, and transparent reporting mechanisms to ensure meaningful participation at all levels.

Reform Legal and Institutional Frameworks Modernization of existing legal instruments to create cohesive regulations that bridge the gap between development imperatives and heritage conservation. This includes updating urban planning codes, reinforcing heritage protection statutes, and establishing clear guidelines for stakeholder responsibilities.

Develop Cross-Sector Coordination Creation of a dedicated coordination platform to facilitate collaboration between institutional actors, technical services, and civil society organizations. This platform should focus on developing integrated solutions that address both development needs and heritage preservation requirements.

Strengthen Local Capacity Investment in comprehensive capacity-building programs targeting local authorities, civil society organizations, and elected officials. These

programs should focus on heritage management, urban planning principles, and participatory governance practices to enhance local expertise and decision-making capabilities.

Implement Heritage-Sensitive Urban Planning Adoption of planning methodologies that integrate traditional spatial organization principles with contemporary development needs. This approach should prioritize the preservation of the Valley's distinctive architectural character while accommodating necessary urban growth.

Foster Community Engagement Development of targeted awareness programs to build public understanding of heritage value and community stewardship. These initiatives should emphasize the interconnection between cultural preservation and sustainable development, promoting active citizen participation in heritage protection.

This strategic framework provides a foundation for balancing development imperatives with heritage preservation, ensuring the M'Zab Valley's sustainable evolution while protecting its exceptional cultural landscape for future generations.

The main results of the MACTOR analysis are as follows:

- ✓ **Typology of Actors:** Four types of actors are involved in the M'Zab Valley (institutional, technical, elected officials, and associative movements), divided into two categories: proponents of local and urban development (Wali 47, APW 47, P.C.P.A, D.U.P.A.C, Directorate Housing, Water Resources Department) and defenders of heritage (UNESCO, Azzaba, Directorate of Culture, N.A.P.S, OPMV, Directorate of Agriculture, Directorate of the Environment, Local Protection Associations Heritage).
- ✓ **Duality between Development and Heritage:** There is a tension between urban development, supported by influential political authorities (Wali 47, APW 47, P.C.P.A), and heritage protection, which are supposed to be complementary but are marked by accelerated urbanization at the expense of heritage.
- ✓ **Actor System and Governance:** Actors are influenced by their positions, objectives, stakes, and ability to influence the local governance system. The lack of intersectorality and solidarity hinders an effective participatory approach.
- ✓ **Planning Issues:** The absence of the Permanent Plan for Safeguarding and Enhancing the Protected Sector (PPSMVSS) and the adoption of Master Plans for Urban Development (PDAU) without coordination have created inconsistencies between urban development and heritage protection.

✓ **Failures in Consultation:** Institutional actors dominate the decision-making process, marginalizing local elected officials and civil society. Communal People's Assemblies Presidents (P.C.P.A) were only involved at advanced stages, and civil society lacks expertise and representativeness (Srir & Berezowska-Azzag, 2014).

✓ **Dissonances at Three Levels:**

- **Institutional vs. Technical Actors:** The "Wali 47" holds, reducing local prerogatives (Sidi Boumedine, 2006a).

- **Technical vs. Elected Actors:** Local elected officials are rarely consulted, their opinions often ignored, and their participation limited to formal approvals (Srir & Messaoudene, 2022).

- **Institutional vs. Civil Society Actors:** Consultation with citizens is insufficient, and decisions remain top-down, despite some occasional initiatives (Sidi Boumedine, 2013).

The analysis reveals centralized and non-participatory governance, marked by conflicts of interest and a lack of coordination among actors. The success of development and heritage protection policies requires a more inclusive and intersectoral approach (Srir & Messaoudene, 2022).

CONCLUSIONS

The M'Zab Valley, a UNESCO World Heritage Site, has illustrated since the 1990s the tension between urban development and heritage conservation. Rapid urbanization threatens its unique cultural landscape, including traditional "Ksour" settlements and palm grove ecosystems. Despite national commitments to sustainable development, the current governance framework, marked by centralization and limited civil society involvement, has failed to address these challenges effectively. Our analysis highlights structural flaws in the governance system, such as institutional conflicts, jurisdictional ambiguities, and poor coordination between national and local stakeholders. These issues, combined with the dominance of state actors in decision-making, have led to a gap between policy goals and practical outcomes. The prioritization of urban expansion over heritage preservation jeopardizes the Valley's Outstanding Universal Value. To address these challenges, we propose a governance reform strategy centered on three key initiatives: (1) establishing an integrated Task Force for policy coordination and stakeholder engagement, (2) developing participatory frameworks to

enhance citizen involvement, and (3) strengthening municipal authority and modernizing urban planning tools. These reforms require expediting the Permanent Safeguarding Plan (PPSMVSS), bolstering the M'Zab Valley Promotion Office (OPMV), and creating collaborative platforms for stakeholder interaction, supported by legal revisions and capacity-building programs. The future of the M'Zab Valley depends on balancing sustainability, climate resilience, and quality of life improvements with the preservation of its cultural identity. This necessitates participatory governance and improved stakeholder coordination.

We acknowledge methodological limitations, including potential biases, cultural misinterpretations, and data access challenges, underscoring the need for culturally sensitive research. While our study offers initial proposals, it represents only a first step in an ongoing reform process. The Valley may continue to face deterioration during implementation, but our research aims to inform evidence-based policies and highlight the urgency of participatory governance to safeguard this irreplaceable heritage for future generations.

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