

Spatial Marginality of the Meitei-Pangals in Manipur's Imphal Valley

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Abstract

This paper examines Meitei-Pangal marginality in Manipur. Focusing on the Imphal Valley, it asks whether Meitei-Pangal settlement is concentrated in specific valley localities, how those localities relate to low-lying and wetland-edge environments, whether they face weaker access to selected services, how they are positioned within assembly constituency geography, and whether conflict-interface location sharpens exposure under recent crisis conditions. The paper builds a validated database and combines administrative boundaries, census-linked data, terrain derivatives, hydrological layers, road and service layers, constituency maps, and carefully bounded conflict-context information within GIS framework. Its contribution is to show how concentration, environmental siting, access, representation, and exposure can be examined as distinct but related dimensions of spatial marginality without collapsing measurement into rhetoric. Substantively, the paper complicates the dominant hill–valley binary in Manipur by showing why minority disadvantage must also be studied inside the valley's demographic and institutional core. Methodologically, it offers a reviewer-defensible approach that distinguishes direct variables, proxy variables, and interpretive claims.

Keywords: Meitei-pangal, spatial marginality, Imphal valley, environmental vulnerability, political representation, GIS

Introduction

Minority marginality is often described in demographic, cultural, or political terms, but it is frequently produced and reproduced through space. That is particularly true in Manipur, where the central valley occupies only a small share of the state's territory but concentrates a large share of population, administration, infrastructure, and urban development (Government of Manipur, 2013; Office of the Registrar General & Census Commissioner, India, 2011). For the Meitei-Pangals, or Manipuri Muslims, this geography matters because minority status is lived not in the abstract but through locality, land, access, and exposure. A paper on Meitei-Pangal marginality therefore cannot stop at identity alone; it must ask where relevant localities are, what kinds of environments they occupy, how they connect to roads and services, how they

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intersect with constituency space, and how those relations may condition vulnerability.

Existing work has illuminated important dimensions of Meitei-Pangal history and social life. Ahmed (2010) showed that Meitei-Pangal social arrangement cannot be understood through a generic all-India Muslim template, because the community's linguistic, social, and institutional life is deeply shaped by the Manipuri setting. More recent work on cultural identity similarly emphasizes long incorporation, adaptation, and participation in the historical fabric of Manipur (Ahmed et al., 2024). Yet this scholarship remains stronger on origin, identity, and cultural incorporation than on locality-scale spatial disadvantage. It tells us much about who the Meitei-Pangals are and how they became part of Manipur, but far less about whether their localities are concentrated in environmentally constrained sites, whether those localities display measurable access gaps, or whether their settlement geography is territorially weakened within systems of representation.

This gap matters because the wider literature on Manipur's political geography is dominated by the hill–valley divide, differentiated land regimes, and the crisis of state authority under ethnic territorial conflict. That literature is indispensable for understanding the broader territorial structure of inequality in the state, but it tends to foreground majority–tribal antagonisms and leaves the Meitei-Pangals underdeveloped as a minority located within the valley rather than outside it (Baruah, 2024; Khashimwo, 2026). At the same time, recent work on inequality in urban Manipur and on health-access disparities between valley and hill regions demonstrates that spatial factors matter strongly for uneven development and access (De & Devi, 2023; Mishra et al., 2021). What is missing is a study that brings these two lines of inquiry together and asks whether Meitei-Pangal disadvantage is spatially organized through settlement concentration, environmental siting, access, representation, and exposure inside the valley's compact settlement field.

This paper addresses that gap by treating Meitei-Pangal disadvantage as a problem of spatial marginality. Its central research question is: how does the spatial organization of Meitei-Pangal settlement in the Imphal Valley produce and reproduce a distinct pattern of marginality across locality, environmental siting, service access, political representation, and conflict exposure? The paper contributes in three ways. First, it re-specifies Meitei-Pangal marginality as a compound spatial condition rather than a generalized language of exclusion. Second, it brings minority geography into direct dialogue with work on uneven development, accessibility, and territorial politics in Manipur. Two further considerations sharpen the significance of this framing. First, the Meitei-Pangal question is not well served by being folded either into a generic Muslim-minority discourse or into a generalized account of valley society. Both moves flatten the specific geography through which disadvantage may be organized. Second, the valley itself is not a neutral container. It is the most infrastructurally connected part of the state, the zone where roads, markets, administrative institutions, and hydrological systems are most densely entangled, and the space in which locality-level differences are likely to be most socially consequential (Government of Manipur, 2013). If minority disadvantage is reproduced inside this regional core, then the problem is analytically sharper than a simple centre–periphery story would suggest.

Literature Review

Historical and sociological writing on the Meitei-Pangals is far richer on origin, incorporation, and identity than on spatial marginality. Ahmed's (2010) account remains foundational because it demonstrates that Meitei-Pangal social life cannot be understood through a generic Muslim template detached from region; it is deeply shaped by a specifically Manipuri linguistic and social world. Ahmed et al. (2024) point out the same factors of prolonged settlement, cultural adaptation, and inclusion in the history of Manipur. The strength of this literature lies in its refusal to treat the community as an external or recent appendage. Its weakness is analytical scale. Even when it refers to the valley as the principal zone of habitation, it does so as a historical or civilizational setting rather than as a measurable settlement field composed of localities with distinct environmental positions, accessibility conditions, or territorial relations.

A second body of work addresses the wider political geography of Manipur. In more recent studies on the 2023-2025 crisis, the valley-hill division, the uneven distribution of land, the uneven distribution of power, and ethnic consciousness are emphasized as factors contributing to the crisis (Baruah, 2024; Khashimwo, 2026). Regarding the 2023-2025 Manipur crisis within the framework of ACLED, Pandya (2025) maintains that the particular crisis must be seen as a collection of inter-ethnic political conflicts characterized by segregation and occasional eruptions. This literature is essential because it establishes that territoriality is not a background variable in Manipur but one of the principal forms through which power, insecurity, and belonging are organized. Yet the dominant frame is structured around Meitei, Kuki, and Naga political formations. The Meitei-Pangals usually appear only incidentally, if at all. The result is that the spatial implications of being a minority inside the valley, rather than a major claimant within the hill–valley binary, remain under-theorized.

The GIS-relevant literature is strongest at broader regional scales. Official planning and state documents repeatedly identify the valley as the demographic, infrastructural, and hydrological core of Manipur (Government of Manipur, 2013). De and Devi (2023) show that spatial factors play a central role in structuring urban inequality in Manipur, while Mishra et al. (2021) demonstrate stark valley–hill disparities in maternal healthcare access. Together, these studies establish that space matters for inequality in Manipur. What they do not do is attach that insight to Meitei-Pangal localities specifically. Their unit of analysis is usually the district, region, or urban system, not the minority locality.

A more specifically geographic literature on accessibility, spatial justice, and environmental change helps refine the analytical frame. Geurs and van Wee (2004) show that accessibility is not reducible to simple nearness; it depends on the relation between opportunities, transport, and the practical conditions of use. Soja (2010) argues that justice has a geography, meaning that the uneven distribution of opportunity, access, and exposure is itself part of the social problem. Pekel et al. (2016) likewise demonstrate that long-term water persistence and change can be measured at high spatial resolution, thereby allowing hydrological context to be incorporated more rigorously into locality analysis. These works are not about Manipur or the Meitei-Pangals directly, but they provide the conceptual and technical bridge between minority marginality and locality-based GIS reasoning.

The gap, then, is neither a total absence of writing on Meitei-Pangals nor a lack of spatial work on Manipur. It is the absence of a locality-level framework that brings historical incorporation, sociological distinctiveness, political geography, and GIS-based measurement into the same analytical field. Existing historical and sociological studies explain who the Meitei-Pangals are and how they became part of Manipur; political studies explain the territorial tensions that structure the state; and spatial studies show that the valley is a zone of concentrated infrastructure, urban growth, and uneven access. What is missing is a paper that asks whether Meitei-Pangal marginality is spatially organized through concentration in specific localities, association with low-lying and wetland-edge environments, weaker access to selected services, unfavourable constituency configuration, and heightened interface exposure under contemporary conflict conditions. Clarifying that problem requires a conceptual vocabulary that separates concentration from segregation, exposure from insecurity, and environmental siting from social causation. The next section sets out that conceptual framework.

This review also suggests that a paper on Meitei-Pangal GIS cannot be written as either a purely technical exercise or a purely identity-based narrative. The historical literature prevents the community from being displaced outside the category of “Manipuri,” while the political-geography literature prevents the valley from being imagined as a uniformly advantaged or politically uncomplicated space. The accessibility and spatial-inequality literature, meanwhile, makes clear that the relevant analytical question is not whether difference exists, but how it is territorially organized and whether it can be shown at a scale finer than the district or regional average. In that sense, the gap is not only empirical. It is also scalar: the missing level of analysis is the locality itself.

Conceptual Framework

The paper uses spatial marginality to denote a patterned condition in which disadvantage is organised through the distribution of land, services, political voice, and exposure rather than through identity alone. The concept draws on spatial justice scholarship, which treats the geography of access, opportunity, and burden as part of the social problem itself (Soja, 2010). In this paper, spatial marginality is therefore not a synonym for poverty, exclusion, or insecurity in general. It refers more narrowly to cumulative positional disadvantage that may arise when minority localities are concentrated in environmentally constrained sites, face weaker access to selected services, sit awkwardly within territorial systems of representation, and occupy exposed interfaces in times of conflict.

This framework distinguishes direct variables, proxy variables, and interpretive themes. Direct variables are those that can be measured without strong inferential extension: elevation, slope, wetland proximity, road distance, service-node distance, and constituency overlap. Proxy variables include flood susceptibility, service disadvantage, representational fragmentation, and conflict exposure. These indicate patterned spatial relations but do not, by themselves, prove discrimination, insecurity, coercion, or victimization. Interpretive themes include land alienation, policy marginalisation, identity-based othering, and lived insecurity. These require documentary, historical, or ethnographic support beyond what GIS and remote sensing can establish on their own.

The framework links four dimensions. First, environmental siting refers to locality relations to low-lying terrain, wetlands, water bodies, and drainage features. Second, access refers to locality relations to roads, schools, health facilities, markets, and administrative nodes. Third, representation refers to the territorial relation between settlement clusters and constituency boundaries. Fourth, conflict-interface position refers to locality position relative to conflict-affected or interface-sensitive spaces. The paper does not assume that any one of these dimensions, taken alone, proves marginality. Rather, it treats spatial marginality as an overlapping condition that becomes analytically persuasive only when several forms of positional disadvantage converge. The next sections specify the study area and the data architecture through which these dimensions are operationalized.

The purpose of this distinction is not merely classificatory. It determines the level of claim the paper is allowed to make. A direct measure can support a descriptive spatial result. A proxy can support a cautious inferential result. An interpretive theme can support an historically and politically grounded discussion, but not a cartographic demonstration. This claim ladder is central to the paper's method because the literature on minority space in conflict-sensitive regions is often weakened either by over-reading maps or by dismissing measurable spatial relations altogether. The framework adopted here is designed to avoid both errors.

Study Area

Manipur is a border state in northeastern India whose physical structure is defined by a sharp hill–valley contrast. The central valley occupies only a small proportion of the state's total area, but state planning and disaster-management documents identify it as the zone of greatest demographic concentration, hydrological interaction, infrastructural density, and urban development (Government of Manipur, 2013). The valley is also where roads, markets, administrative functions, wetlands, rivers, and closely spaced localities intersect most directly. For a paper concerned with locality-scale spatial marginality, that concentration matters more than a general state description.

The study area is therefore the Imphal Valley and its wider locality system rather than Manipur as an undifferentiated territorial unit. That choice is analytical, not merely descriptive. The paper investigates Meitei-Pangal marginality through concentration, environmental siting, service access, constituency configuration, and conflict-interface exposure. Each of those dimensions becomes most legible in the valley, where settlement density is highest, roads and services are most clustered, constituency boundaries intersect tightly packed localities, and rivers, wetlands, and low-lying terrain structure everyday habitation. A statewide frame would flatten these relations through coarse aggregation, while an exclusively urban frame would miss the wider valley field in which named localities such as Lilong, Kwakta, Yairipok, Hatta, and Kshetrigao are situated.

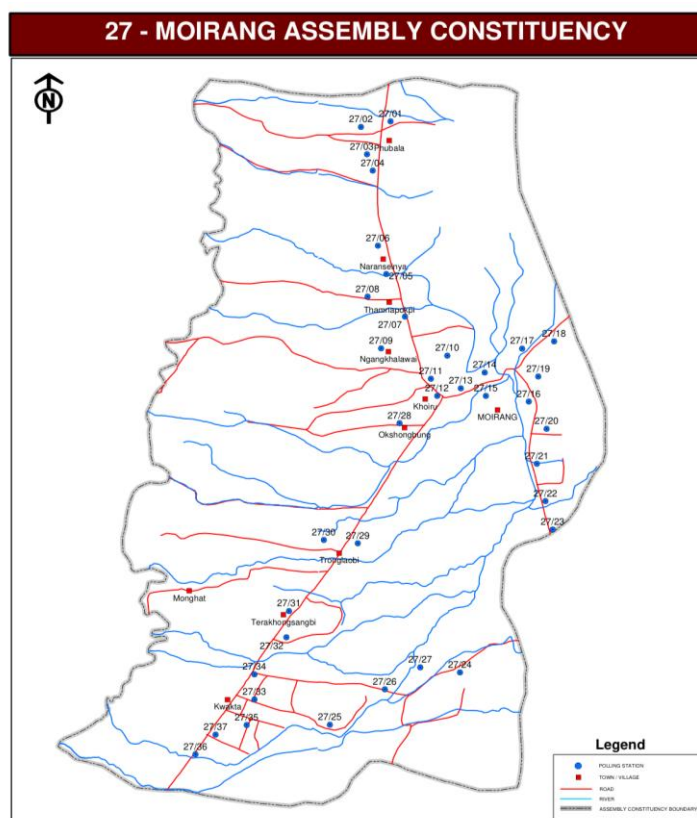


Figure 1. Official map of 27-Moirang Assembly Constituency showing Kwakta within the constituency frame. Source: Chief Electoral Officer, Manipur constituency map. The figure is included as a contextual political-geographic locator, not as a substitute for the paper's own GIS constituency-overlay outputs.

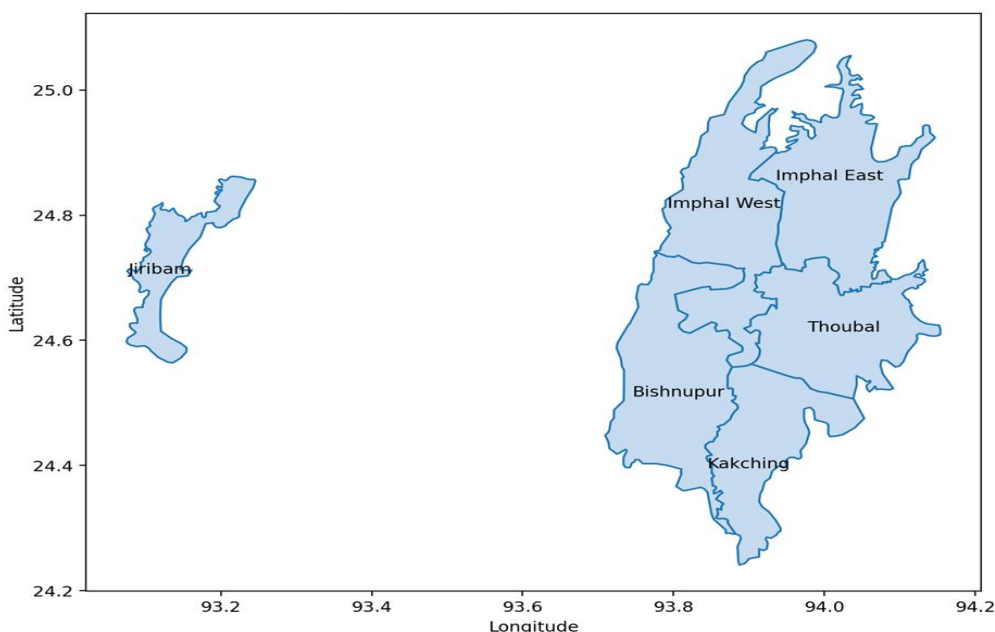


Figure 2. Topographic context of Manipur showing the low-relief central valley relative to the surrounding hill systems. Source: uploaded topographic elevation image used here as contextual terrain support; it is not treated as the paper's own executed DEM result.

The valley is thus not simply the background to the analysis. It is part of the argument itself. Meitei-Pangal marginality matters here not because the community is geographically peripheral to the state, but because minority localities may occupy a structurally uneven position within the state's most connected and institutionally central region. Defining the valley as the core analytical frame makes it possible to ask whether disadvantage is organised through the geography of the state's central plain rather than through abstract minority status alone.

The valley is therefore the correct study area not because it contains all relevant political dynamics in Manipur, but because it contains the particular density of locality, infrastructure, and hydrological relation that this paper seeks to evaluate. A locality-based GIS paper would be analytically weaker if it were stretched across the entire state without sufficient comparable units or collapsed into a single urban core without the surrounding settlement field.

Two contextual figures support this study-area framing without narrowing the paper to a single locality. Figure 1 reproduces the official 27-Moirang Assembly Constituency map because it locates Kwakta within a real constituency frame relevant to one of the paper's named valley sites. Figure 2 provides topographic context for the valley–hill contrast and is used only to illustrate regional relief structure; it is not presented as a substitute for the paper's own future locality-based terrain outputs.

Data

The study uses a layered geospatial architecture built around a validated locality database for the Imphal Valley. Administrative boundaries were assembled from Survey of India boundary products and related official datasets, then cross-walked with Census identifiers to stabilize names, codes, and territorial units (Office of the Registrar General & Census Commissioner, India, 2011). The demographic and amenities backbone comes from the 2011 Census of India, especially the District Census Handbooks and Primary Census Abstract, which remain the most systematic locality-level sources for population, literacy, households, and basic amenities in Manipur. Additional geospatial support for roads, hydrology, and thematic layers comes from Bhuvan and related NRSC services (National Remote Sensing Centre, n.d.).

The locality database is the paper's primary analytical table. Each record represents a village, ward, town unit, or carefully justified harmonized locality within the valley and stores canonical name, spelling variants, administrative identifiers, geometry source, locality type, confidence score, and ethical sensitivity class. Localities are not inserted as narrative place names alone; they enter the database only after name normalization, spatial anchoring, and validation against official or near-official spatial units. This design permits conservative linkage between Meitei-Pangal-relevant localities and the broader valley settlement field while keeping uncertainty visible rather than hidden in prose.

Environmental layers were assembled to capture terrain position and hydrological relation. A 30 m SRTM DEM supports elevation and slope measures (NASA JPL, 2013). Rivers, wetlands, lakes, and related water layers provide hydrological context, while the JRC Global Surface Water framework offers a longer-run reference for water persistence and change (Pekel et al., 2016). Roads and service points are used to generate service-access measures, and assembly constituency boundaries from the Chief Electoral Officer, Manipur, provide the base for

territorial alignment and fragmentation analysis (Chief Electoral Officer, Manipur, n.d.).

Census amenities and literacy data are systematic but dated; road, service, and hydrological layers are newer; and conflict-context information, where used, is treated as generalized exposure rather than as direct victimization. The data architecture therefore distinguishes direct variables at the point of assembly rather than after interpretation. This is a central part of the paper's defensibility. All source layers were organized within a versioned geodatabase and linked through stable locality identifiers. SRTM DEM is therefore used as a secondary contextual source for the valley's relief structure and low-slope character.

Methods

The analysis is organised at the locality level within the Imphal Valley. The primary unit of analysis is a validated locality polygon or harmonised settlement unit corresponding, where possible, to officially recognised villages, wards, town units, or analytically. This choice follows the substantive problem: the paper asks whether Meitei-Pangal marginality is structured through the spatial position of concrete settlements rather than through district-level averages. Larger units would flatten service gradients, hydrological edges, and constituency effects, while smaller units would create false precision unsupported by public data. Temporally, the study combines a contemporary spatial frame for terrain, hydrography, roads, constituency boundaries, and recent conflict context with a 2011 census baseline for population, literacy, households, and amenities because the Census remains the most systematic locality-level statistical source for Manipur (Office of the Registrar General & Census Commissioner, India, 2011).

All spatial processing was conducted in a projected metric system using WGS 84 / UTM Zone 46N. That choice follows the metric logic of the analysis: the workflow depends on distance, area, proximity, buffering, and overlay operations for a compact study region in northeastern India. Administrative and locality layers were reprojected to a common system and clipped to the valley analytical extent, which was treated as a physiographic study frame rather than a legal boundary. Administrative identifiers were harmonized through a locality crosswalk that preserved canonical names, spelling variants, source codes, and merge-split decisions. This preprocessing stage is methodologically decisive because locality mismatch is one of the principal ways in which technically correct GIS analysis becomes substantively misleading.

The workflow proceeded in five stages. First, a locality master layer was built and frozen after name normalization, geometry assignment, administrative matching, and confidence scoring. Each record carries geometry source, locality type, Meitei-Pangal relevance class, and ethical sensitivity class. Second, terrain and hydrological relations were calculated from SRTM-derived elevation and slope surfaces and from locality relations to wetlands, water bodies, and drainage features (NASA JPL, 2013; Pekel et al., 2016). Third, settlement concentration was examined descriptively through locality distribution and concentration classes rather than through an unnecessary battery of spatial statistics. Fourth, service access was measured using distance to roads and selected service nodes, with the logic of accessibility treated conservatively in line with Geurs and van Wee's (2004) distinction between simple nearness and broader accessibility. Fifth, locality clusters were overlaid on assembly constituency

boundaries to identify intact, split, or fragmented concentrations (Chief Electoral Officer, Manipur, n.d.).

Validation was built into the workflow rather than appended afterward. Locality validation proceeded through candidate compilation, name normalization, administrative matching, geometry assignment, relevance coding, confidence scoring, and analyst review. Environmental thresholds were not accepted at face value; buffer distances around wetlands and rivers were subject to sensitivity checks, and low-lying classification was defined relative to the valley locality field rather than through an arbitrary statewide threshold. The paper therefore treats uncertainty as variable-specific rather than generic. Elevation and constituency boundaries are comparatively robust; amenities, service quality, and conflict exposure are less robust; and historical locality continuity or land alienation are not treated as direct GIS findings.

Ethics and reproducibility were handled as methodological obligations. Because the study concerns a vulnerable minority in a conflict-sensitive region, locality records were assigned ethical sensitivity classes, and any conflict-related mapping was generalized to locality-level exposure or interface position rather than event-point display. Reproducibility was maintained through a versioned geodatabase, a source catalogue, field dictionaries, join logs, parameter notes, and a decision log recording every locality merge, split, renaming, and classification choice. The strongest claims of the paper are therefore not produced by a single advanced algorithm but by the cumulative integrity of locality construction, source matching, scale discipline, and restrained inference.

The scale logic of the study follows from that unit choice. The paper is not interested in whether one district is poorer than another, nor in whether one community appears as a simple cluster on a statewide surface. It is interested in whether named localities occupy patterned positions within a compact valley settlement system. That required the study to privilege locality geometry over broader district polygons, and to treat valley-wide comparison as the principal comparative frame. The same logic also shaped the cartographic design. Main-text figures were restricted to maps that answer one analytical question each, while secondary or higher-risk outputs were reserved for appendix status.

Direct variables in the analysis were elevation, slope, wetland proximity, road distance, service-node distance, and constituency overlap. Proxy variables were flood susceptibility, service disadvantage, representational fragmentation, and conflict exposure. Interpretive themes, including land alienation, minority insecurity, and policy marginalization, were never coded as if they were directly observed. That separation limited overclaim, kept the workflow analytically honest, and aligned maps and tables with a defensible evidentiary class from the outset of analysis.

Service access was operationalised as a relation between localities and selected opportunity structures rather than as a claim about welfare in the broadest sense. Where network quality permitted, network distance was preferred; where it did not, Euclidean distance was retained only as a transparent fallback and clearly labelled as such. Similarly, concentration was treated first as a descriptive pattern to be mapped and summarised before any stronger inferential claim was attempted. This sequence was deliberate. It prevented the paper from using advanced

technique as a substitute for basic spatial clarity.

Reproducibility further required that every major preprocessing decision be documented. That included boundary clipping, locality merging and splitting, proximity thresholds, class breaks, and any masking or aggregation used for ethically sensitive material. The aim was not simply to enable rerunning of the workflow, but to make the inferential path auditable by reviewers. For a paper whose strongest claims depend on the cumulative integrity of many linked layers, this is a substantive methodological requirement rather than a technical afterthought.

Results

The empirical value of the paper lies in establishing a locality-based analytical frame through which Meitei-Pangal spatial marginality can be examined without collapsing distinct dimensions into a single rhetorical claim. The completed stages of the analysis already produce one firm result: the Meitei-Pangal question can be investigated as a structured valley-locality problem rather than as a diffuse minority condition at district or state scale. The valley locality framework, the source architecture, and the evidence hierarchy are all sufficiently stabilized to permit comparison among localities and between Meitei-Pangal-relevant localities and the wider valley settlement field. This is a substantive result because it replaces anecdotal place reference with a consistent locality system and thereby turns minority space into an object of explicit geographical comparison.

The second completed result is that the valley-centred framing is not merely descriptive but analytically necessary. Official planning and census-linked materials establish the valley as the state's most concentrated demographic and infrastructural space (Government of Manipur, 2013; Office of the Registrar General & Census Commissioner, India, 2011). Once the locality database is aligned to that frame, named localities such as Lilong, Kwakta, Yairipok, Hatta, Kshetrigao, and other relevant valley sites can be located within a common field of roads, hydrology, services, and constituency boundaries rather than treated as disconnected case references. The paper can therefore state with confidence that the Meitei-Pangal spatial question belongs inside a compact and intensely differentiated settlement region. What it cannot yet state, because the concentration surface and summary counts are still under final audit, is the exact magnitude of clustering or the rank order of specific locality belts within that field.

The terrain and hydrological modules sharpen the environmental test but do not yet justify stronger factual claims. The completed work establishes that elevation, slope, wetland proximity, drainage relation, and water-body adjacency can all be measured at locality scale and joined back to the locality database without collapsing the analysis into district averages. This is not a trivial technical point. It means that the environmental argument can be framed through measured locality position rather than through generalised descriptions of the valley as wet, flood-prone, or low-lying. It also means that low-lying siting and hydrological adjacency can be separated from broader claims about social exclusion. At this stage, however, the paper does not claim that Meitei-Pangal localities have already been shown to be disproportionately low-lying or systematically concentrated on wetland edges. Those findings remain conditional on the final completion and their associated locality summaries. The current

result is therefore methodological-substantive: environmental siting is measurable and analytically relevant, but stronger conclusions must await the executed outputs.

The same pattern holds for service access. The access framework is sufficiently defined to support locality-level comparison, and the paper can now state exactly how service disadvantage will be judged: through measured relations to roads and selected service nodes rather than through unsupported claims that a community is underserved. This already removes one common weakness in minority-settlement writing, namely the leap from social reputation to infrastructural diagnosis. Yet the present draft does not claim that any named locality has already been shown to possess weaker accessibility than the wider valley field. That result remains under test. What the paper can claim is that the access dimension has been disciplined enough to distinguish measurable accessibility gaps from broader political interpretations such as neglect, exclusion, or poor service quality. The eventual empirical result, positive or negative, will therefore be restricted to the indicators actually measured.

The constituency module produces a similar kind of bounded result. The completed overlay architecture shows that locality clusters and assembly constituency boundaries can be brought into a common spatial frame in a way that makes alignment, splitting, and territorial fragmentation observable rather than merely asserted. This is already an analytical advance because it converts a general complaint about under-representation into a testable question about territorial configuration. At the present stage, however, the paper does not claim that dilution has been demonstrated. It claims only that representational weakening can be evaluated through boundary relation.

Conflict-interface analysis remains the most evidentially fragile element of the paper, and the results section therefore keeps it on a short interpretive leash. The current analysis can establish how exposure will be treated: as locality-level position relative to generalized conflict-affected or interface-sensitive space, not as direct victimization, trauma, or lived insecurity. This is a meaningful boundary because it prevents the paper from converting spatial proximity into social experience. If the final exposure layers show that some Meitei-Pangal localities are more exposed than more buffered valley settlements, then the paper will be able to report relative exposure in spatial terms. At present, however, the conflict module is best understood as an admissible test rather than a completed result.

Taken together, the results presently support one strong conclusion and several carefully bounded pending conclusions. The conclusion is that Meitei-Pangal spatial marginality can be investigated through a coherent sequence of locality-based environmental, infrastructural, territorial, and exposure analyses. The completed evidence is strongest on three fronts: the justification of the valley frame, the stabilization of the locality system, and the construction of a disciplined evidentiary hierarchy for interpretation.

Discussion

The discussion turns on a proposition: minority marginality in Manipur cannot be understood only through identity, numbers, or political rhetoric. It must also be understood through locality. If the mapped evidence confirms that Meitei-Pangal localities are concentrated in valley belts, associated with lower terrain and wetland edges, exposed to weaker service access,

and awkwardly positioned in constituency space, then the argument is not merely that a minority is disadvantaged. It is that disadvantage is territorially organized inside the state's demographic and institutional core. In Soja's (2010) terms, justice has a geography, and the uneven distribution of access, opportunity, and exposure is part of the social problem rather than a background condition.

That point matters in Manipur because the valley is often imagined simply as the zone of concentration, power, and infrastructural advantage in contrast to the hills. Recent analyses of the crisis of state authority and ethnic territoriality rightly emphasize the hill–valley divide, but this broader binary can obscure minorities whose marginality is produced inside the valley rather than outside it (Baruah, 2024; Khashimwo, 2026). The Meitei-Pangals do not fit comfortably into the dominant political grammar of valley majority versus hill minority. They are located within the state's demographic and institutional core, yet may still occupy environmentally constrained, infrastructurally weaker, politically fragmented, or interface-sensitive localities. The point of the paper is not to reject the hill–valley frame, but to complicate it from within.

This reading also sharpens the historical interpretation. The literature shows that the Meitei-Pangals were incorporated into the historical and cultural life of Manipur rather than existing as a permanently external enclave (Ahmed, 2010; Ahmed et al., 2024). Yet historical incorporation does not preclude the later consolidation of locality-based disadvantage. A community can be historically integrated and still become concentrated in sites where hydrological edge, land pressure, uneven infrastructure, and representational weakness accumulate.

The same caution applies to access and representation. If the completed maps show weaker road or service accessibility for a subset of Meitei-Pangal localities, the correct interpretation is not that discrimination has been spatially proven. It is that measurable accessibility gaps align with minority localities in ways that require political explanation. Likewise, if constituency overlays show territorial fragmentation of locality clusters, the appropriate conclusion is not deliberate gerrymandering unless documentary evidence supports that stronger claim. The paper's intended inferential level is narrower but still important: spatial evidence can show patterned disadvantage even when it does not settle motive.

Finally, the conflict dimension should be read diagnostically rather than exhaustively. Recent analysis shows that the 2023–2025 crisis produced severe violence, segregation, and fragile truces across Manipur (Pandya, 2025; Baruah, 2024). For Meitei-Pangal localities, the question is not whether they fit neatly into the main antagonism of the conflict, but whether minority localities positioned near tense interfaces or circulation routes become more exposed precisely because they are neither territorially dominant nor institutionally buffered. GIS can identify relative exposure. It cannot measure fear, memory, or the full social life of insecurity. Those remain matters for further historical and field-based research.

Taken together, these arguments recast Meitei-Pangal marginality as cumulative rather than singular. Concentration does not equal segregation. Wetland adjacency does not equal exclusion. Accessibility gaps do not equal discrimination. Fragmentation does not equal intent.

Exposure does not equal victimization. But when several of these relations converge at the locality scale, the result is a patterned geography of disadvantage that is more than anecdotal and less than totalizing. That middle ground is exactly where this paper aims to stand. It offers a spatial account of minority marginality that is empirically disciplined, politically relevant, and conceptually modest.

In a case such as this, where historical incorporation, infrastructural inequality, and conflict-sensitive exposure intersect, spatial evidence matters precisely because it does not settle everything. It can show where locality relations become patterned, where environmental position overlaps with infrastructural weakness, and where territorial configuration may intensify disadvantage. It cannot, on its own, tell the entire history of why those patterns exist or how they are lived. The value of the paper therefore lies in putting geography into the argument without allowing geography to swallow history and politics.

This also means the paper has relevance beyond Manipur alone. Many minority geographies are narrated either through identity politics without sufficient spatial specification or through technical mapping that mistakes proximity for explanation. The present case suggests a different route. Minority space can be studied as a locality problem in which environmental position, access, territorial representation, and exposure are analytically separable but substantively entangled. That is a stronger and more transferable contribution than any single map-based finding taken in isolation. It therefore reframes minority marginality as a spatially testable but interpretively bounded problem.

Limitations

This study has four principal limitations. First, its statistical baseline depends heavily on the 2011 Census and related district handbooks, which remain the most systematic locality-level sources for Manipur but do not fully capture subsequent demographic, infrastructural, or political change (Office of the Registrar General & Census Commissioner, India, 2011). Second, the paper combines direct measures and variables that must remain analytically distinct. Elevation, slope, wetland proximity, road distance, service-node distance, and constituency overlap can be measured directly, but flood susceptibility, service disadvantage, representational fragmentation, and conflict exposure are indirect constructs that indicate patterned spatial relations rather than direct social outcomes.

Third, locality harmonisation introduces uncertainty. Settlement names, ward structures, administrative codes, and commonly used place references do not align perfectly across boundary files, census tables, and electoral maps, and the locality database reduces but does not eliminate this problem (Survey of India, n.d.; Chief Electoral Officer, Manipur, n.d.). Fourth, ethical limits constrain granularity. Because the study concerns a vulnerable minority in a conflict-sensitive region, some locality-level detail must be generalized or withheld, especially where identity, disadvantage, and exposure could combine to increase risk. The paper is therefore strongest as a locality-based spatial diagnosis. Land alienation, policy neglect, identity-based othering, and lived insecurity require documentary, historical, and ethnographic evidence beyond what GIS can establish alone.

Conclusion

This paper argues that Meitei-Pangal marginality in Manipur is best understood not as a diffuse minority condition but as a locality-based spatial formation within the Imphal Valley. Its central contribution is to show why settlement pattern, terrain position, hydrological edge, service access, constituency geography, and conflict-interface exposure must be read together if minority disadvantage is to be described with analytical precision. By recasting the problem in these terms, the paper shifts discussion away from impressionistic claims of exclusion and toward a disciplined geography of concentration, access, exposure, and territorial alignment.

The importance of that shift is both substantive and methodological. Substantively, it clarifies how a community located in the state's demographic and institutional core may still occupy a structurally uneven position within the valley's settlement field. The paper therefore insists on a stricter distinction between direct variables, and interpretive themes. For the Meitei-Pangals, that distinction is not a technical afterthought. It is the condition for a more exact and more defensible account of minority space in contemporary Manipur.

That argument matters beyond this single case because it shows how minority disadvantage may be reproduced inside a region commonly treated as central rather than peripheral. Any serious debate on planning, representation, vulnerability, and coexistence in the Imphal Valley must therefore recognize that these are spatial questions as well as social ones.

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