

Rethinking Complementary Land Uses for Early Childhood Development Centres in Johannesburg's CBD

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1 ABSTRACT

As Johannesburg's inner city densifies and increasingly accommodates low- and middle-income families, Early Childhood Development (ECD) centres have become essential complementary land uses within the Central Business District (CBD). However, many centres operate in high-rise and mixed-use buildings not designed for childcare, raising concerns about spatial justice, child-friendly urbanism, and the adaptability of planning systems. This paper examines the alignment between planning and regulatory frameworks for ECD provision and the spatial realities of ECD centres operating in Johannesburg's CBD. Using a qualitative explanatory case study approach, the study combines non-participant observation of selected ECD centres with analysis of zoning schemes, national norms and standards, policy documents, and demographic data. Findings reveal a persistent mismatch between regulatory expectations largely premised on low-density, purpose-built assumptions and the constrained, vertical environments of the inner city. While regulations aim to safeguard child wellbeing, their rigid application often hinders compliance and contributes to informality. At the same time, ECD centres demonstrate adaptive spatial practices that respond to urban densification but remain weakly recognised within formal planning systems. The paper argues for child-sensitive, context-responsive planning approaches that recognise ECD centres as integral urban social infrastructure and align regulatory frameworks with the realities of dense city centres.

Keywords: Spatial justice, Complementary land uses, Early Childhood Development (ECD), Inner-city planning, Child-friendly urbanism

2 INTRODUCTION, BACKGROUND, AND CONCEPTUAL FRAMING

2.1 Urban Densification, Childcare Demand, and the Inner-City Context

Rapid urban densification within Johannesburg's inner city has reshaped household structures, residential patterns, and everyday service needs. Once dominated by commercial and administrative land uses, the Central Business District (CBD) has increasingly become a space of permanent residence for low- and middle-income families, migrants, and informal households seeking proximity to employment and transport networks. This demographic shift has generated growing demand for spatially neighbouring social infrastructure, particularly Early Childhood Development (ECD) centres, which are essential to supporting care, learning, and early childhood wellbeing in dense urban environments (Ashley-Cooper, Van Niekerk & Atmore, 2019; Moses & van der Berg, 2023). However, ECD provision in South Africa has historically been conceptualised through a low-density, suburban lens, where facilities are assumed to operate within purpose-built, ground-level structures with access to outdoor play space and relatively flexible land availability. This assumption sits uneasily with the spatial realities of inner-city environments, where ECD centres increasingly operate within repurposed high-rise residential buildings, subdivided flats, and mixed-use blocks not originally designed for childcare functions. Similar trends have been observed in other African and Global South cities, where informal and semi-formal ECD provision has emerged as a response to unmet demand rather than as a product of proactive urban planning (Ndengo & Richard, 2022; Van Der Walt, De Beer & Swart, 2014).

2.2 Policy Intentions and Regulatory Frameworks for ECD Provision

South Africa has developed an extensive legislative and policy framework aimed at regulating and supporting ECD provision. These include the Children's Act and Children's Amendment Act (Republic of South Africa, 2010), national norms and standards for ECD infrastructure, municipal zoning schemes, and more recent strategic shifts placing ECD under the Department of Basic Education (Matlala & Molokwane, 2024). In principle, these frameworks are designed to ensure minimum standards of safety, accessibility, learning quality, and child well-being. Empirical evidence, however, consistently highlights a substantial gap between policy intentions and implementation outcomes. Studies across urban and peri-urban contexts reveal

that many ECD centres struggle to meet infrastructure, zoning, and compliance requirements, not due to neglect or unwillingness, but because regulatory standards are poorly aligned with the socio-economic and spatial conditions in which centres operate (Atmore, Van Niekerk & Ashley-Cooper, 2012; Aina & Bipath, 2022; Madyibi & Bayat, 2021). High compliance costs, fragmented governance responsibilities, and rigid land-use controls have contributed to the proliferation of unregistered or informally operating centres, particularly in dense urban areas (Kika-Mistry & Wills, 2022; Sello et al., 2024).

In Johannesburg's CBD, this misalignment is especially pronounced. Zoning schemes often restrict ECD facilities to specific land-use categories or require consent-use approvals that are difficult to secure in high-rise buildings. Fire safety regulations, outdoor space requirements, parking standards, and building design specifications frequently assume horizontal layouts and private land ownership, conditions largely absent in inner-city residential towers. As Ally (2023) argues, regulatory 'red tape' in the ECD sector often functions less as a safeguard for children and more as a structural barrier to service provision in precisely the areas of greatest need.

2.3 Misalignment Between Planning Frameworks and Spatial Realities

The tension between planning regulation and lived spatial reality constitutes a central challenge for ECD provision in dense city centres. Literature from South Africa and comparable contexts demonstrates that ECD centres operating in constrained urban environments frequently adapt spaces in creative but non-compliant ways. Examples include the use of internal corridors or rooftops for play, shared sanitation facilities within residential buildings, and vertical circulation systems that complicate safe child movement and emergency access (Madyibi & Bayat, 2021; Visser et al., 2021). On the other hand, research on ECD infrastructure quality further illustrates that spatial constraints disproportionately affect centres serving low-income communities, reinforcing patterns of inequality in early childhood environments (Ashley-Cooper et al., 2019; Aubrey, 2017). While international literature emphasises the importance of outdoor play, environmental affordances, and spatial flexibility for child development (Frost & Sutterby, 2017; Yogman et al., 2018), these principles are difficult to realise within vertically dense urban forms without adaptive planning approaches. Recent Johannesburg-based studies comparing ECD centres across socio-economic contexts highlight stark disparities in access to play space, equipment, and environmental quality, with inner-city and lower-income centres consistently disadvantaged (Clarkson, Botha & Van der Linde, 2025).

2.4 Conceptual Framing: Spatial Justice and Child-Sensitive Urban Planning

This study is conceptually framed by principles of spatial justice and child-sensitive urban planning. Spatial justice foregrounds the equitable distribution of resources, services, and opportunities across urban space, drawing attention to how planning systems can unintentionally reproduce exclusion when regulations fail to account for lived realities (Soja, 2010). Applied to ECD provision, a spatial justice lens highlights how children's access to safe, appropriate care environments is shaped not only by educational policy but also by land-use planning, building regulations, and urban governance structures.

Child-sensitive planning further emphasises children as legitimate urban citizens whose needs should be explicitly considered in spatial decision-making. International frameworks, including the United Nations Convention on the Rights of the Child (2013), assert children's right to safe play, care, and development-supportive environments. Yet, as several scholars note, these rights are often weakly operationalised within urban planning practice, particularly in high-density and low-income contexts (Bianchi et al., 2022; Lester & Russell, 2010). Through integrating these conceptual lenses, the paper positions inner-city ECD centres not as regulatory anomalies but as critical indicators of how planning systems respond to urban densification, social reproduction, and everyday care needs. The Johannesburg CBD thus provides a compelling case through which to interrogate whether existing planning frameworks enable or constrain equitable access to early childhood services in dense urban environments.

This paper aims to examine how Early Childhood Development (ECD) centres are accommodated within Johannesburg's Central Business District under conditions of increasing urban density. The specific objectives include assessing the extent of alignment between planning and regulatory frameworks and the spatial realities of ECD centres operating in the Johannesburg CBD, with particular attention to zoning, consent-use provisions, and national norms and standards. Examine how built environment conditions in high-rise and mixed-use buildings affect the safety, accessibility, and inclusivity of ECD centres, considering

infrastructure such as circulation, sanitation, emergency access, and play space. Develop planning-oriented recommendations that support ECD centres as essential complementary land uses in dense city centres, promoting child-sensitive, spatially just, and context-responsive urban planning. This study thus contributes to urban planning and early childhood development scholarship, advances spatial planning debates on complementary land uses by situating ECD centres within discussions of urban densification, mixed-use development, and spatial justice areas where ECD provision remains under-theorised in South African planning literature.

The introduction situates the study within debates on urban densification, complementary land uses, and early childhood development, and outlines the conceptual framing grounded in spatial justice and child-sensitive urban planning. The methodology section then details the qualitative explanatory case study design, including the study area, data collection through non-participant observation, and analysis of planning and policy documents. The findings and discussion section presents empirical insights from Johannesburg's CBD, examining demand pressures, spatial constraints, and misalignments between regulatory frameworks and everyday ECD practices. This is followed by a section on planning implications, which reflects on how ECD centres can be more effectively accommodated as complementary land uses within dense inner-city environments. The paper concludes by summarising key findings and highlighting broader implications for inclusive, context-responsive urban planning.

3 METHODOLOGY

This study adopts a qualitative, explanatory research approach to examine the spatial and regulatory conditions under which Early Childhood Development (ECD) centres operate in Johannesburg's Central Business District (CBD). A case study design is appropriate for exploring complex, context-specific interactions between planning regulations, built form, and everyday practices within dense urban environments (Yin, 2018). The Johannesburg CBD provides a critical empirical setting due to its high residential density, mixed land uses, and increasing demand for childcare services within buildings not originally designed for ECD purposes.

The research is based on multiple case studies within the CBD. The studied areas include Hillbrow, New Doornfontein, Maboneng, and the inner-city suburb of Johannesburg near Eloff. These areas were selected due to their historical transformation from a once well-resourced urban neighbourhood into one of the most densely populated areas in the city, characterised by overcrowding, deteriorating building conditions, and increasing pressure on social infrastructure (CUBES & Planact, 2007). This context provides a critical setting for examining the emergence and persistence of ECD centres within buildings not originally designed to accommodate childcare services. An explanatory case study design was employed to understand how historical processes of urban decline, demographic change, and policy responses have shaped present-day spatial realities. Tracing Johannesburg's broader urban development trajectory allows for an interpretation of how uneven population growth, building degradation, and insufficient social facilities have converged to affect the provision of ECD services in the inner city.

Primary data were collected through non-participant observation of selected ECD centres in high-rise and mixed-use buildings in Johannesburg's CBD. Observations focused on spatial and environmental attributes relevant to planning and ECD standards, including building access, circulation, safety features, play and sanitary facilities, and surrounding land uses (Madyibi & Bayat, 2021; Breakwell, 2000). Notes were systematically recorded to capture consistencies and deviations from national and municipal norms. The study also assessed immediate external environments, considering proximity to social amenities, exposure to noise or health hazards, safety conditions, and transport access used by children and caregivers. Informal interactions with caregivers provided additional contextual insight into daily experiences navigating ECD provision. This approach enabled the researcher to evaluate how ECD centres function within constrained urban spaces and how planning regulations translate into lived realities.

Secondary data were analysed to contextualise and triangulate the observational findings. This included a review of municipal zoning schemes and land-use management regulations relevant to the Johannesburg CBD. The City of Johannesburg's municipal by-laws include specific regulations related to land use and zoning, distinguishing between suburban and township areas, alongside fire safety (SANS 10400-T) and environmental health requirements. Furthermore, the 2024 Children's Services Policy provides a guiding framework for the registration and compliance of Early Childhood Development (ECD) sites in

Johannesburg, with a strong emphasis on ensuring the health and safety of children. Additional documents reviewed included national ECD norms, standards, and policy guidelines (Department of Basic Education, 2023; Republic of South Africa, 2010); legislative and regulatory analyses concerning ECD registration and compliance (Ally, 2023; Sello et al., 2024); and demographic and population data from Statistics South Africa to evaluate the demand pressures for childcare services in the inner city. This documentary analysis allowed for a critical comparison between regulatory expectations and the actual spatial conditions observed on the ground.

Data were analysed using thematic qualitative analysis, focusing on recurring patterns of spatial compliance, adaptation, and constraint. Key analytical themes included zoning alignment, infrastructural adequacy, safety and accessibility, and the impact of urban density on ECD provision. The analysis emphasised identifying points of misalignment between planning frameworks and everyday ECD practices within the CBD.

This study adhered to ethical principles applicable to research in sensitive urban contexts, particularly involving Early Childhood Development (ECD) centres. To minimise potential harm or regulatory exposure, data collection was conducted without direct engagement with children, and observations were non-intrusive, focusing on spatial characteristics rather than individual identities. However, informal conversations were held with caregivers dropping off children and individuals using the building and surrounding the facility. Photographic documentation was considered but not used, as consent was not granted. Thus, revealing facility locations could compromise participant and centre confidentiality. The study relied on observational methods and publicly available secondary data, ensuring ethical compliance while capturing the spatial and operational context of ECD provision. As a qualitative case study, the analysis is context-specific and not intended for statistical generalisation. Nevertheless, the methods employed provide transferable insights relevant to other dense urban centres facing comparable planning and regulatory challenges.

4 FINDINGS AND DISCUSSION: RETHINKING COMPLEMENTARY LAND USES FOR ECD CENTRES IN JOHANNESBURG'S CBD

4.1 Rising Demand for ECD Centres in High-Density Areas

Observations across Hillbrow, New Doornfontein, Maboneng, and the inner-city suburb near Eloff indicate a growing demand for Early Childhood Development (ECD) services. Caregivers frequently rely on centres within walking distance due to limited transport options. Secondary data from the 2021 ECD Census (DBE, 2022) confirm Gauteng as the province with the highest number of Early Learning Programmes (ELPs), totaling 10,376 centres, representing 25% of all ELPs in South Africa. Six out of ten ECD programmes in Gauteng are located in urban areas, matching the urban proportion of enumeration areas in the census (StatsSA, 2022).

This data illustrates the pressure on urban ECD facilities, especially in Johannesburg's CBD, where population density has increased significantly due to in-migration and high-rise residential development. Informal observations in the CBD show centres creatively using corridors, rooftops, and subdivided apartments for play and learning, demonstrating adaptive responses to urban densification (Ashley-Cooper et al., 2019; Moses & van der Berg, 2023).

4.2 Spatial Constraints and Infrastructure Adaptation

CBD Early Childhood Development (ECD) centers encounter spatial and infrastructural challenges that hinder their ability to meet municipal and national standards. The limitations below highlight the disparity between regulatory expectations and the realities of urban environments. Aligning with (Visser et al., 2021), which discusses the creative, yet constrained solutions found in densely populated African cities.

- Vertical circulation and safety: Hillbrow centres often rely on a single elevator or narrow stairwells, creating safety risks during peak drop-off/pick-up.
- Outdoor play: Maboneng rooftop adaptations provide limited space (<2 m² per child) compared to the DBE National Norms and Standards (2023).
- Sanitation and hygiene: Shared bathrooms in high-rise buildings frequently do not meet prescribed child-toilet ratios (Children's Act, RSA, 2010).

- Accessibility: Centres near transport nodes mitigate travel burdens but remain exposed to noise, pollution, and traffic hazards (Clarkson et al., 2025).

4.3 Misalignments Between Planning Regulations and Practice

Analysis of zoning schemes, municipal by-laws, and observed CBD conditions highlights systemic misalignments, reinforced by provincial-level data:

Zoning and land-use restrictions: Johannesburg's Land Use Management By-law (2016) permits ECD centres mainly in "Community Facility" zones, yet many observed centres operate in residential or mixed-use high-rises. One Hillbrow centre reported waiting over two years for formal consent-use approval, reflecting barriers highlighted in Ally (2023). **Fire and safety compliance:** SANS 10400-T requires accessible emergency exits, yet narrow stairwells and obstructed corridors in New Doornfontein centres prevent full compliance. The Children's Services Policy (CoJ, 2024) calls for inspections, but enforcement remains uneven. **Outdoor and play area requirements:** DBE norms require 2 m² per child for outdoor play. In high-density CBD settings, rooftop or balcony play spaces often provide only 1–1.5 m², illustrating misalignment between standards and inner-city realities. **Parking and transport requirements:** Zoning requires on-site parking for staff and drop-off, often unavailable in high-rise buildings. Centres rely on street parking, increasing traffic risks. **Registration status and governance challenges:** The 2021 ECD Census shows that in Gauteng, 50% of ELPs are not registered, 40% are registered, and 16% are in the process of registration. This confirms that many centres operate informally or semi-formally, navigating overlapping municipal, provincial, and national approvals (DBE, 2022; Sello et al., 2024). These misalignments reveal structural barriers that disproportionately affect low-income centres, reproducing spatial inequities and limiting access to quality care in the CBD (Soja, 2010; Clarkson et al., 2025).

On the other hand, there are positive practices and opportunities for adaptive planning. Despite regulatory misalignment, CBD centers are showcasing innovative adaptations, such as utilising rooftops and internal corridors for play and strategically scheduling to maximize limited outdoor access. Additionally, their proximity to transportation and amenities helps alleviate caregiver burdens. Resource-sharing networks among centers also enhance service continuity. These strategies exemplify child-sensitive, context-responsive approaches that could inform formal planning adjustments, aligning urban densification realities with the provision of safe and equitable early childhood development (ECD) services (Lester & Russell, 2010; Bianchi et al., 2022).

5 PROVISION IN JOHANNESBURG'S CBD PLANNING IMPLICATIONS AND PATHWAYS FOR CONTEXT-RESPONSIVE ECD

The findings point to a critical planning implication: ECD centres are no longer peripheral or exceptional land uses in Johannesburg's CBD but constitute essential urban social infrastructure embedded within everyday residential life. The persistence of ECD centres in high-rise and mixed-use buildings, despite regulatory misalignment, demonstrates that demand-driven spatial practices have outpaced planning frameworks. This directly speaks to the study's final objective to develop planning-oriented recommendations that support ECD centres as complementary land uses within dense city centres.

The evidence suggests the need for formal recognition of ECD centres as legitimate complementary land uses within inner-city residential and mixed-use zones. Current zoning schemes in Johannesburg continue to treat ECD facilities as specialised or conditional land uses, requiring consent-use applications that are often impractical in high-density contexts. Aligning with arguments by Ally (2023) and Matjokana and Bipath (2024), the findings support a shift towards as-of-right inclusion of small-scale ECD facilities within residential and mixed-use zoning categories in the CBD, subject to context-appropriate safety criteria. Comparable approaches have been adopted in cities such as Bogotá and São Paulo, where childcare centres are integrated into mixed-use zoning as part of neighbourhood social infrastructure strategies, particularly in high-density, low-income areas (Bianchi et al., 2022).

The study highlights the necessity of flexible, performance-based design standards rather than rigid, spatially prescriptive requirements. Observed adaptations such as rooftop play areas, internalised play spaces, and shared sanitation indicate that centres are capable of meeting child development needs creatively, albeit often in technically non-compliant ways. International literature on child-friendly urbanism emphasises that the quality of play and supervision may be as important as spatial size alone, especially in dense urban

environments (Frost & Sutterby, 2017; Yogman et al., 2018). In the Johannesburg context, this suggests revising national and municipal ECD infrastructure guidelines to allow context-sensitive interpretations of outdoor play, circulation, and sanitation, supported by clear safety benchmarks rather than minimum spatial thresholds alone.

Furthermore, findings regarding registration and compliance challenges reinforced by the 2021 ECD Census showing that approximately half of Gauteng's ECD centres remain unregistered or semi-formal underscore the need for planning-led support mechanisms rather than punitive enforcement. Rather than framing non-compliance solely as regulatory failure, the findings align with Sello et al. (2024) in illustrating how fragmented governance and unrealistic standards push centres into informality. A Johannesburg-specific response could include inner-city ECD support programmes, combining land-use guidance, fire safety assessments, and phased compliance pathways. Similar incremental compliance models have been piloted in Kenya and India, where urban childcare centres are supported through technical assistance and conditional licensing tied to gradual spatial improvements (Ndengo & Richard, 2022). The findings reinforce the importance of interdepartmental coordination and planning awareness. ECD provision in the CBD intersects with planning, building control, fire services, environmental health, and children's services, yet these functions remain institutionally siloed. Embedding ECD considerations into inner-city precinct plans, social infrastructure frameworks, and urban regeneration strategies would enhance coherence. International examples from Barcelona and Rotterdam demonstrate how child-sensitive planning is operationalised through cross-sector urban governance structures, ensuring that children's needs are explicitly considered in densification and regeneration projects (Lester & Russell, 2010; Bianchi et al., 2022). From a spatial justice perspective, the findings suggest that failure to adapt planning frameworks risks reproducing early childhood inequalities, particularly for low-income and migrant families concentrated in the inner city. Recognising ECD centres as integral to urban social reproduction aligns with Soja's (2010) conception of spatial justice, where access to care, safety, and developmental environments is understood as a spatially mediated right. Raising planning awareness around ECD provision through professional guidelines, municipal training, and planning education can help shift perceptions of ECD centres from regulatory anomalies to critical indicators of inclusive, child-sensitive urban governance.

In summary, the Johannesburg CBD case illustrates that adaptive planning, regulatory flexibility, and institutional awareness are non-negotiable if ECD centres are to function effectively as complementary land uses in dense city centres. These insights contribute to broader debates on urban densification, mixed-use development, and social infrastructure provision in the Global South, offering transferable lessons for cities grappling with similar socio-spatial pressures.

6 SUMMARY

This paper examined how Early Childhood Development (ECD) centres are accommodated within Johannesburg's Central Business District (CBD) under conditions of increasing urban densification. Framed through spatial justice and child-sensitive urban planning, the study addressed the growing mismatch between planning and regulatory frameworks for ECD provision and the spatial realities of high-rise and mixed-use inner-city environments. Using a qualitative explanatory case study approach, the research combined non-participant observation of selected ECD centres with analysis of zoning schemes, municipal by-laws, national ECD norms and standards, and demographic data.

The findings demonstrate a strong and growing demand for ECD services in the CBD, driven by demographic change, in-migration, and the transformation of the inner city into a space of permanent residence for low- and middle-income households. While regulatory frameworks articulate clear intentions around safety, quality, and child wellbeing, they remain largely predicated on low-density, purpose-built assumptions that are poorly aligned with vertical, space-constrained urban environments. As a result, many CBD-based ECD centres operate through adaptive and creative spatial practices such as rooftop play areas, internalised learning spaces, and shared facilities that enable service provision but often fall outside formal compliance requirements.

The study highlights how rigid zoning categories, prescriptive infrastructure standards, and fragmented governance processes unintentionally marginalise ECD centres in precisely the areas where they are most needed. At the same time, the findings reveal opportunities for adaptive planning, regulatory flexibility, and institutional learning, positioning ECD centres as essential complementary land uses embedded within

everyday inner-city life. By foregrounding children's needs within urban planning debates, the paper contributes to under-theorised discussions on social infrastructure, mixed-use development, and spatial justice in South African cities.

7 CONCLUSION

This study set out to evaluate the extent to which planning and regulatory frameworks align with the spatial realities of Early Childhood Development (ECD) centres operating in Johannesburg's CBD. The findings confirm a persistent and systemic misalignment between regulatory intent and lived spatial practice. While existing policies and standards aim to safeguard children's well-being, their rigid and spatially prescriptive application fails to accommodate the realities of dense, vertical urban environments. Consequently, ECD centres are frequently rendered informal or semi-compliant, not due to disregard for child safety, but because planning systems have not adapted to changing socio-spatial conditions.

The Johannesburg CBD case demonstrates that ECD centres are no longer peripheral or exceptional land uses but constitute critical urban social infrastructure that supports everyday care, labour participation, and social reproduction. Treating ECD facilities as conditional or marginal land uses risks reproducing spatial and social inequalities, particularly for low-income and migrant families concentrated in the inner city. From a spatial justice perspective, access to safe, appropriate early childhood environments must be understood as a spatially mediated right that planning systems are obligated to enable rather than obstruct.

In alignment with the study's objectives and the paper's abstract, the conclusions emphasise the need for a shift towards child-sensitive, context-responsive planning. This includes recognising ECD centres as legitimate complementary land uses within residential and mixed-use zones; adopting flexible, performance-based design standards that prioritise safety and developmental quality over rigid spatial thresholds; and strengthening interdepartmental coordination to support phased and supportive compliance pathways. Without such reforms, regulatory frameworks risk undermining both early childhood development outcomes and broader goals of inclusive, compact, and socially just urban development.

Ultimately, rethinking ECD provision in Johannesburg's CBD offers wider lessons for cities in the Global South grappling with densification, informality, and uneven access to social infrastructure. Embedding children's needs into urban planning practice is not optional but fundamental to the creation of equitable, liveable, and resilient city centres.

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