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Developing a Child-Friendly Socio-Ecological Toolkit (CFAL) for Play and Mobility in Dense Urban Settlements of Makassar

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Abstract

Child-Friendly environments are a global agenda promoted by the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), and the United Nations Convention on the Rights of the Child (UNCRC). In Makassar's dense urban settlements, formal parks are scarce, while alleys (lorong) and open lands (vacant lots/fields) frequently function as de facto public open spaces for children's daily play. This study examines the typologies of these informal spaces, the observed user groups, and patterns of play mobility, and proposes low cost, context-sensitive upgrading directions to enhance safety, inclusivity, and playability. We conducted structured, multi-site field observations and site inventories across ten locations (six alleys and four open lands), supported by imagery-based base mapping and spatial annotation in ArcGIS Pro 2.8. Findings indicate that children's play is dynamic and mobile, co-produced by neighbourhood social networks and environmental affordances (e.g., shade patches, edges, permeability, and traffic calmness) rather than fixed facilities alone. Recurring constraints include micro-traffic conflicts at alley mouths, limited shade and vegetation, uneven surfaces, and the absence of context-sensitive play markings. Building on these findings, we propose a Child-Friendly Alleys and Open Lands (CFAL) toolkit prioritising safe access and low-speed management, shade/micro-greening nodes, play markings, and micro-affordances, inclusive movement, and community stewardship, supporting SDGs 3, 10, and 11.