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A Review of Critical Architectural Design Parameters of Children Reception Centers in Uganda — A Case of Naguru Centre

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Abstract: Children Reception Centers (CRCs) are specialized establishments designed to provide temporary accommodation, essential services, and support to vulnerable children, including displaced, refugee, asylum-seeking, and disaster-affected children. As the global landscape witnesses an increase in displacement and humanitarian crises, the design of CRCs becomes increasingly critical. This work a culmination of an undergraduate research which assessed the functionality of Naguru Reception Centre in Kampala, Uganda. The study explored various aspects, including the provision of private and counseling spaces, dormitory layouts, the impact on privacy, and the creation of a welcoming atmosphere. Drawing on international practices and cultural variations, the research contributed some valuable insights into optimal design principles for CRCs, emphasizing the importance of both physical safety and emotional well-being. Distressed children residing in reception centers may have experienced trauma or displacement, necessitating specialized care. The research methodology employed is rooted in qualitative data collection approaches, The study concludes with a set of recommendations for Naguru Reception Centre, including aspects such as safety, accessibility, privacy, and well-being. The findings and recommendations have broader implications for the design and operation of CRCs globally, serving as a valuable resource for policymakers, architects, and organizations dedicated to providing friendly and effective care for vulnerable children.

Key words: Children Reception Centre, design, functionality

1. Introduction

A Children Reception Centre, is referred to as a reception facility or a specialized establishment designed to provide temporary accommodation, essential services, and support to children in need, particularly displaced children, refugee children, asylum seekers, and disaster survivors. These centers serve as vital humanitarian hubs where children facing challenging circumstances find refuge, assistance, and a sense of stability during turbulent times [1]. The investigation into the design of children's reception centers, with a specific focus on Naguru Reception Centre in Uganda, has been prompted by the critical role these centers play in providing temporary residential care for distressed children [1]. The global context underscores the importance of continuous research, innovation, and collaboration to create spaces that not only meet immediate needs but also empower children to rebuild their lives [2]. The study recognizes that the design and functionality of Children Reception Centres (CRCs) have far-reaching implications for the physical and emotional well-being of the children they serve.

Acknowledging the diverse backgrounds and needs of these children, the investigation delves into various aspects, including the provision of private and counseling spaces, the layout of dormitories, the impact on privacy, and the creation of a welcoming atmosphere. In the international context, the study aims

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to contribute valuable insights into optimal design principles for CRCs by examining practices worldwide and considering cultural variations (Morgens Lykketoft). Focusing on Naguru Reception Centre, the only children's reception center in Kampala, Uganda, the study sheds light on the architectural challenges faced by the center. The research narrows its focus to the architectural aspects, investigating the design of the center and its impact on distressed children. The insights gained from this investigation not only contribute to the enhancement of Naguru but also provide a broader perspective on CRCs across Uganda. By exploring the intricacies of their design, the researcher aims to inform policy decisions and architectural considerations, fostering compassionate and effective care for Uganda's vulnerable youth.

Finally, the study places the relationship between architecture and children in focus, emphasizing the importance of understanding how children respond to their environment.

The main objective to the study is to investigate and assess the design and functionality of Children Reception Centers. Specific objectives include; to study the architectural design of children reception centers and evaluate the suitability of the centers in meeting the diverse needs of the distressed children, to examine the parameters required for the functionality of children reception centers, and examine the architectural layout and functionality of the Naguru Reception Centre.

2. Literature Review

According to the Constitution of Uganda, a child is a person below 18 years. Children have the same general human rights as adults and also specific rights that recognize their special needs thus in accordance with the United Nations Convention on the Rights of the Child, Article 2 of the African Charter on the Rights and Welfare of the Child, and Article 257 (1) (c) of the 1995 Constitution of Uganda (UNICEF Uganda Annual Report 2019). The design of children reception centers is a multifaceted endeavor, encompassing architectural considerations, logistical planning, and adherence to humanitarian principles. Key aspects of their design include ensuring the safety and well-being of residents, promoting community integration, facilitating access to essential services, and creating sustainable, environmentally responsible facilities.

2.1 Elements of Design Related to the Children Reception Centers

Designing children centers requires identifying the aspects that contribute to a child's comfort and happiness. Experts believed that architects should be careful enough on children's design because the goal is designing specific environments for children, creating interesting spaces for them to grow their abilities and creativities thus not putting an end to their needs. Recognizing the psychological-physical characteristics of children to design an optimal environment for them is really important because without understanding children and their needs in terms of psychology, their emotional, social, and movement features at different ages, the designed environment cannot be that effective.

The elements of design are the fundamental aspects of any visual design which include shape, color, space, form, line, value, and texture. Designers use the elements of design to create an image that can convey a certain mood, draw the eye in a certain direction, or evoke a number of feelings [3]. While the elements of design form the basics of any image, designers also lean on the principles of design, which are a set of practices of working with the elements of design that make a composition look pleasing to the eye.

The way in which the purpose of architecture is defined suggests how its relationship with children reception centre ought to be conceptualized [4]. Form, shape, color and function are the parameters applied in designing and articulating the spaces inside and outside the architecture. Designers use the elements of design to create an image that can convey a certain mood, draw the eye in a certain direction, or evoke a number of

feelings [4]. Color red seems to arouse and activate people by influencing the autonomic nervous system and certain brain areas. Muscular activity and the activity of mental processes seemed to be influenced by color. Orange and yellow light appears to increase muscular activity. The pink room as a factor for the increase of general arousal in children.

The purpose of scale and size is to encourage the child's ability to manipulate the environment and to feel a sense of ownership [5]. If the environmental scale is inappropriate, children may encounter difficulty in manipulating their surroundings, decreasing their chance to gain control of the physical settings around them. Doors and furniture should not be heavy. A child feels more comfortable if the furniture and accessories are their sizes and they have more control over the environment. in most cases many children are unhappy about not having their own spaces thus They prefer smaller and more intimate spaces.

When designing spaces for children reception Centre, form plays a crucial role in ensuring safety and functionality [6]. The idea of texture can be created by making a pattern that alters between light and dark areas [7]. The design of children reception centers, often used for various purposes like childcare facilities, shelters, or educational centers, should consider several key parameters to ensure the well-being and safety of children. High security measures to protect children from external threats through implementing secure access control measures at entry points to prevent unauthorized access and ensure that only authorized individuals can enter the facility, installing security cameras in common areas to monitor activities and enhance overall security [8]. Facilities should be accessible to children with disabilities by providing ramps with gentle slopes and elevators to make different levels accessible to children with mobility impairments or strollers, ensuring doorways are wide enough to accommodate wheelchairs and strollers [9].

Texture is one of the elements of design that is used to represent how an object appears or feels. Tactile texture is a physical sense of touch, whether it's rough, smooth, or ribbed. Visual texture, on the other hand, refers to the imagined feel of the illustrated texture, which can create more visual interest and a heightened sensory experience. The idea of texture can be created by making a pattern that alters between light and dark areas Texture has the power to attract or detract a viewer's eyes, and can be applied to lines, shapes, and forms. Combining different textures in artwork or decor can create a more visually appealing and engaging environment for kids. Certain textures may evoke emotions in children. Soft, cuddly textures in stuffed animals, for instance, can create a sense of comfort, while rough textures in building blocks might encourage creativity and problem-solving. Textures can make designs more interactive for children. Playgrounds, toys, or educational materials with varied textures can encourage kids to explore, touch, and manipulate objects, fostering a sense of discovery

2.2 Children Reception Centers Functionality Parameters

Facilities should be accessible to children with disabilities by providing ramps with gentle slopes and elevators to make different levels accessible to children with mobility impairments or strollers, ensuring doorways are wide enough to accommodate wheelchairs and strollers Use lever handles for easy opening, and design restrooms with low sinks, changing tables, and toilets suitable for children and individuals with disabilities.

Proper ventilation and lighting for a healthy environment through incorporating large windows and proper ventilation to maximize natural light and fresh air, which can help reduce the spread of diseases and promote overall well-being, using non-toxic, easy-to-clean materials for surfaces and furnishings to minimize the risk of allergies or exposure to harmful substances, and designing separate areas for different activities like play, eating, and resting to prevent cross-contamination and maintain hygiene standards Sanitary

facilities and handwashing stations and ensure easy access to child-friendly sinks, toilets, and handwashing stations with step stools and low-height fixtures.

Accommodations should provide privacy and a sense of dignity. Create individualized areas where children can have privacy, such as separate bedrooms or nooks within shared rooms, use appropriately-sized furniture to empower children to use and organize their space effectively Separate sleeping areas for different genders and include areas for learning and creativity to support a child's development. Adequate space for staff to work and rest, and utilize design elements such as windows that allow staff to have clear sightlines, making it easier to monitor children and activities.

Use of child-sized furniture and amenities by ensuring that spaces are childproofed with measures like rounded corners, non-slip flooring, and safety railings. Avoid sharp edges or hazards that child could easily access, design elements should be appropriately scaled for children, including furniture, fixtures, and overall room size. Use child-sized elements to make them feel comfortable and in control of their environment. Incorporate ample natural light into spaces to create a bright and welcoming atmosphere. Consider large windows and skylights to connect children with the outdoors, and designing dedicated play areas with age-appropriate equipment and materials. Include soft surfaces, colorful elements, and creative spaces that encourage imagination and physical activity.

Safe and secure outdoor play areas by ensuring that the space is free from potential hazards, such as sharp edges, slippery surfaces, or tripping hazards [10]. Use child-friendly materials and equipment, and also dividing the space into zones suitable for different age groups, providing age-appropriate play structures and activities.

Design that respects and accommodates the cultural diversity of the children being served through incorporating elements of various cultures in the design, such as art, symbols, and colors that reflect the local community's diversity, and design spaces that can be easily adapted for different cultural events and activities. This may involve movable partitions, flexible seating arrangements, and multipurpose rooms. Spaces for cultural and religious practices, whereby Collaborate with cultural organizations to offer programs, workshops, and events that celebrate diversity and promote cultural understanding

Using modular and multifunctional furniture that can be easily rearranged to accommodate different activities and group sizes. Create open, uncluttered spaces that allow for easy movement and can be adapted for various activities. Install adjustable lighting fixtures to create different moods and accommodate various tasks. Natural light is also crucial.

Experts believed that architects should be careful enough on children design because the goal of designing specific environments for children, creating interesting spaces for them can grow their abilities and creativities not putting an end to their needs. Recognizing the psychological-physical characteristics of children to design an ideal environment for them is really important because without understanding children and their needs in terms of psychology, their emotional, social, and movement features in different ages, the designed environment cannot be that much effective.

3. Methodology

The research methodology employed for the investigation into the design of Naguru Reception Centre is rooted in qualitative data collection approaches, aiming to understand the intricacies of the built environment's impact on distressed children. The study adopted an explorative and descriptive research design, drawing on literature review, participant observation, interviews, photography and questionnaires.

Research methods are the strategies, processes or techniques utilized in the collection of data or evidence for analysis to uncover new information or create a

better understanding of a topic. Various strategies can be used in carrying out research which may include, but are not limited to; descriptive, explorative, experiment, correlational, case study, cross-cultural and others.

Data collection is the process of gathering and recording information from various sources for the purpose of analysis for the research. This involved Literature review, Participant observation, interviews and photography. A review of existing literature about the required standards in the design of children reception Centre will be used as a basis for the research. This provided information about aspects of the research like the design, functionality, space quality, and the impact of the design of these centers on distressed children. Observation involved the researcher interacting with the participants in their real life and facts will be recorded through the use of a sketch pad, a camera to capture photography evidence and a pencil. The study area through the use of sketches, photographs and measured drawings was used.

Critical analysis of the Centre spaces' functionality, the design, benefits and innovation was carried out as part of the process. The research employed both structured and unstructured observation techniques. The structured observation method ensured that the study answered the research questions while the unstructured one made sure any other relevant information found in the field was not left out purely because it is not covered in the predefined observation list. This involved personal and direct contact between the researcher and the person being interviewed and thus the researcher gets first-hand information.

Questions were prepared to guide the researcher during the interviews to get all the required information. Recording in this case was used in order not to miss any information from the respondents regarding their perspective of their environment and why they have those perspectives. Interviews were carried out with distressed children to know their perspectives on the use of these spaces and how the design of the Centre affects them. An interpreter was used for children with certain impairments. Photography was used to give a visualization of the situation on the ground. Sketches were used to elaborate and analyze the information gotten in the research.

4. Discussion of Findings

Naguru Reception Centre is located in Uganda, Kampala, Nakawa Division, on Naguru hill, along Naguru avenue. This location is approximately 4.5 kilometers, by the road, Northeast of Kampala's central business district with coordinates 00 20 48N, 32 36 20E as shown in the figure below. Naguru Hill is bordered by Ntinda, Nakawa, Kololo, Kamwookya and Bukoto. The Centre is composed of three blocks and the staff quarters facing in the South eastern direction due to the terrace thus running along with the contour lines. The site drops by 8meters from the highest point to the lowest point which calls up steps and rumps within the Centre. It has two gates and it can be accessed only through the lower gate along the Naguru avenue leading to the parking space with parking slots which are not marked out clearly thus making people to park according to space availability with less or no order. Analyzing the design of Naguru reception Centre, the designed spaces are to be considered which conclude; Administration Office, Nursery classroom, Isolation room, Staff quarters, laundry space, Dormitories, TV room, Dining room, Kitchen, Clinic and Kids play area.

The centre is composed of three blocks constructed facing each other with double corridors of two meters (2 m) facing in the Southeast – Northwest direction. The centre is surrounded by a solid perimeter wall obscuring view. It was observed that the dormitory blocks have windows facing the other blocks or covered corridors but unlike the office block which faces the parking providing a glimpse of the sky. There are no expansive views in the dormitories but only those of the corridors as sketched below. Additionally, the bed arrangement doesn't allow for children to view outside since the beds are placed onto the wall with the children laying while facing the corridor. Additionally,

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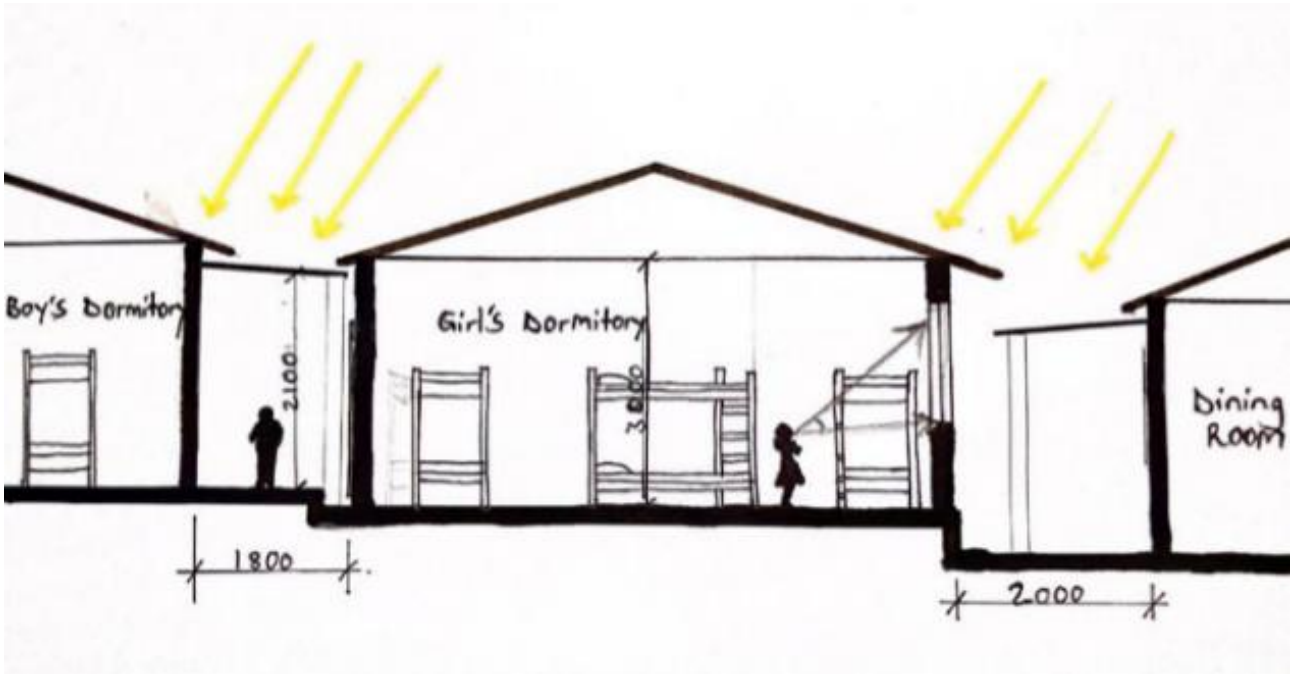

Fig. 1 Sketch by the researcher.

It was observed that the blocks are of rectangular form with windows on the longer walls allowing cross ventilation within the buildings. The dormitory block however has a double-loaded corridor which reduces airflow through the building for cross ventilation. The main ventilation channels are the windows and exterior doors which are all designed with louvered transoms. The dining area and the Isolation room are located on the first block with windows of 2 meters wide and left open with no surrounding walls to allow constant airflow in the air to draw away any air impurities. The office block is also ventilated with double windows allowing cross ventilation within the building.

The Centre is located on a slope and has no overshadowing adjacent buildings which open it up to the sky and hence receive direct sunlight. It is oriented along the southeast and northwest axis which enables all the buildings to receive direct sunlight throughout the day. This also means all the westerly rooms are oriented away from the intense direct sunlight, especially in the evening. Most of the rooms in the Centre have access to natural light. The rooms on the dormitory block that face the other blocks have reduced access to natural light due to their proximity to the other blocks and the windows are small for these blocks. The corridors in between the blocks receive natural light from the ends of the buildings as shown below However, this is not sufficient to each the inner spaces and therefore artificial lighting is used throughout the day. The windows on the office block are large enough to bring in natural light to the office space in this block.

Fig. 2 Photo by researcher.

The rooms facing the internal corridor do not receive natural lighting and therefore depend on artificial lighting. The dinning space is generally open to natural daylight throughout the day.

The Centre was finished majorly with Lilac paint on the exterior with brown strips of skirting at the bottom for the dormitory blocks, sandstone paint and grey as skirting for the Office block, the interiors are finished with glossy beige for the walls and white paint for the ceiling, windows and exterior door frames are painted glossy brown and white with clear glass sashes whereas the internal doors are painted gray. The boundary walls are also painted in a navy-blue color to the exterior wall. The kid's play area is covered by natural green color due to the vegetation cover all over the area and the playing colors like orang paint on the bakery in the background, red, blue and pink paint on the playing instruments. These colors stimulated a calm ambience which also enhanced relief. The respondents interviewed had no challenge with the colors of the outdoor spaces. They said that the wall paints are dull for the children making them to be outdoor most of the times.

The paper investigated the functionality of the Naguru Reception Centre, exploring the ways in which its design contributes to the overall effectiveness of the Centre. Functionality refers to how well the physical layout and arrangement of spaces within the center serve their intended purposes. By examining the design choices and layout of the Naguru Reception Centre, the researcher aims to uncover insights into how the spatial organization enhances or hinders the functionality of the Centre. This investigation shed light on the critical role that thoughtful spatial planning plays in creating a reception center that meets the needs of distressed children and promotes a conducive environment for them.

The main entrance to the Centre is very clear along the Naguru avenue making it easy to find its location. The Centre has no reception and waiting lobby within and has no adequate signage at critical places to direct a new person where to go. No labels on the door posts were used, no signage for parking and fire assembly points were found and this makes it hard in terms of wayfinding in cases of emergency. The presence of the entry quite complicates way finding at the facility. Upon entry, a kid's play area is located for easily identification children Centre. Naguru reception Centre has incorporating outdoor spaces and greenery that covers about 21% of the Centre. The site drops by 8 meters from the highest point to the lowest point. Walk ways around the Centre are of steps and ramps as result of solving levels to enable proper circulation. This created un protected walk ways that are high set off from the ground which is not safe for the children playing with in the outdoor spaces. The walkways aren't safe for children mobility within the Centre. The Centre has lots of open trenches that aren't safe for the occupants.

The Centre design does not consider age-specific areas to cater to the needs of infants, toddlers, and older children. There were no comfortable and secure sleeping arrangements with age-appropriate furnishings thus it was observed that the dormitory, dining and toilet spaces aren't child friendly, as they lack furniture and fittings to the scale of children. It is observed that the Centre design considers the disabled children by the existing ramps to the main entrance and dormitory blocks. This helps the distressed children with special needs feel included and supported within the Centre. A few spaces are not accessible like the toilets and the isolation room having no ramps for access.

5. Conclusion

The investigation into the design of Naguru Reception Centre has shed light on critical considerations for creating environments that cater to the unique needs of vulnerable children. The absence of designated spaces for counseling and private reflection emerged as a significant concern, emphasizing the importance of addressing the

emotional well-being of children who may have experienced trauma.

The recommendation to design specific areas for counseling and personal reflection aligns with the broader goal of creating a more supportive and therapeutic environment. Privacy challenges in dormitories were identified as a crucial factor hindering the development of a home-like environment. Recognizing privacy as fundamental for children, addressing this concern is crucial to alleviating anxiety and fostering a sense of security within the living space. Striking a balance between staff privacy and approachability was emphasized, underscoring the need for accessible channels of communication and interaction.

Empowering children with control over their personal spaces, such as through lockable storage or autonomy in arranging surroundings, was highlighted as vital for their well-being. The overall lack of privacy within the center was identified as a factor contributing to increased anxiety, emphasizing the need for spaces that foster safety and security to create a more positive experience for the children.

The literature review reinforced the significance of a holistic approach to designing spaces for children, considering functional, aesthetic, sensory, and cognitive aspects. Elements of design, such as color, form, space, and texture, were discussed with a focus on their impact on children's experiences. The investigation encourages child-friendly designs that prioritize safety and functionality, with real-world case studies providing valuable examples.

The findings and recommendations from the investigation into Naguru Reception Centre contribute to the broader discourse on the design of children reception centers. The insights gained have implications for improving the well-being and rehabilitation outcomes of vulnerable children globally. By emphasizing a child-centric approach and addressing privacy, counselling spaces, and staff interaction, the study provides valuable guidance for policymakers, architects, and organizations dedicated to creating environments that empower and uplift the next generation, despite the adversities they may have faced.

References

[1] Seeberg, M. L., Bagge, C., & Enger, T. A. (2009). No Place: Small children in Norwegian asylum-seeker reception centres, *Childhood 16* (3): 395-411.

[2] Kaya, A., & Nagel, A. K. (2020). Reception Policies, Practices and Humanitarian Responses: Synthesis Report.

[3] Badawy, U. I., Jawabrah, M. Q., & Jarada, A. (2020). Adaptation of accessibility for people with disabilities in private and public buildings using appropriate design checklist, *International Journal for Modern Trends in Science and Technology*.

[4] Ballad, B., Ballad, T., & Banks, E. (2010). *Access Control, Authentication, and Public Key Infrastructure*, Jones & Bartlett Publishers.

[5] Cloete, M. C. (2016). Architecture and childhood development: towards establishing architectural design guidelines for children's environments in South Africa.

[6] Kaya, A., & Nagel, A. K. (2020). Reception policies, practices and humanitarian responses: Synthesis report, working paper.

[7] Malone, K., & Tranter, P. (2003). Children's environmental learning and the use, design and management of schoolgrounds, *Children, Youth and Environments 13* (2): 87-137.

[8] Marcus, C. C., & Francis, C. (1997). *People Places: Design Guidlines for Urban Open Space*, John Wiley & Sons.

[9] Michel, L. (1995). *Light: The Shape of Space — Designing With Space and Light*, John Wiley & Sons.

[10] Scott, S. (2010). Architecture for children, Aust Council for Ed Research.