

## EXPLORING SPACE ADAPTABILITY AND MULTI-FUNCTIONALITY IN THE DESIGN AND CONSTRUCTION OF AN INTERNATIONAL TRADE FAIR COMPLEX FOR TARABA STATE

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### ABSTRACT

This research focuses on the design and construction of a multi-functional international trade fair complex for Taraba State, Nigeria, with an emphasis on spatial adaptability. This research focuses on the design and construction of a multi-functional international trade fair complex for Taraba State, Nigeria, with an emphasis on spatial adaptability. The existing state-owned trade fair facility in Jalingo lacks the necessary infrastructure to support multiple functions year-round effectively. The study aims to propose a design solution for a versatile trade fair complex capable of accommodating diverse activities and responding to changing space requirements. A mixed-method research design approach was adopted, employing case studies, structured observation checklists, and architectural design tools, including AutoCAD, as instruments for data collection. Results are presented using tables, plates, frequency distributions, percentages, and architectural design drawings to illustrate spatial allocation, functional relationships, and design outcomes. Findings revealed that 50% of the facilities at the current state-owned Jalingo trade fair complex were either unavailable or inadequate. The proposed Jalingo International Trade Fair Complex was designed to incorporate 18 key functional components, totaling 47 usable facilities, including exhibition halls, open fairgrounds, parking lots, cultural pavilions, offices, and service areas. The results further indicate that the most extensively used spaces are the parking area (44,400m<sup>2</sup>), exhibition halls (40,950m<sup>2</sup>), and open fairground (14,250m<sup>2</sup>), while the eatery service unit, internet cafe, and information desk areas occupied the least spatial allocation with 39m<sup>2</sup>, 40.56m<sup>2</sup>, and 59.40m<sup>2</sup> respectively. In conclusion, the proposed design offers a sustainable framework for improving facility utilization and enhancing the socio-economic value of trade fair infrastructures in the State of Taraba. Therefore, it is recommended that implementing this project, either through state initiatives or public-private partnerships, will create direct and indirect employment opportunities and enhance Taraba State's internally generated revenue base.

**Keywords:** Architectural design, Facility management, Flexibility, Multi-functionality, Spatial adaptability, Trade fair complex

## 1.0 INTRODUCTION

The increasing global demand for multi-functional spaces presents a critical sustainability challenge, as it requires the effective adaptation of built environments to accommodate diverse human activities to ensure

sustainable and efficient space usage. This adaptability reflects the evolving relationship between space utilization and sustainable development. Pius (2016) emphasizes that the effectiveness of a trade fair complex largely depends on its physical characteristics, spatial organization, and geographical location, which collectively influence its capacity to serve as a platform for commercial interaction, innovation display, product marketing, investment promotion, and public awareness.

Trade fairs, as defined by the International Chamber of Commerce [ICC] (2020), are periodic events that bring together commercial and allied activities. These events provide opportunities for companies operating within specific industries to present their products and services, interact with clients and business partners, observe competitive practices, and evaluate emerging market dynamics and opportunities (Shehu et al., 2019; Kodei, 2024). The long-term sustainability of trade fair complexes, therefore, lies in extending the functional use of such facilities beyond occasional exhibitions. A defining feature of sustainable fairground and event venues is the integration of flexible, multi-purpose spaces capable of supporting varied functions throughout the year. The State of Taraba in Nigeria is notably endowed with rich natural resources and remarkable cultural diversity, comprising numerous ethnic groups including Jenjo, Kuteb, Chamba, Kodei, Mumuyes, Mambila, Wurkum, Fulani, Jukun, Ichen, Tiv, Hausa, Karinjo, Bandawa, Munga, Lol, Zoh, and Ndoro. As a result of this diversity and economic potential, trade fairs in the state have evolved into major events that attract significant participation from both national and international audiences.

### **1.1 Statement of the Problem**

Trade fairs are recognized as significant revenue-generating ventures, contributing financially through ticket sales, exhibition booth rentals, gate fees, and advertising opportunities. These income streams have the potential to strengthen the internally generated revenue for both state governments and organizing bodies in most developing countries. Nevertheless, reliance on trade fairs alone is insufficient, as the high operational and maintenance costs of such facilities necessitate the integration of additional revenue-producing activities within the same site. Public facilities such as trade fair complexes are by nature spaces that operate intermittently rather than continuously (Kodei et al., 2023). Since trade fairs are seasonal events, their venues often remain unused for an extended period, thereby resulting in idle infrastructure and underperforming assets. Oguejiofor (2011) asserts that the full potential of a trade fair complex can only be realized through intelligent and flexible design solutions that accommodate evolving spatial demands. Despite its vast land area of approximately 764,687m<sup>2</sup>, the existing state-owned Jalingo Trade Fair Complex in Taraba State, Nigeria, established in the year 2000, has hosted only two major and two minor trade fairs to date (Kodei et al., 2023). This limited level of activity highlights a significant pattern of underutilization, which may be attributed to the absence of multi-use and multi-functional design strategies within the expansive facility. Furthermore, although Pius (2016) conducted a study titled "Review of Planning and Design Characteristics of Trade Fair Complex in Jalingo," the research focused primarily on the urban site planning and did not address the architectural design considerations necessary for achieving functional flexibility of facilities.

Consequently, this study is motivated by the need to develop an innovative architectural design response which could promote a multi-functional trade fair complex capable of accommodating a wide range of activities, including exhibitions, fairs, performances, meetings, and conferences. By enhancing spatial adaptability and functional flexibility, such a design approach aims to support sustainable space utilization and improve the economic viability of the facility. The provision of a trade fair complex that can efficiently respond to changing spatial requirements is therefore critical to maximizing its long-term relevance and productivity.

### **1.2 Purpose of the Study**

The purpose of this study is to propose a new design and construction of Jalingo international trade fair complex for the State of Taraba in Nigeria by exploring the concept of space adaptability and multi-functionalities in Architectural design, and the objectives of the study are:

- i. To assess the availability and adequacy of facilities at the existing state-owned Jalingo Trade Fair Complex.
- ii. To design an adaptable and multi-functional Jalingo International Trade Fair Complex for multi-purpose activities.

### **1.3 Research Questions**

- i. What facilities are available and their level of adequacy at the existing Jalingo Trade Fair Complex?  
How can an adaptable and multi-functional Jalingo International Trade Fair Complex be designed?

#### 1.4 Motivation of this study

This study was motivated by its architectural relevance and the pressing need to develop a multi-functional trade fair complex in Jalingo city, as a catalyst for socio-economic advancement in Taraba State and Nigeria at large. Within architectural practice, exhibitions have historically played a vital role in driving innovation and socio-economic growth, often serving as experimental platforms for emerging materials, construction techniques, and spatial concepts. Notably, exhibition architecture pioneered the large-scale application of materials such as steel and glass, which later became integral to modern building design. Built environments do remain effective only when they satisfy the evolving needs of their users. When functional requirements change, buildings must adapt accordingly to achieve flexibility using minimal resources and intervention. This principle underscores the importance of adaptable architectural solutions in contemporary design practice.

Consequently, this research seeks to transform the existing Taraba State Trade Fair Complex in Jalingo into a multi-functional international trade fair facility or construction of new one as the case may be. The proposed development aims to serve as a strategic investment for the State Chamber of Commerce and Industry, with the capacity to enhance revenue generation, improve facility utilization, and position the complex as a year-round economic and social hub. Through this transformation, the study aspires to contribute to sustainable architectural development and long-term economic viability for the state.

## 2.0 LITERATURE REVIEW

### 2.1 The Concept of Trade Fair

The concept of a trade fair has evolved over time as a structured platform for commercial interaction and exchange. According to Kodei (2024), the Oxford Dictionary defines a fair as a periodic event organized at a fixed location and time for the sale of goods, often accompanied by exhibitions, entertainment, and cultural displays. Trade fairs function as commercial showcases where numerous firms from different regions and countries present their products and services to potential buyers. Fairs also serve as dynamic marketplaces that facilitate direct interaction between buyers and sellers, offering exporters access to foreign markets and providing efficient opportunities to establish business networks and assess market conditions. Oguejiofor (2011) observes that various terms such as trade fairs, trade exhibitions, and trade shows are commonly used interchangeably to describe events designed primarily to stimulate trade and commercial engagement. Trade fairs play a particularly significant role in markets where traditional advertising methods are less effective or where direct product demonstration is essential. Naveh (2001) highlights their importance in underdeveloped or politically restrictive economies, where access to international markets may be limited and face-to-face interaction becomes a critical marketing tool. Trade fairs can be categorized into several types based on scale, purpose, and target audience (Oguejiofor, 2011), as follows:

- a) *World Fairs/International Exhibitions*: These are large-scale, non-periodic global events where nations exhibit technological innovation, cultural identity, and development achievements. They are largely symbolic and political in nature, rotate between host countries, and occur at irregular intervals. Examples include the 1967 Montreal Expo in Canada and the 1970 Osaka Expo in Japan.
- b) *General Trade Fairs (Horizontal Exhibitions)*: This category includes exhibitors from multiple sectors of the economy and targets a broad client base. Such fairs are typically organized to address specific industrial or marketing objectives and are often held annually at fixed venues.
- c) *Simple Fairs*: These fairs focused on product display and promotion rather than immediate sales. Transactions usually involve placing orders for future delivery, and the events tend to be moderately specialized.
- d) *Specialized Trade Fairs (Vertical Fairs)*: Emerging from industrial diversification, these fairs concentrate on specific industries or product categories. They are usually held at regular intervals in the same location and are primarily open to industry professionals. They are also referred to as “industry fairs,” in contrast to consumer fairs, which are open to the general public. Participation may be international, national, regional, or local.
- e) *Semi-Private Exhibitions*: These exhibitions involve a single manufacturer presenting products to a selected few audiences. A common example is the launch of a new automobile model exclusively for dealers or industry stakeholders.
- f) *Trade Marts*: A trade mart is a permanent commercial complex consisting of multiple showrooms designed for the continuous promotion and sale of products and services from one or more industries.
- g) *Conference Fairs*: These consist of relatively small exhibitions that accompany conferences, seminars, or professional meetings, typically showcasing specialized products related to the theme of the event.

## 2.2 Space Adaptability in Architectural Design

Space adaptability is a fundamental consideration in contemporary architectural design, as buildings are expected to respond effectively to any changing functional, social, and environmental demands. Mabadeje et al. (2022) argued that buildings should be conceived with the capacity to adjust or be modified in response to evolving conditions. Since change is an inherent aspect of the built environment, architectural design must incorporate elements that enable transformation over time. Acharya (2013) emphasizes that although a building may be designed for a specific purpose, it should possess the flexibility to accommodate multiple uses throughout its lifespan. On their part, Schneider and Till (2007) describe adaptability as the condition that allows users to modify and personalize spaces within defined limits to suit their preferences. In architectural discourse, adaptability extends beyond the provision of shelter or the simple definition of space; it reflects the capacity of architecture to support long-term usability and relevance. Mabadeje et al. (2022) further outlined several strategic approaches through which adaptability can be achieved in building design, as follows:

- 1) **Durability:** the selection of materials, construction systems, and assemblies that minimize maintenance, repairs, and replacement, thereby extending the building's lifespan and supporting adaptability.
- 2) **Convertibility:** the ability of a building to accommodate changes in functions without major structural alteration.
- 3) **Flexibility:** the provision for minor modifications in spatial arrangement to support varying activities.
- 4) **Expandability:** the capacity to increase or reduce building space in response to changing needs.
- 5) **Design for disassembly:** designing components and assemblies so that they can be easily dismantled, reused, or recycled thereby promoting sustainability and long-term adaptability.

## 2.3 Approaches to Improve Space Adaptability and Functionalities

The pursuit of sustainable economic development and social inclusion has encouraged the continuous use of fairgrounds and event facilities beyond their primary functions. Year-round utilization through off-season programs such as community gatherings, civic events, religious activities, political gatherings, hobby exhibitions, and traveling shows could enhance its revenue generation and social value. Till and Schneider (2005) identify two dominant approaches to achieving adaptability in architectural design: with one focusing on spatial planning and functional organization, while the other relies on technological interventions. In some design strategies, adaptability is achieved primarily through advanced building technologies rather than spatial configuration. A multi-functional space is characterized by its ability to support multiple activities without rigid zoning, thereby allowing diverse uses to co-exist within the same environment. Such spaces may evolve organically or be intentionally designed to accommodate various functions over different periods of the day or year, and their inherent flexibility allows them to be continuously exploited over time. Ryan (2009) categorizes building layout spaces into five thematic groups: cultural spaces, 24-hour spaces, recreational or "fun" spaces, associated spaces, and healthy spaces. Furthermore, he highlights the importance of integrating both interior and exterior multi-functional areas to accommodate diverse users and activities. As cities continuously evolve, the functions and programs of buildings must also adapt. To remain relevant, buildings should be capable of hosting varied activities throughout their lifespan. Consequently, architectural design must prioritize versatility, ensuring that buildings can fulfill multiple purposes simultaneously and respond effectively to temporal changes.

## 2.4 Case studies: Multi-functionalities of trade fair centres

This study reviewed multi-functionalities of trade fair centres across the globe. The case studies trade fair centres are four internationals: Melaka International Trade Centre (MITC), Malaysia; Shanghai New International Expo Center (SNIEC), China; Cairo International Convention Centre (CICC), Egypt and Codissia Trade Fair Complex, India were considered. While two local case studies: Kaduna international Trade and investment Centre, KITIC, Kaduna State and Lagos International Trade Fair Complex, LITFC, Lagos State all situated in Nigeria are reviewed for their multi-functionalities as summarized in Table 1.

**Table 1:** A review of trade fair complexes across the globe

Location	Name/ Spatial Size	Functional facilities
Nigeria	Kaduna International Trade and Investment Centre	Information Bureau; Courier Services; Police Post/Security Services; Car hire and Car Park; Fire Prevention Post; Custom and Excise Post; Reception podiums for special day activities; Postal Services; Business Centres; Medical/Health Centre; Permanent Shopping Arcade; Toilets; Festival Ground; warehouses, Exhibition halls; Water facilities; Conference Centre; Catering Services; Technical Services; Electricity power house
Nigeria	Lagos International Trade Fair Complex <ul style="list-style-type: none"> <li>• It has a landed area of 3.22 Acre which comprises Parcel A and B.</li> <li>• It has the largest trade exhibition arena in Nigeria</li> </ul>	12 exhibition Halls, of an average of 1,050m <sup>2</sup> each; An office/administration complex with Banking halls, auditorium; Reception halls; A Motel Complex with 100 chalets; A luxurious park restaurant with artificial lake; A mini stadium; A warehouse complex; Standard lawn tennis courts and football pitches; Staff quarters complex with airstrip; Open Land spaces for further development. <b>Others:</b> 5,570 seating capacity; 821, 872m <sup>2</sup> open space for hire.
Malaysia	Melaka International Trade Centre <ul style="list-style-type: none"> <li>• It has 3.1 acre of land</li> </ul>	Exhibition Hall, Grand Ballroom, Auditorium, Board Room, VIP Room, Business Centre, Surau, Dining Hall, Hotels and Apartments, Bus Terminals and Taxicab service and Sports Complex amongst others etc.
China	Shanghai New International Expo Center. <ul style="list-style-type: none"> <li>• It has an estimated area of 300,000m<sup>2</sup>.</li> </ul>	17 exhibitions halls; 3 entrance halls of flexible space for visitor registration, information kiosks, opening ceremonies, business centers, coffee and tea zones, specialized food and dining events, cloak room, etc; 20 loading bays located between halls with direct drive-in access to the exhibition floors in the exhibition halls. Superior loading capability: 3 tons/m <sup>2</sup> of indoor, 5 tons/m <sup>2</sup> of outdoor and 20 tons/m <sup>2</sup> of outdoor heavy areas; 51 meeting rooms with different sizes and styles for organizing meetings, seminars, conferences, cocktails, etc; Spacious parking for 4730 cars and others; and over 40 Food & Beverages outlets and restaurants
Egypt	Cairo International Convention and Exhibition Centre. <ul style="list-style-type: none"> <li>• It is built over an area of 300,000 sq m and 30,000m<sup>2</sup> of it are given over for conference and exhibition facilities.</li> </ul>	Convention Centre; Cafeteria; Banquet Halls; Exhibition Halls. Other facilities: The Gallery, The commercial center, Open space, Event garden

Location	Name/ Spatial Size	Functional facilities
India	Codissia Intec Technology Center (CODISSIA TRADE FAIR COMPLEX). <ul style="list-style-type: none"> <li>The complex covers a total of ground area of 160,000m<sup>2</sup>.</li> </ul>	Exhibition halls; Open Air Theater; Seminar Halls; Pantry and Restaurant service core; Telephone & Internet Kiosk; 8. Open ground space; Car Park; Power: Generator set to provide alternative electricity; Fire Safety facilities; Water supply for general purposes; An International Standard Food court; Head Rooms; Hall entry for vehicles; Wide Service trenches for power, water supply and drain line, Telephones and compressed air; Heavy duty flooring; Toilet facilities for Gents & Ladies; Exclusive service entry and exit; Ambulance and First Aid Service on request; Large paved area and lovely landscape for visitors to relax; Other Services at request: Courier service though outsourced courier agents. Free shuttle service for visitors from the entrance road to complex on demand.

Source: KADCCIMA (2021), Kodei et al. (2023)

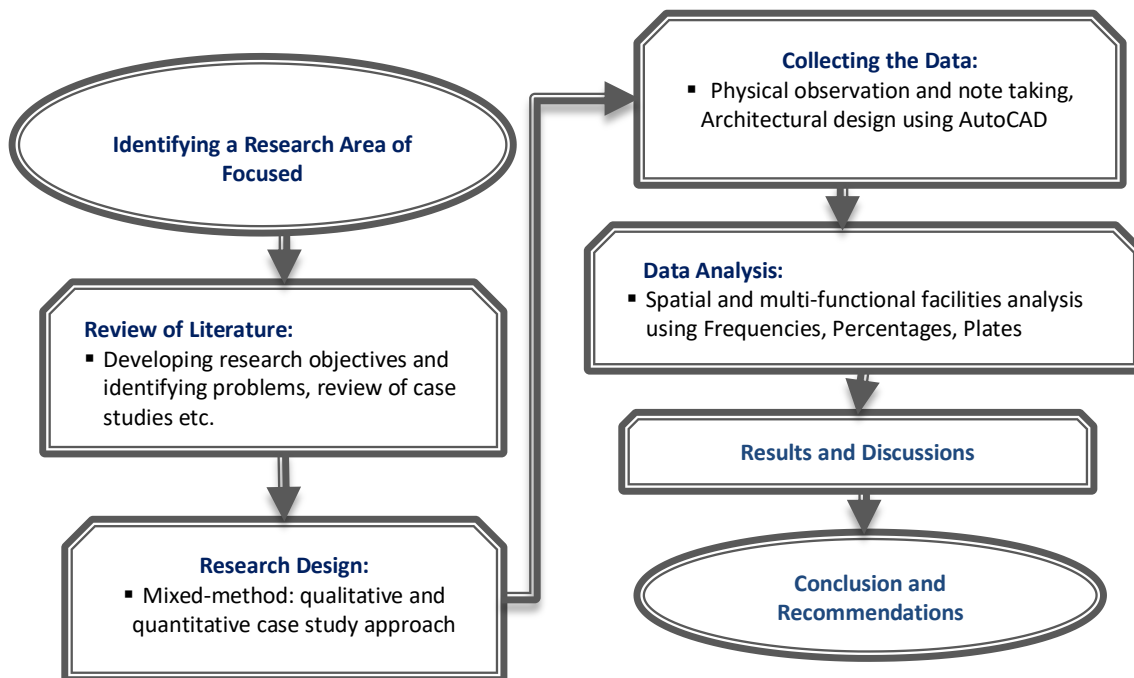
### 3.0 METHODOLOGY

The selection of an appropriate research methodology requires careful consideration of the study's aim, objectives, hypotheses, and research questions (Shehu & Shehu, 2022; Shehu et al., 2023; Shehu & Shehu, 2023a; Shehu, 2024; Kodei, 2024; Saidu et al., 2025). In response, this study proposes a new design and construction of Jalingo international trade fair complex for the State of Taraba in Nigeria by exploring the concept of space adaptability and multi-functionalities in Architectural design. A mixed-method research design approach was adopted, employing reviewing of case studies, structured observation checklist of facilities at the existing state-owned trade complex, and architectural tools including AutoCAD (used for designing or drawings) as the main instruments for data collection. In this research four international and two national case study trade fair centers in Malaysia, China, Egypt, India as well as Lagos and Kaduna state trade fair complex were reviewed for their multi-functionalities as highlighted in Table 1. Qualitative research design, particularly content analysis, is well suited to studies that explore conceptual, spatial, and social dimensions of architecture. This method has been successfully applied in related architectural and environmental studies (Shehu, 2021; Shehu, 2025; Shehu, Zakariyau, Yusuf, Aliyu, Kodei, Saidu & Shehu, 2025). Content analysis involves the systematic examination of documentary sources including books, journals, technical reports, interviews, and observational records to identify recurring themes and patterns relevant to the research focus (Shehu, 2021; Umar et al., 2025). It is also regarded as a highly replicable method for tracking trends over a period of time and analyzing the underlying meanings of documented materials (Shehu, 2025). In addition to document analysis, qualitative research commonly employs observational techniques, interviews, and case studies (Kodei, 2024; Mohammed et al., 2025; Umar et al., 2025; Shehu et al., 2025a). Data for this study were obtained through inference-based case studies and a structured observational checklist. The checklist was developed using an "Availability and Adequacy" rating system to generate data aligned with research objective one i.e., a physical observation of availability and the level of adequacy of facilities at the existing state-owned Jalingo Trade Fair Complex. Jalingo, the capital of Taraba State, is located within the Guinea Savannah zone of northeastern Nigeria, lying approximately between latitude 8°54' North and longitude 11°21' East. It is bordered by Lau Local Government Area to the north, Yorro Local Government Area to the east, and Ardo Kola Local Government Area to the south and west, all in Taraba State. Figure 1 illustrates the location of Jalingo town and the proposed International Trade Fair Complex within Taraba State. The proposed design was developed in compliance with the Nigerian Building Code and relevant architectural standards.



**Fig. 1:** Map of Taraba State, showing the location of the study  
 Source: National Population Commission (2010)

The variables or multi-functional facilities considered for the design and construction of the newly improved Jalingo International trade fair complex comprises the following: walkways, ramps, stairways, signage, pavilion, electric power generating house, entrance gate, ticket room, perimeter fence, public conveniences, security area, administrative unit, exhibition buildings, courtyard and fair grounds, service facilities, parking facilities (covered and outdoor), accommodation, eatery service unit, conference halls, gym halls, Archi-build exhibition centre, pavilion for cultural activities and warehouses. Data obtained were analyzed and presented in tables, frequencies, percentages, plates, and in architectural figures respectively. Figure 2 shows the summary of the research methodology adapted for this study.



**Fig. 2:** Research methodology flow chart  
 Adapted: Shehu (2024); Shehu and Shehu (2023b), Shehu et al. (2025b)

## 4.0 RESULTS AND DISCUSSIONS

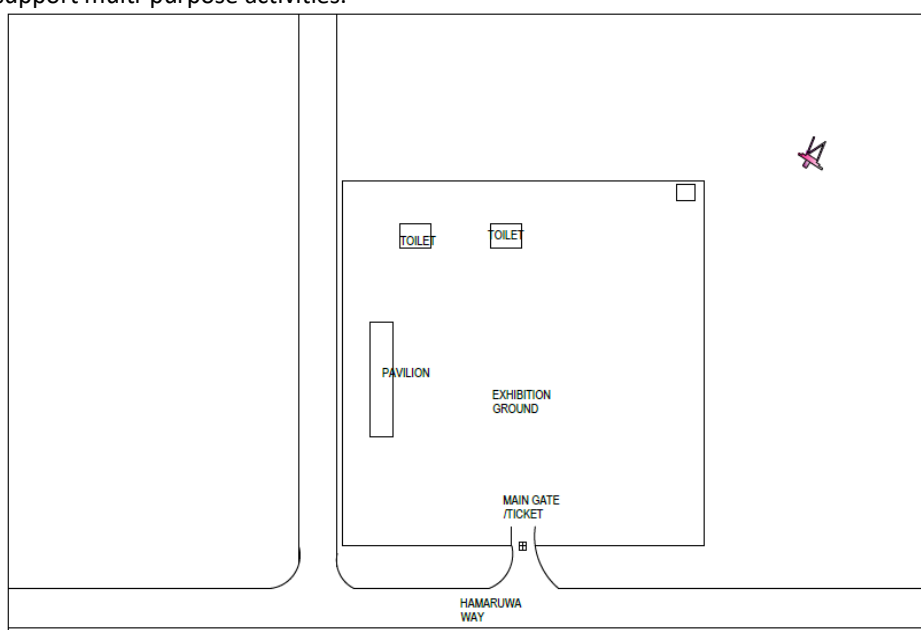
### 4.1 Availability and Adequacy of Facilities at the Existing Jalingo Trade Fair Complex

The assessment of facilities at the existing Jalingo Trade Fair Complex, as presented in Table 2, revealed substantial infrastructural deficiencies that limit its functional performance. Fourteen (14) essential facilities expected in a standard public building were evaluated using a structured observational checklist based on availability and level of adequacy criteria. The findings indicate that 50% of the required facilities were not available, while 50% were available in some form. However, among the available facilities, only 14.29% were adequate (entrance gates and perimeter fencing), whereas 35.71% were inadequate in terms of size, quality, and functionality. Critical deficiencies include the absence of ramps, walkways, landscaping, parking lots, water supply systems, lighting infrastructure, and a functional powerhouse. The only pavilion (6 m × 20 m), with a seating capacity of approximately 250, is insufficient for large-scale exhibitions and public gatherings. Public conveniences are limited to three toilets serving the entire complex. The fairground remains unpaved and prone to erosion during the rainy season.

**Table 2:** Availability and Adequacy of Facilities at Existing Jalingo Trade Fair

S/N	Facilities/items	Availability		Adequacy	
		Available	Not Available	Adequate	Not-adequate
1	Pavilion	✓			×
2	Seating arrangement		×		
3	Public conveniences	✓			×
4	Ramps		×		
5	Walkways		×		
6	Perimeter fencing	✓		✓	
7	Power house		×		
8	Security room	✓			×
9	Ticketing room	✓			×
10	Fair ground	✓			×
11	Entrance gate	✓		✓	
12	Landscaping/parking space		×		
13	Lighting system		×		
14	Water facility system		×		
Total = 14		7 (50%)	7 (50%)	2 (14.29%)	5 (35.71%)

Figure 3 depicts the floor plan of the existing Jalingo Trade Fair complex, visually highlighting the non-existence and inadequacy of essential structural facilities as presented in Table 2, as well as the lack of multi-functional facilities to support multi-purpose activities.



**Fig. 3:** Floor Plan of the Existing Jalingo Trade Fair Complex

Meanwhile, Plates I-V depict the present state of facilities available at the existing Jalingo Trade Fair Complex. Except for the perimeter fencing and entrance gate, basically all other essential facilities are not available, while the few available ones, including pavilion, toilets, security and ticketing rooms, and fairgrounds, are inadequate.



**Plate I:** The Existing Security House/Ticket Room and Entrance Gate at JTFC  
Source: Authors Field Survey (2025)



**Plate II:** The only Pavilion at the present Jalingo Trade fair complex (JTFC)  
Source: Authors Field Survey (2025)



**Plate III:** Jalingo trade fair complex depicting temporary shanties  
Source: Authors Field Survey (2025)

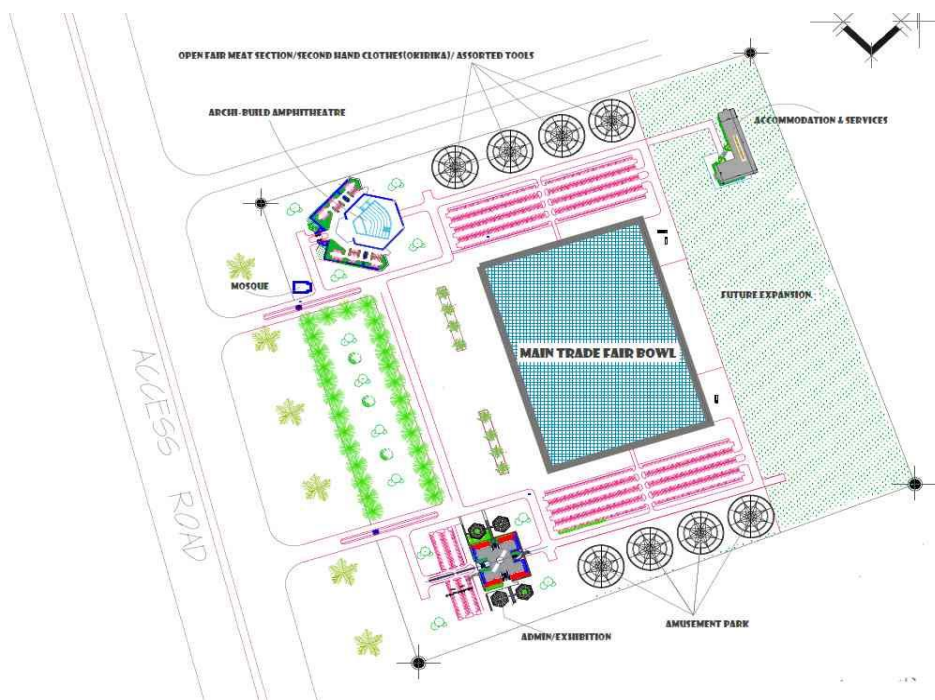


**Plate IV:** The Existing Public Toilets at the Present Jalingo Trade fair complex  
 Source: Authors Field Survey (2025)



**Plate V:** Current state of fair ground and perimeter fencing at Jalingo trade fair complex  
 Source: Authors Field Survey (2025)

#### 4.2 Proposed Design and Spatial Configuration of the New International Trade Fair Complex



**Fig. 4:** Site layout plan for the proposed Jalingo International Trade Fair Complex

Figure 4 shows the proposed site layout plan for the proposed Jalingo International Trade Fair complex. The design revealed that it has both open space and built-up functional facilities. The total plot area is 940,000m<sup>2</sup> equivalent to 94.00 hectares. The built-up area covers 115,638.20m<sup>2</sup>, representing 12.30% of the site, while 87.70% remains open for circulation, landscaping, and future expansion.

#### 4.3 Proposed Construction Site for the International Trade Fair Complex

The site layout plan for the existing state-owned Jalingo trade fair complex is presented in Figure 5. Meanwhile, in this research, four sites were proposed for the construction of the new multi-functional Jalingo International Trade Fair Complex, as thus:

- The first proposed site: the present Jalingo Trade fair complex located opposite legislative quarters along Hammanruwa way, Jalingo. The site is made up of single large commercial plots that make up its roughly rectangular form with a total area of about 761,000m<sup>2</sup>. The site has a northeast - southwest orientation. The trade fair complex is accessible with good roads, some are dual carriageway with drainage, sidewalk ways, and verges. Almost all the roads surrounding the area are in good condition. All the other roads leading to Jalingo trade fair complex are also in good condition and well-constructed with streetlights. Developments and construction work carried out on the site include an exhibition pavilion, a security house, a gate house/ticketing room, a perimeter fence, shanties, public toilets, and space for a cultural show.
- The second proposed site is 1,750,030m<sup>2</sup> situated along Kona Road in Gulum, about 6km on the outskirts of Jalingo city.
- The third proposed site with a dimension of 1,902,500m<sup>2</sup> is situated at mile 6 Bye-Pass about 13km away from Jalingo town.
- The fourth site with a dimension 3,805,000m<sup>2</sup> is situated at Lakaviri kilometer 20 along Yorro road.

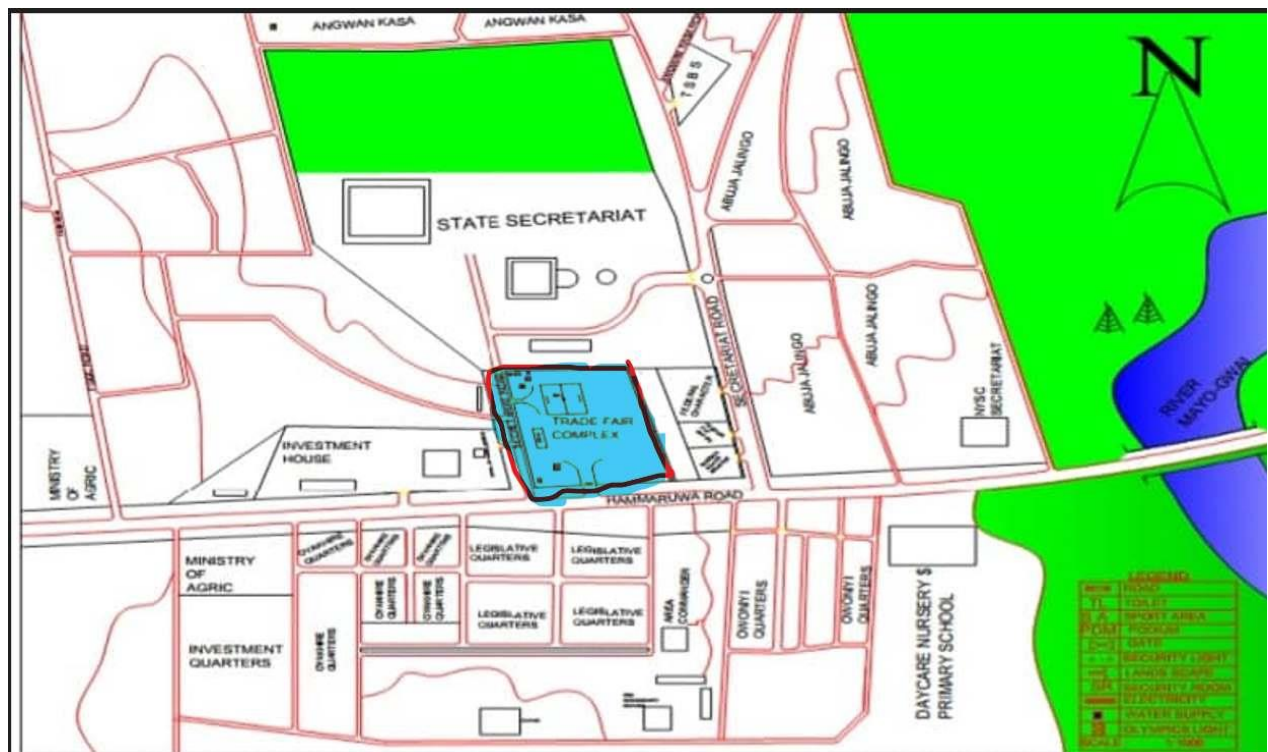


Fig. 5: Site Layout plan of the existing Jalingo Trade Fair complex

#### 4.4 Functional Flow of Facilities

Figure 6 reveals that all facilities are interconnected through internal access roads and pedestrian walkways to enhance mobility, accessibility, and crowd management. Each facility is well equipped with public conveniences. The total built-up areas occupied 115,638.21m<sup>2</sup>. The spatial hierarchy reflects functional prioritization, with emphasis on high-demand areas such as exhibition and parking facilities.

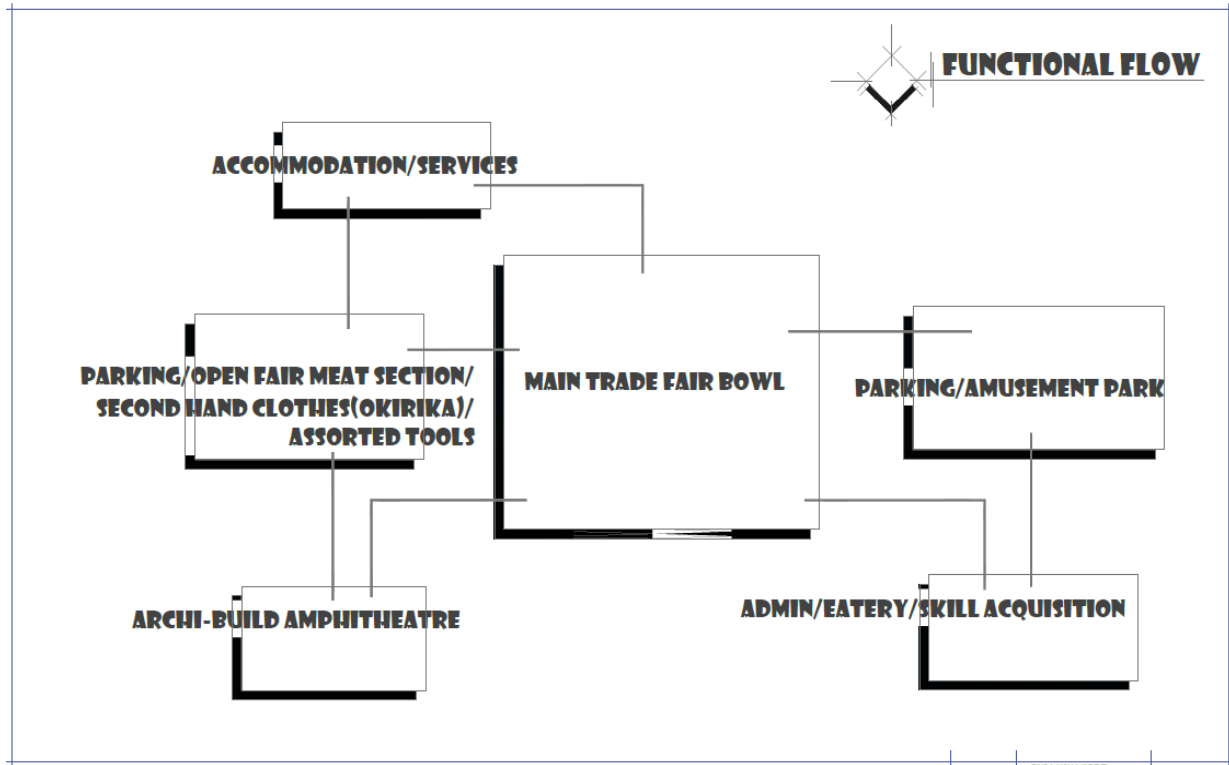


Fig. 6: Functional flow relationship of facilities

Table 3 presents the results for functional facilities and spatial allocation for the proposed Jalingo International Trade Fair Complex. Findings revealed that the design integrates 18 key functional components comprising 47 usable facilities. Major spatial allocations include: Parking facilities: 44,400m<sup>2</sup> (38.39%); Exhibition halls: 40,950m<sup>2</sup> (35.40%); Open fairground: 14,250m<sup>2</sup> (12.32%). Other facilities include administrative units, service areas, accommodation blocks, conference halls, a gym hall, cultural pavilions, Archi-build exhibition centres, warehouses, youth skill acquisition centres, mini-event halls, an internet café, and an eatery unit. Meanwhile, the eatery service unit, internet cafe, and information desk areas occupied the least spatial allocation with 39m<sup>2</sup>, 40.56m<sup>2</sup>, and 59.40m<sup>2</sup> respectively.

Table 3: Functional facilities and space analysis

S/N	Facilities	Frequency	Area (m <sup>2</sup> )	Space (%)
a)	Administrative Unit	1	795.15	0.69
b)	Exhibition Area	18	40950.00	35.41
c)	Service Facilities	4	1840.37	1.59
d)	Accommodation	5	2664.50	2.30
e)	Reception/Security Area	2	510.00	0.44
f)	Information Desk	1	59.40	0.05
g)	Tech/Maintenance Division	1	118.32	0.10
h)	Conference Hall	2	272.50	0.24
i)	Gym Hall	1	293.88	0.25

S/N	Facilities	Frequency	Area (m <sup>2</sup> )	Space (%)
j)	Archi-build Exhibition Centre	2	6203.70	5.36
k)	Warehouses	1	746.70	0.65
l)	Pavilion (Cultural Activities)	2	1458.00	1.26
m)	Eatery Service Unit	1	39.00	0.03
n)	Open Fair Ground	1	14250.00	12.32
o)	Mini-Event Hall	1	293.88	0.25
p)	Internet-Café	1	40.56	0.04
q)	Youth Skill Acquisition	1	702.25	0.61
r)	Parking Facilities	2	44400.00	38.40
<b>Total</b>		47	115,638.21	100.00

## 5.0 DISCUSSIONS

This study highlights a clear relationship between infrastructural adequacy and facility utilization. The existing state-owned trade fair complex lacks essential components required for operational efficiency and adaptability as highlighted in Table 2, Fig. 3 and Plates I-V which directly contributes to its low usage rate. The absence of multi-functional design strategies has resulted in a rigid spatial configuration that cannot accommodate diverse activities beyond seasonal trade events. The findings revealed that the state of facilities at the present Jalingo Trade Fair Complex are not in line with both the Nigerian building code, international building code and Architectural design standards in terms of types, minimum sizes and other requirements of a building and support facilities expected at a private, public and social buildings such as: convention centres, trade and exhibition centres among others (National Building Code [NBC], 2006; Shehu et al., 2020; Federal Housing Authority, 2021; Shehu & Shehu, 2022).

Consequently, the proposed design addresses these shortcomings through the integration of adaptability and multi-functional principles as shown in Table 1 reviewed of six case studies trade fair complex. Flexibility is achieved through large-span exhibition halls and open fairgrounds capable of accommodating exhibitions, conferences, cultural festivals, and recreational events. Convertibility is incorporated through multi-purpose halls that can serve varying functions without major structural alteration. Expandability is ensured by maintaining a low site coverage ratio, allowing phased development in response to future demands. The total plot area and the built-up area is higher than most similar studies, for instance Oguejiofor (2011).

Basically, the dominance of parking and exhibition spaces in the spatial allocation is strategically justified. Trade fair complexes typically experience high visitor volumes; therefore, adequate parking and expansive exhibition halls are essential for operational functionality and revenue generation. Smaller allocations for eatery and internet services reflect their supportive role within the broader facility framework. Meanwhile, the inclusion of youth skill acquisition centres, cultural pavilions, conference facilities, and accommodation units in the design transforms the complex into a year-round socio-economic hub rather than a seasonal event facility. This diversification enhances the long-term viability of the project and aligns with sustainable infrastructure models that emphasize continuous utilization.

### 5.1 Implication of the Findings

The practical implication of the findings of the study are outline as follows:

- *Architectural Implications:* The study underscores the necessity of integrating adaptability and multi-functionality at the conceptual design stage. Public infrastructure should be conceived as a dynamic system capable of responding to changing functional requirements. The proposed model provides a replicable framework for similar trade fair developments in Nigeria and other developing regions.
- *Economic Implications:* The proposed complex has substantial revenue-generating potential through exhibition rentals, conference hosting, parking fees, accommodation services, and year-round programming. By supporting diverse activities beyond periodic trade fairs, the facility can significantly enhance Taraba State's internally generated revenue. Additionally, the project is expected to generate direct employment during construction and operation, as well as indirect employment in hospitality,

transport, retail, and service sectors. The multiplier effect of such infrastructure can stimulate regional economic growth and reduce dependency on federal government allocations which is a norm by most states of the federation of Nigeria.

- *Urban and Regional Development Implications:* The development of a multi-functional international trade fair complex can stimulate urban expansion, attracts private investment, improve surrounding infrastructure, and increase land values. It positions Jalingo as a strategic commercial and cultural hub within North-Eastern Nigeria, thereby enhancing regional competitiveness.
- *Social and Sustainability Implications:* The inclusion of cultural pavilions promotes heritage preservation and tourism development. Youth skill acquisition facilities support entrepreneurship and workforce development. The low built-up ratio enhances environmental sustainability by preserving open space for landscaping, stormwater management, and for future expansion.
- Overall, multi-functionality could also optimize land use efficiency by reducing the need for separate single-purpose facilities, thereby promoting resource conservation and long-term sustainability.

## 6.0 CONCLUSION

This study presents the architectural design proposal for a new Jalingo International Trade Fair Complex in state of Taraba in Nigeria, based on the principle of multi-functional space utilization. Prior to this study, the existing state-owned trade fair complex exhibited significant deficiencies in infrastructure and functional facilities, limiting its capacity to support diverse activities and year-round use unlike the six case studies trade fair centres reviewed across the globe. The proposed design addresses these shortcomings by introducing a flexible and adaptable spatial framework capable of supporting multiple functions within a single integrated complex.

The proposed Jalingo International Trade Fair Complex incorporates eighteen key functional components, with a total of forty-seven usable facilities including: the administrative unit, exhibition spaces, service facilities, accommodation units, reception and security areas, information desks, technical and maintenance divisions, conference halls, gymnasium, architectural and building exhibition centre, warehouses, cultural activity pavilions, food service areas, open fairgrounds, mini event halls, internet cafés, youth skill acquisition centres, and comprehensive parking facilities. Among these, the facilities occupying the largest land areas are the parking spaces (44,400m<sup>2</sup>), exhibition halls (40,950m<sup>2</sup>), and open fairgrounds (14,250m<sup>2</sup>), while the eatery service unit, internet cafe, and information desk areas occupied the smallest spatial allocation at 39m<sup>2</sup>, 40.56m<sup>2</sup>, and 59.40m<sup>2</sup> respectively.

This research reinforces the argument that architectural design could significantly influence economic performance. Space adaptability emerges as a critical determinant of infrastructural sustainability, particularly in public facilities intended to serve evolving community needs.

It is therefore recommended that the implementation of this proposed developmental project, either through direct government funding or via public-private partnership arrangements, would significantly enhance economic activity within the state. The project has the potential to generate substantial direct and indirect employment opportunities, capable of promoting continuous utilization of the facility, and strengthening Taraba State's internally generated revenue base. Ultimately, the realization of this multi-functional international trade fair complex would contribute to sustainable architectural development and long-term socio-economic growth in the North-Eastern region of Nigeria.

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