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Designing Power: Cross-Cultural Principles for Sacred Spaces Applied to Modern Royal Palace Design in Fondonera, Cameroon

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Abstract: How can architectural spaces of authority- historically linked to domination, exclusion, or oppression- be reimagined to foster collective well-being without compromising their intrinsic sacredness? The study addresses this critical question through the design of a royal palace in Fondonera, Cameroon- a project born from the community's urgent need to reconnect with its cultural heritage amid the erosion of traditional architectural practices. Through comparative and thematic analysis of the Greek Acropolis and Bamileke chiefdoms (Bandjoun, Batoufam), the research identifies three universal dimensions of power architecture: geometry (spatial organization and proportional systems), symbolism (cultural and spiritual meaning), and magnificence (material expression and monumental scale). These principles shaped a design that integrates neuro-architectural strategies- promoting movement, social interactions, optimized lighting, and sensory engagement through natural materials- with sustainable measures such as rainwater harvesting, passive ventilation, solar energy, and the use of local resources. The resulting framework proposes a replicable approach to designing culturally rooted and environmentally responsible institutional spaces in post-colonial contexts.

Keywords: *Spaces of Authority, Neuro-Architecture, Sacred Spaces, Greek Architecture, Bamileke Architecture, Fondonera.*

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I. INTRODUCTION

The intersection of architecture and human well-being has gained significant attention within contemporary sustainable development discourse, particularly as outlined in the UN's 2030 Agenda for building resilient communities [1]. However, traditional spaces of power present a unique paradox: while historically serving as instruments of social control and exclusion [2], they remain central to cultural identity and community cohesion, particularly in Sub-saharan African contexts. In Cameroon's Bamiléké region, traditional power spaces face challenges preserving cultural authenticity amid rapid modernization [3]. While threatening environments can activate stress responses and diminish well-being [4], these spaces serve important roles in cultural transmission. This raises a compelling question: how can traditional authority spaces promote community well-being and sustainable development while maintaining their sacred significance? This study addresses this challenge through a royal palace design for Fondonera, Cameroon, integrating cross-cultural architectural principles with neuro-architecture strategies. The article begins with a site analysis, followed by comparative methodology examining Greek and Bamiléké architectural traditions. Subsequently, the design conception process is outlined, incorporating neuro-architectural strategies and sustainable implementation approaches. Finally, the study evaluates project impacts and broader implications for culturally-responsive architecture.

II. METHODOLOGY

Figure 1 illustrates the comprehensive methodological framework, highlighting the iterative nature of the research process and the integration of multiple data sources to ensure both scientific rigor and cultural authenticity.

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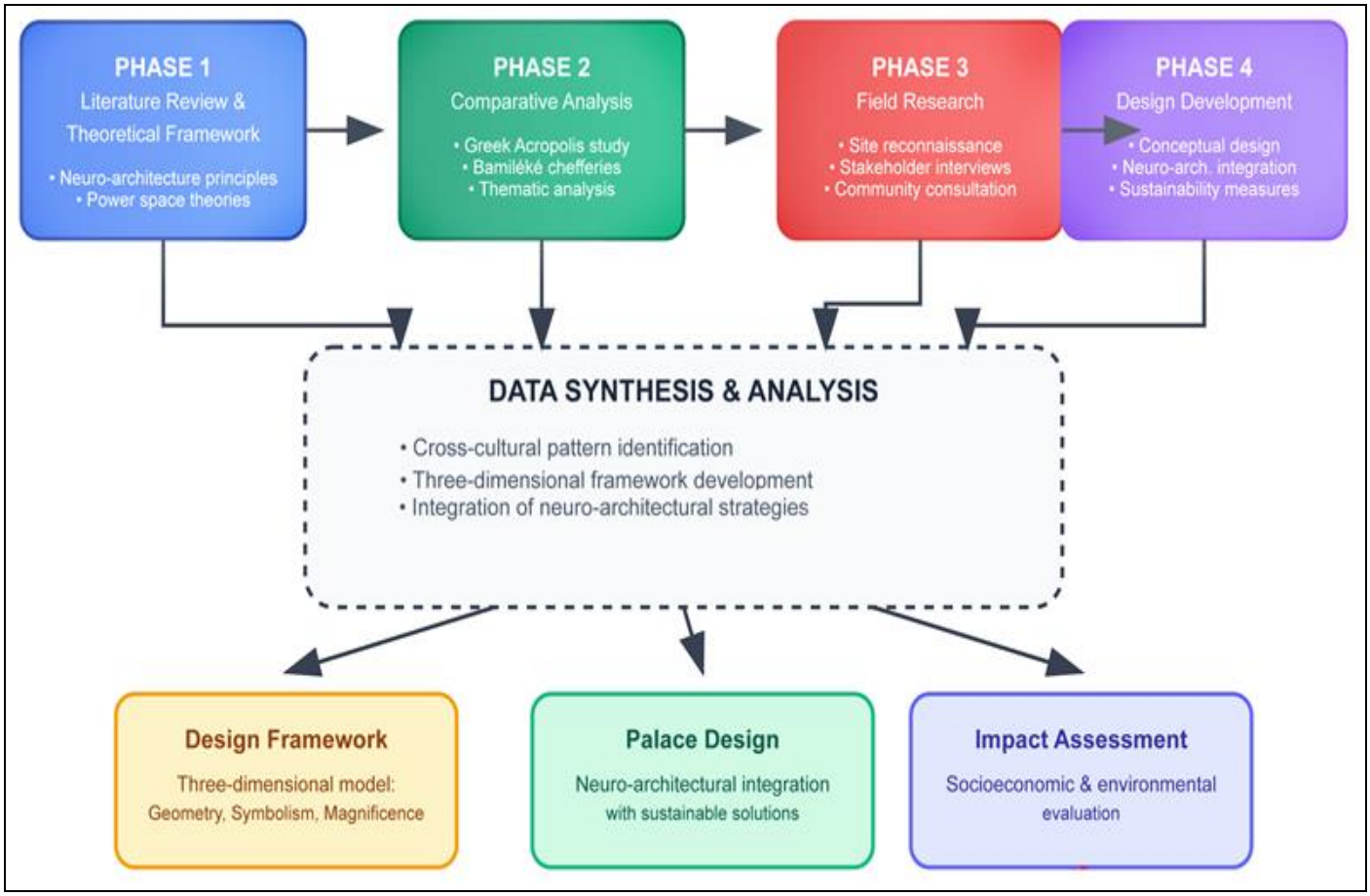

Fig 1 Structure of the Study

III. THEORETICAL FRAMEWORK: POWER, CULTURE AND NEURO-ARCHITECTURE

This phase establishes the conceptual foundation by examining the intersection between power spaces and neuro-architectural principles. Architecture of power extends beyond merely housing authority; it constructs, legitimizes, and inscribes power within space with symbolic force that transcends centuries.

➢ *Power and Places of Power*

Power manifests as both a capacity for action and a dynamic relationship between social actors. Weber (1922) defines it as the probability that an actor within a social relationship can impose their will despite potential resistance [5]. Places of power represent physical spaces where authority is embodied, materialized, and exercised in various forms [6]. These spaces function as instruments of domination and social control while simultaneously serving as supports for collective identity.

Power spaces can be categorized into traditional (chieftaincies, royal palaces), political (presidential palaces, parliaments), religious (cathedrals, temples), economic (corporate headquarters), military (defense facilities), and media centers. This study focuses specifically on traditional and political power spaces due to their relevance to the Fondonera royal palace project, which embodies both traditional authority rooted in local customs and contemporary political dimensions.

➢ *Neuro-Architecture Principles*

Malato (2020) establishes a methodological framework for applying neuroscientific knowledge to architectural design [7]. Five fundamental principles guide this approach:

- Movement Approach: Encouraging circulation through dynamic spatial design prevents cognitive degeneration and promotes mental well-being. Spatial configurations should amplify distances through strategic connections while blurring architectural boundaries through landscape integration
- Spatial Approach: Corner treatment and spatial configuration significantly influence well-being and cognition. Protected corners provide security while maintaining connections to the exterior environment.
- Object Approach: Furniture and objects function as memory anchors, connecting individuals to their past, experiences, and identity. These elements serve as extensions of identity and tools for spatial reconfiguration
- Material Approach: Beyond visual appeal, materials engage all senses through color, texture, temperature, aging, acoustic resonance, and fragrance. Natural materials—wood, stone, earth, ceramics—have been shown to have beneficial effects on cognition, recovery, and overall well-being.
- Intangible Approach: Immaterial elements including light, sound, and humidity significantly influence well-being. Natural light exposure synchronizes biological clocks, regulates melatonin production, and optimizes circadian

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rhythms. Optimal humidity levels (30-60% relative humidity) maintain favorable health conditions.

IV. COMPARATIVE ANALYSIS

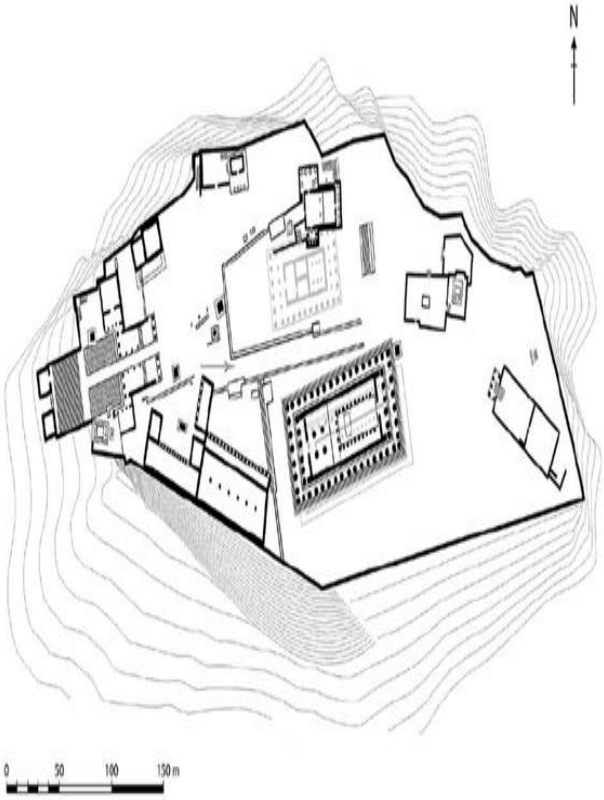
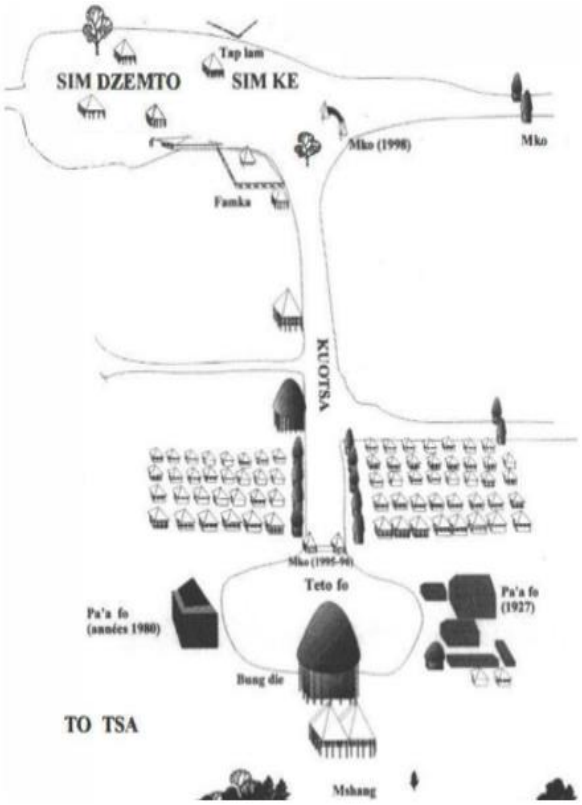
This phase conducts a systematic comparative analysis between two distinct architectural traditions that share a common concern: materializing political and spiritual authority. The relevance of this comparison lies in examining how different cultures, despite evolving in separate environments, develop approaches to expressing power through built form.

The study corpus focuses on the most representative edifices of each tradition: the Acropolis of Athens for ancient Greece, and the chieftaincies of Bandjoun and Batoufam for the Bamiléké tradition:

- The Acropolis of Athens represents the pinnacle of classical Greek architectural achievement, constructed under Pericles' leadership in the 5th century BCE. This monumental ensemble remains one of the most influential architectural complexes in Western history, embodying the democratic ideals and religious devotion of ancient Athens through its sophisticated integration of sacred and civic functions atop a strategic elevated site.

- The Bamiléké Chefferies of Bandjoun and Batoufam constitute traditional power centers in Cameroon's West Region, serving as both residential compounds for traditional rulers and ceremonial spaces for community governance. These architectural complexes embody centuries-old Bamiléké cosmological principles through their spatial organization, symbolic decorations, and integration with the natural landscape.

Table 1 Comparative Analysis: Acropolis of Athens and Bamileke Chiefdoms

Criteria	Acropolis of Athens	*Bamileke Places of Power*
Period	5th Century BCE	From the 15th Century
Geographical Position	Rocky plateau dominating the city, 153 meters altitude	High plateaus in the west, altitude between 1200 and 1500 meters
Surface Area	3 hectares	7 to 10 hectares
Climate	Mediterranean climate: 17–48 °C, >400 mm/year	Tropical climate: 18–28 °C, >1400 mm/year
Function	Political, religious	Political, residential, and religious
Spatial Organization	 Athenian Acropolis (drawing by L. Bosworth).	 Bandjoun chiefdom (Malaquais, 2002, p48.)
Key Spaces	Propylaea, Parthenon, Erechtheion, Temple of Athena Nike, Sanctuaries and Minor Temples, Statues and Sacred Spots	Royal Palace, Sacred Huts, Public Square, Women's Quarters, Forest or Sacred Vegetation
Spatial Hierarchy	Very pronounced, with restricted access to certain areas (temples) depending on religious and social status	Pronounced, reflecting each person's status in society (chief, notables, common people)

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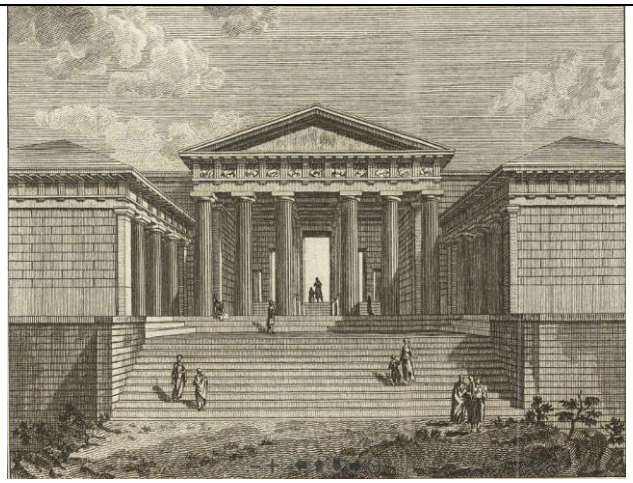
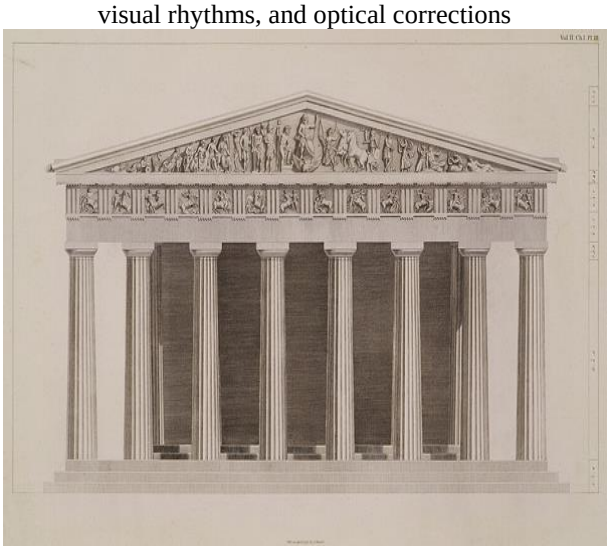
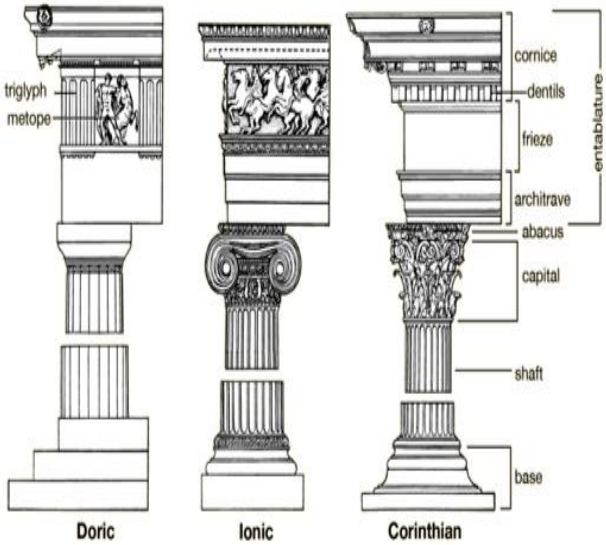
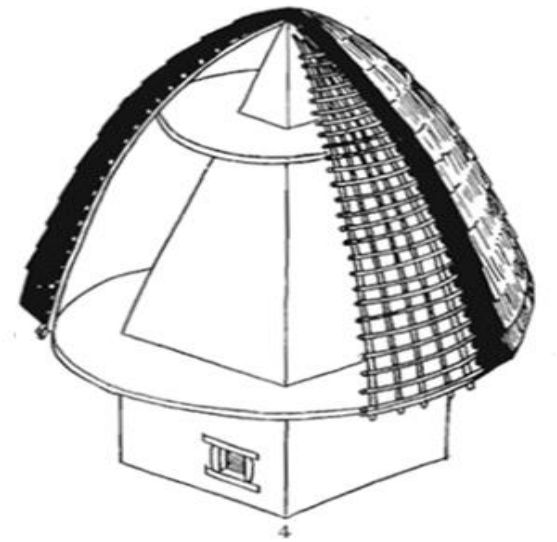
Entrance	 Propylaea (Barbie du Bocage,1791)	 Foto chiefdom (Lontsie, 2021)
Geometry	Symmetry, harmonious proportions, spatial hierarchy, visual rhythms, and optical corrections  Elevation of the Parthenon (James, 1794)	Symmetry, hierarchy, and rhythm  Bandjoun royal palace (Mouenthias, 2015)
Scale	15 – 20 meters	20 – 25 meters
Construction Materials	Pentelic marble, noble and durable local material	Local natural materials: earth, wood, straw, bamboo
Construction Techniques	Mastery of architectural orders (Doric, Ionic, Corinthian), use of columns, lintels, pediments, architraves, showing great sophistication  Architectural orders (Encyclopædia Britannica, 2025)	Complex bamboo roof frame, thatched roofs, woven bamboo walls decorated with geometric motifs, structural wooden columns  Construction technique (Malaquais, 2017)

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Structural Elements	Doric and Ionic columns, entablature, pediment	Carved wooden columns, imposing roof
Statues / Sculptures	Abundant monumental statues (e.g., Athena statue 11.5 m tall), some integrated into the architecture	Small statues and masks, some integrated into the architecture
Decorative Motifs	Sculpted friezes (metopes, triglyphs)	Painted geometric motifs
Nature and Vegetation	Vegetation is limited due to rocky terrain, but a sacred olive tree, a major spiritual symbol, is present on site	Nature and certain plants (sacred forests, peace trees) hold strong spiritual significance and are integrated into sacred spaces
Historical Evolution	The site has endured over 2000 years, largely due to the durability of materials used	Buildings evolve adapting to the limitations of materials, which deteriorate over time and face pressures from modernism

➢ *Discussion and Interpretation*

This comparative analysis highlights numerous convergences despite divergences that are reflected in their distinct cultural, geographical, and temporal contexts. Both occupy strategically dominant geographic positions and fulfill political and religious functions with a pronounced spatial hierarchy. Their architectures are characterized by monumentality, rigorous geometry, and mastery of construction techniques. They utilize locally available materials and attribute a sacred dimension to nature. In summary, these two architectural systems universally embody the expression of power through space while adapting to the specificities of their natural environments and the demands of their respective eras.

V. UNIVERSAL PRINCIPLES OF POWER ARCHITECTURE

Cross-civilizational thematic analysis of traditional power spaces reveals remarkable architectural constants that transcend cultural and temporal contexts. This transversal study of emblematic monuments, from African royal palaces to European royal residences, identifies three fundamental structuring principles that universally characterize architectural expressions of power, as shown in figure 2.

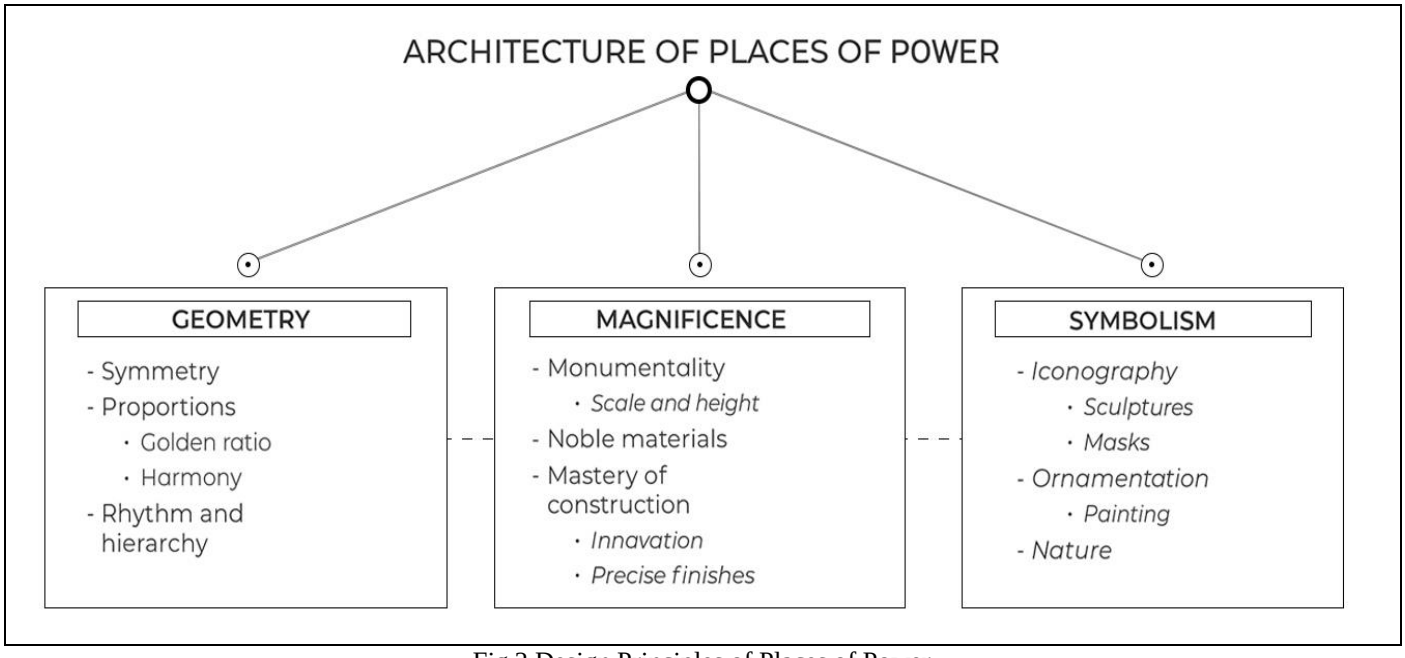

Fig 2 Design Principles of Places of Power

➢ *Geometry*

Geometry serves as the foundational language of power architecture, structured around three key components reflecting control and mastery over the built environment:

- Symmetry, a near-universal principle, manifests in balanced facades and rigorously ordered plans, visually symbolizing order and justice.
- Proportion is characterized by the use of harmonic ratios and symbolic numbers specific to each culture, exemplified by the golden ratio in Greek architecture or the module of 9 in imperial Chinese architecture.
- Rhythm and Spatial Hierarchy organize the progression of spaces according to functional and symbolic gradations, guiding visitors through a ritualized experience from public to private spaces.

➢ *Magnificience*

Architectural magnificence represents the second pillar of power expression, employing material and technical resources to impress and demonstrate wealth:

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- Monumentality is evident in the pursuit of exceptional scale present across civilizations, extending to both exterior and interior spaces.
- Noble Materials are consistently selected, with the use of rare and durable substances signifying the extent of power and its capacity to mobilize exceptional resources.
- Construction Techniques demonstrate remarkable craftsmanship and architectural innovation, with power structures serving as laboratories for advanced techniques such as vaults, domes, sculptures, and engravings.

➢ *Symbolism*

Architectural symbolism deploys an elaborate system of signs and references to legitimize authority and transmit core values:

- Iconography serves as a structured visual language that depicts the power of the sovereign through decorative elements narrating dynastic history, celebrating virtues, and establishing links to mythical or divine figures.
- Ornamentation develops a decorative repertoire drawing on cultural traditions while innovating to create visual codes specific to each context.
- References to Nature constitute a rich dimension of architectural symbolism, integrating and transfiguring elements of the natural world through vegetal motifs and gardens designed as architectural extensions.

VI. SITE ANALYSIS AND STAKEHOLDER ENGAGEMENT

This phase provides comprehensive site reconnaissance and stakeholder consultation to establish the contextual foundation for the royal palace design. The analysis encompasses multiple scales, from regional urban dynamics to specific site characteristics, combined with community engagement to understand local needs and cultural requirements.

A. Regional and Urban Context

Santchou municipality, located 25 kilometers southwest of Dschang in the Menoua department, exhibits a linear urban structure along the main road axis, characteristic of small towns in West Cameroon. The Fondonera groupement is bounded by Fongodeng to the north, Foguetafou village to the south, Fossong-wentcheng to the east, and Fontem to the west, as shown in figure 3. The name "Fondonera" derives from "Ndoung'Alah," meaning "summit of villages," reflecting its elevated topographical position. The traditional chief is called "Fo'o Ndoung'lah," with the current name resulting from phonetic adaptation during colonial period.

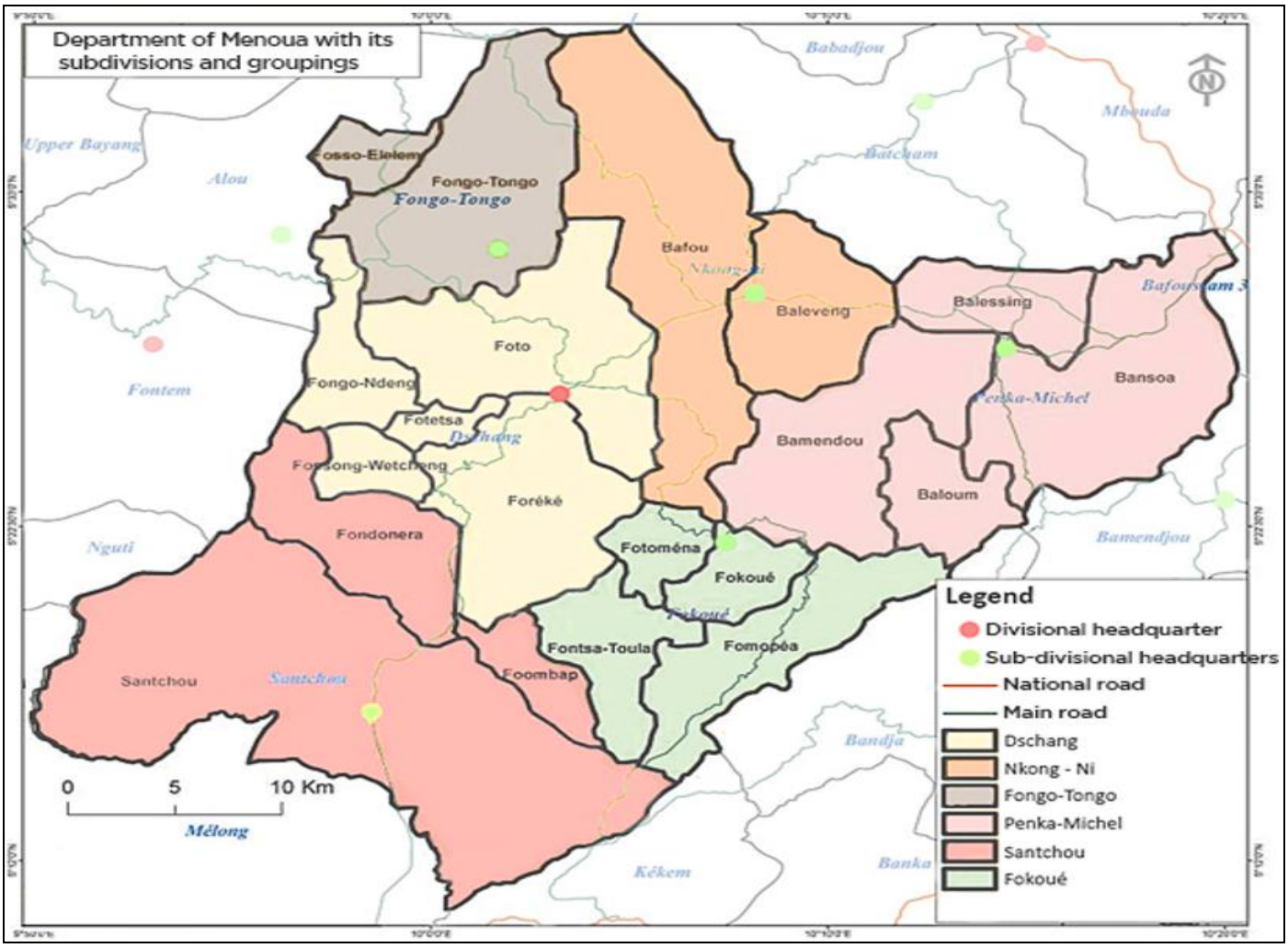

Fig 3 Menoua Department with its Sub-Divisions and Groupings

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B. Geographic and Environmental Characteristics

The region's geomorphology reflects the West Cameroon high plateaus, characterized by rugged topography resulting from Quaternary volcanic activity. Santchou presents an average altitude of 1,400 meters, ranging from 1,200 meters in valleys to over 1,800 meters on ridges. The hydrography is dominated by the Menoua River, which crosses the Santchou plain before joining the Nkam River. Soils result from volcanic rock alteration under humid equatorial climate, producing deep, well-drained ferrallitic red soils on slopes and hydromorphic soils in lowlands, explaining the region's remarkable agricultural aptitude.

➢ *Climatic Conditions*

Santchou experiences an equatorial mountain climate with moderate temperatures (18°C-25°C) and abundant rainfall (4,729mm annually). The climate divides into dry season (November-February) and rainy season (March-October), with maximum precipitation between July-September (see figure 4). Relative humidity remains high (70-90%), particularly during rainy season, with prevailing winds from southwest during rains and northeast during dry season.

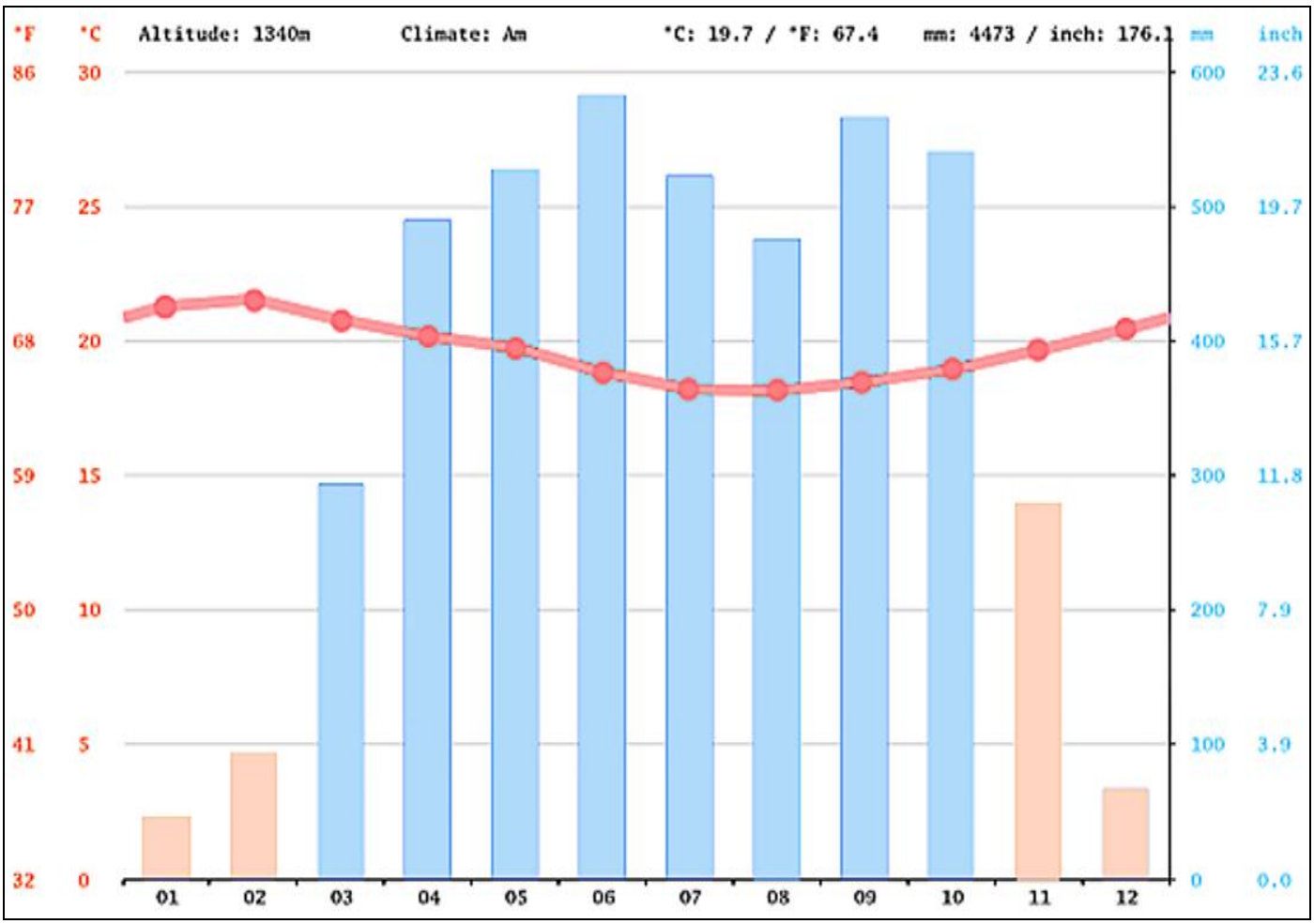

Fig 4 Ombrothermic Diagram of Santchou

➢ *Site-Specific Analysis*

The project site is located within Fondonera chieftaincy at coordinates 5°22'54.74"N and 9°57'38.84"E, covering 10.56 hectares with approximately 2% built surface. Situated 30 kilometers from Dschang (1.5-hour drive). The site presents moderately rugged morphology with altitude varying between 1,532-1,584 meters, featuring maximum elevation difference of 60 meters and average slope of 2.4% declining from main entrance toward chieftaincy interior, as shown in **figure 5**. Soils are predominantly hydromorphic and ferrallitic, typical of humid tropical regions. Vegetation covers approximately 40% of total chieftaincy area, contributing significantly to environmental quality.

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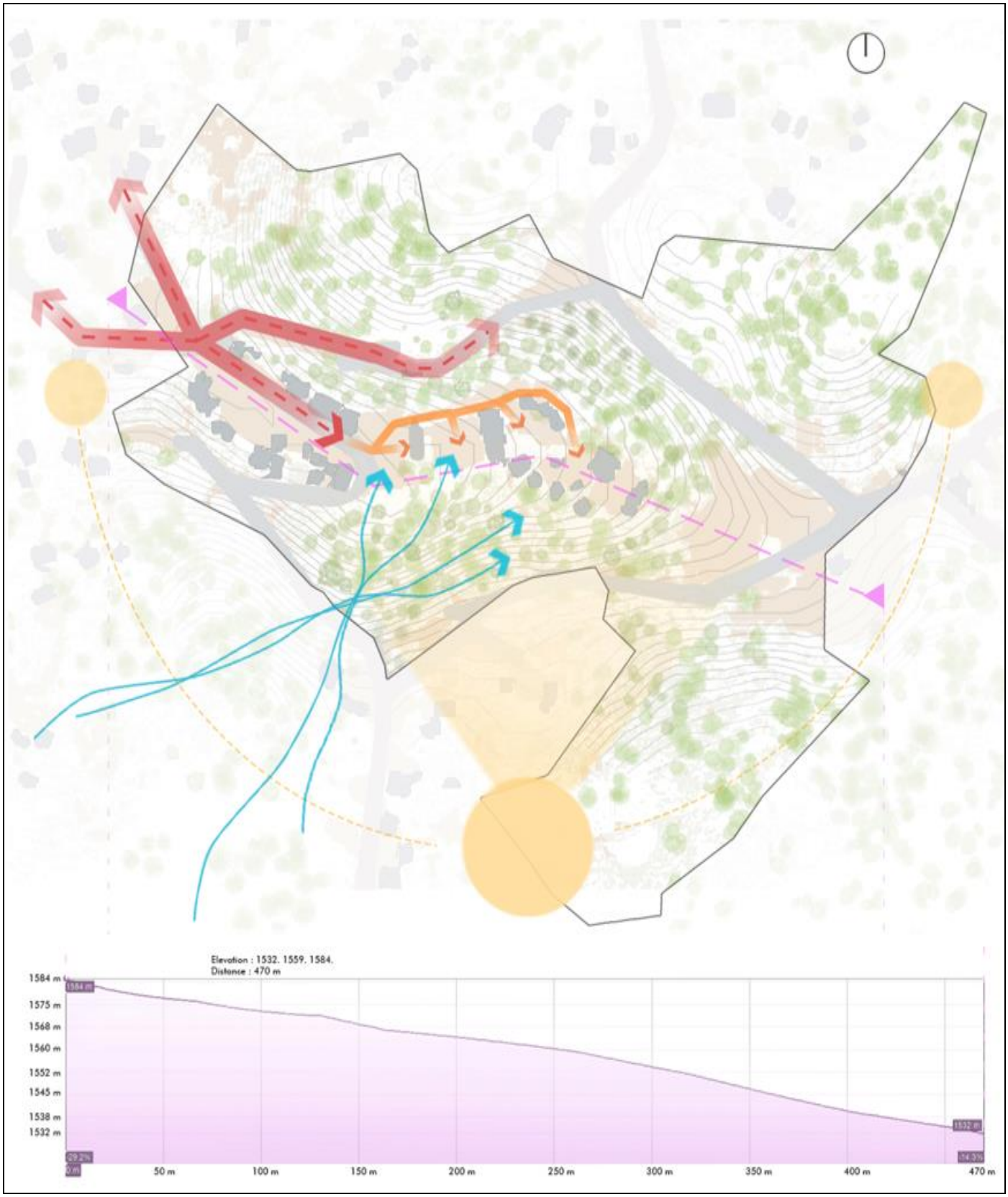

Fig 5 Sun Exposure, Topography, Prevailing Winds, and Accessibility.

C. Existing Conditions of the Fondonera Chieftaincy

Fondonera chieftaincy follows progressive spatial hierarchy reflecting public, semi-public, and private functions. Public spaces include a market with 35 shops, library, agricultural center, and tribune (see figure 6). Semi-public spaces feature a community center, while private areas encompass six women's houses, three chief's private residences, and one sacred house. Sacred forests constitute essential natural and cultural heritage elements within the chieftaincy.

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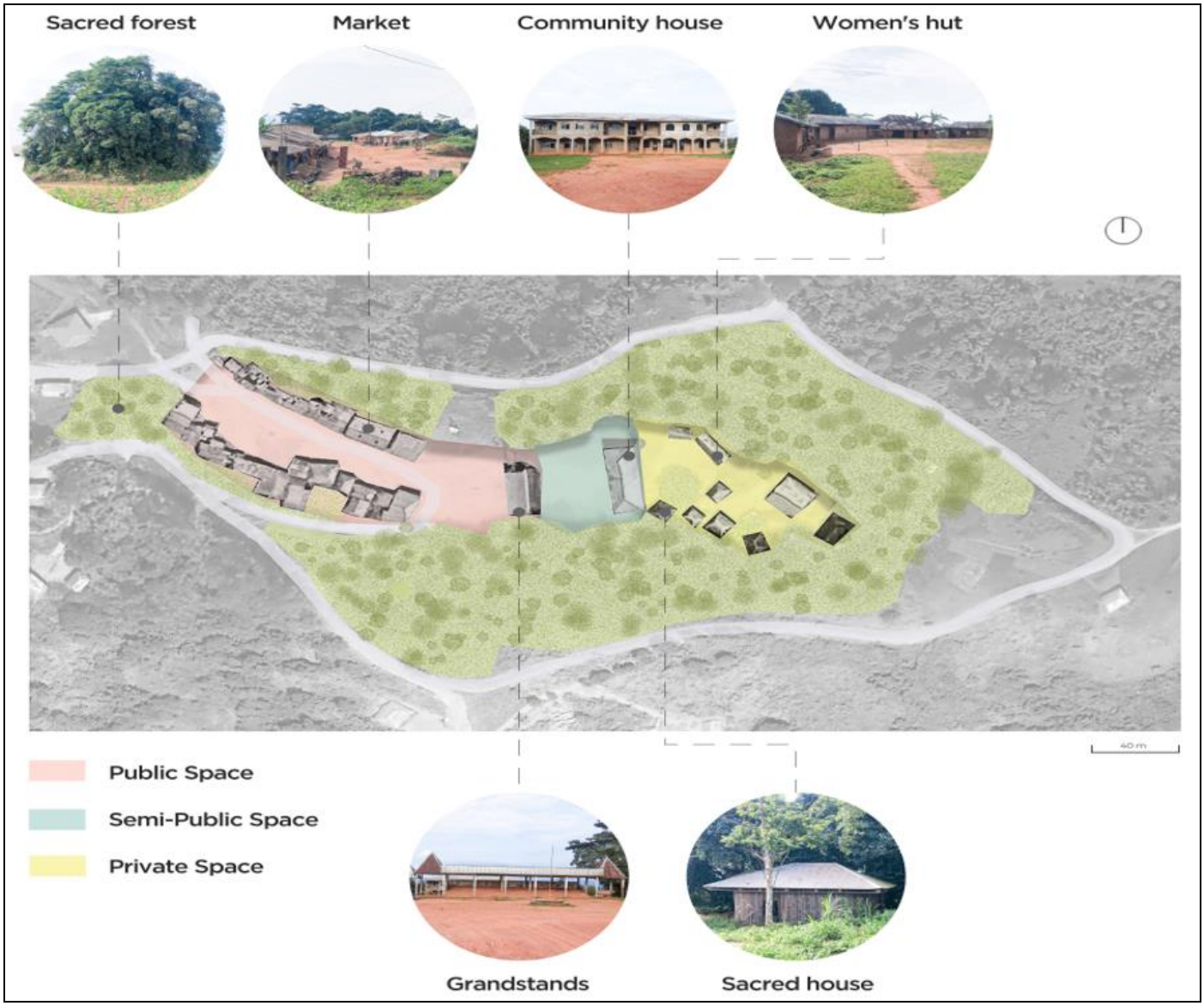

Fig 6 Assessment of the Fondonera Chiefdom

D. Survey and Interview Results

➢ *Needs Identification*

The royal palace architectural program articulates around five main functions identified through community interviews and specific kingdom needs analysis (see figure 7). This participatory approach defined a functional program comprising:

- *Administrative Functions*

Administrative functions encompass all spaces dedicated to governance and kingdom administration. These spaces prioritize concentration, informed decision-making, and facilitation of institutional exchanges. They include areas necessary for current affairs management, delegation reception, and decision-making processes.

- *Residential Functions*

Residential functions constitute the palace's private core, housing royal apartments and the royal family's daily living spaces. These areas favor rest, reflection, and intimacy necessary for serene power exercise. The spaces must balance privacy requirements with accessibility for essential staff and security personnel, creating a harmonious living environment that supports the royal family's well-being.

- *Ceremonial and Ritual Functions*

Ceremonial and ritual functions occupy significant importance in the palace's spatial organization, reflecting tradition's importance in Fondonera culture. These spaces are dimensioned to accommodate major cultural manifestations, royal audiences, and state events.

- *Museum Functions*

To valorize and transmit Fondonera's rich cultural and historical heritage, a palace section will be dedicated to museum functions. These flexible spaces contribute to the palace's preservation, research, and cultural transmission mission, establishing it as a collective memory site that bridges past and present while educating future generations about local heritage.

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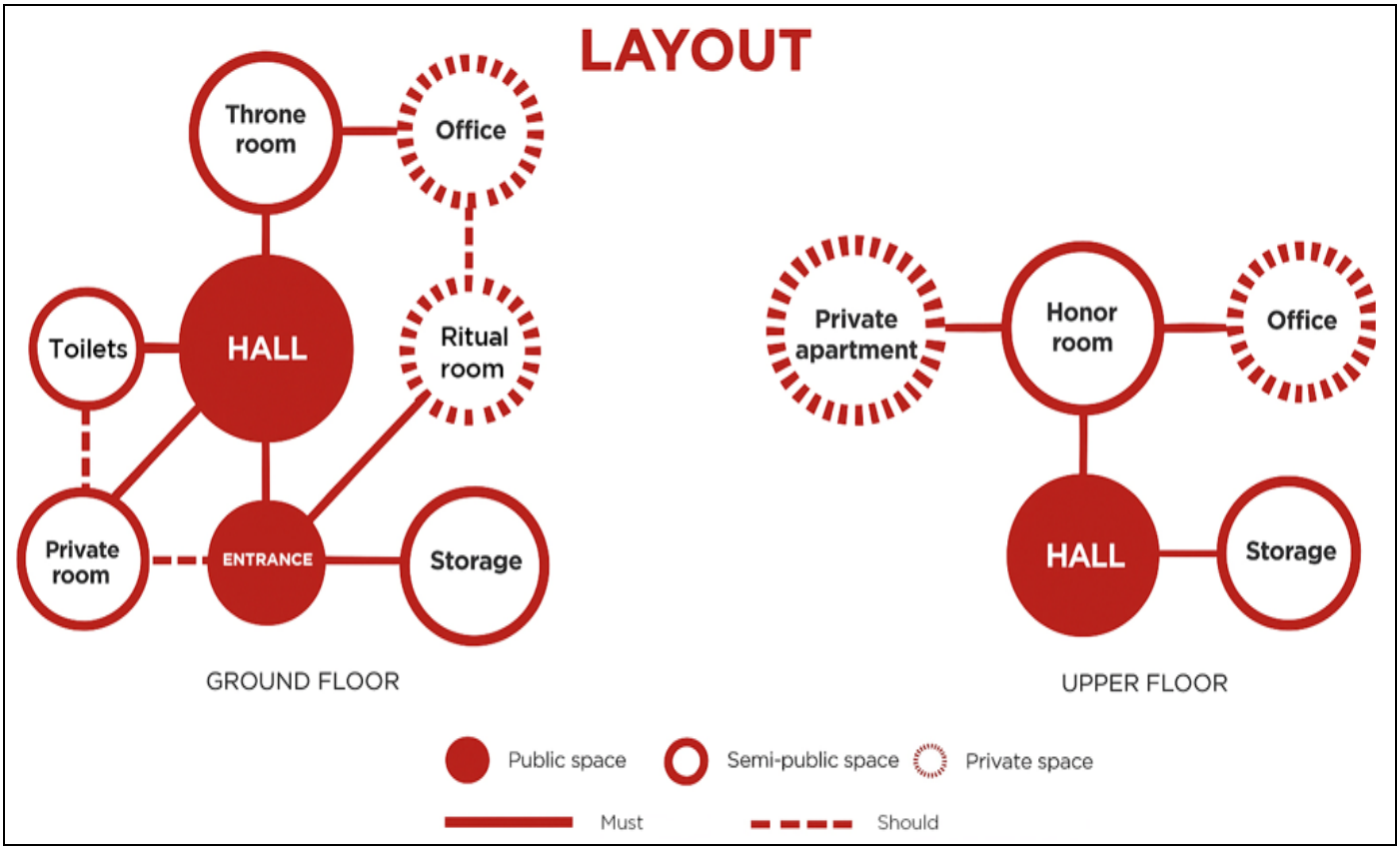

Fig 7 Bubble Diagrams

➢ *Traditional Power Elements*

Traditional Bamileke power symbols center on sacred nature, textiles, and deities. Key animal symbols, particularly the panther and lion, represent strength and royal authority and are integrated into architectural and ceremonial elements. Textiles, especially the Ndop fabric, symbolize royal status through intricate geometric patterns referencing history and beliefs. Sacred forests embody the spiritual dimension of leadership, requiring respectful spatial transitions and natural material integration in design. Additional symbols like totemic poles and carved masks, along with specific architectural forms, further reinforce cosmological principles and must be authentically integrated into contemporary designs while preserving cultural significance.

VII. PROJECT DESIGN DEVELOPMENT

This phase presents the conception of the Fondonera royal palace project, an edifice both anchored in traditions and drawing from contemporary advances in neurosciences.

➢ *Site Organization*

The royal palace site covers 1,500 m² and is organized according to functional gradation: the public area includes a courtyard and relaxation areas accessible to the entire community, the semi-public zone houses the palace itself, while the private space consists of relaxation corners and a sacred house. This spatial hierarchy reflects traditional Bamiléké organizational principles while accommodating contemporary community needs and accessibility requirements.

➢ *Architectural Concept: Duality*

Duality represents a structuring concept in Bamileke culture. This worldview, anchored in this people's cosmogony, recognizes the existence of complementary entities that mutually balance to create universal harmony. It manifests through perpetual coexistence between the living and the dead, humans and divinities, the visible and the invisible.

This concept guides design decisions by balancing opposing yet complementary forces: tradition and modernity, public and private, sacred and secular, interior and exterior (see figure 8). The palace design embodies this duality through spatial organization that honors ancestral wisdom while integrating contemporary functionality, materials that blend local traditions with sustainable technologies, and programming that serves both ceremonial requirements and community needs.

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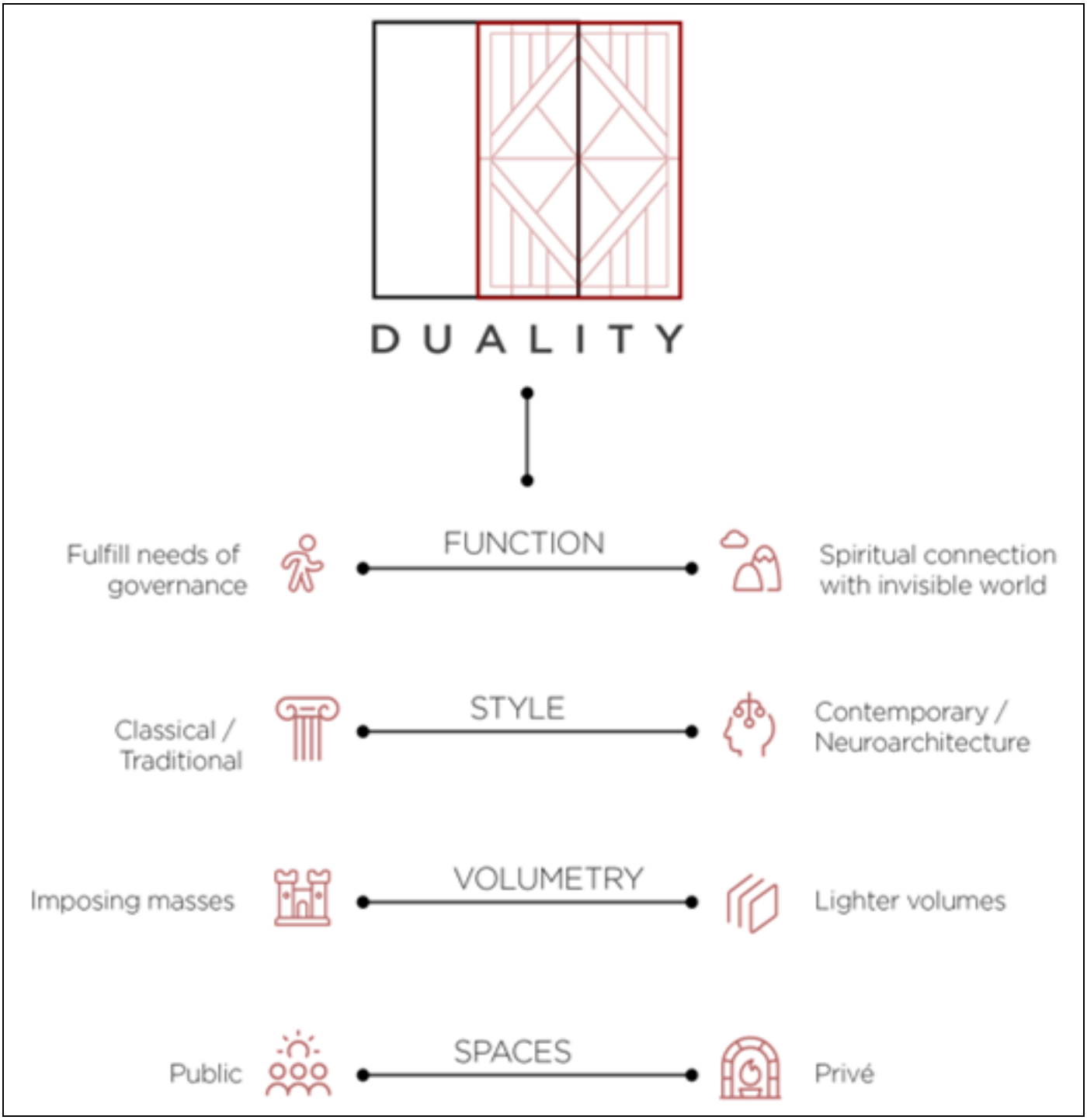

Fig 8 Architectural Concept: Duality

➢ *Neuro-Architectural Design Strategy*

The design of the royal palace incorporates principles of neuro-architecture to create a stimulating, calming, and user-centered environment. These strategies are implemented through five main axes: movement, corner design, furniture selection, material approach, and immaterial approach.

- *Movement*

Recognizing the crucial importance of movement for maintaining cognitive function and overall well-being, the project prioritizes fluid and intuitive circulation through dynamic spatial design. Corridors, conceived as transitional spaces, are transformed into exploratory pathways offering varied perspectives and points of interest, such as wall engravings, which encourage ambulation (Figure 9). The blurring of architectural boundaries is achieved by integrating transitional environments, particularly semi-open spaces like halls, creating visual and physical continuity between the interior and exterior. These transitional zones facilitate natural movement while offering spaces conducive to rest and contemplation.

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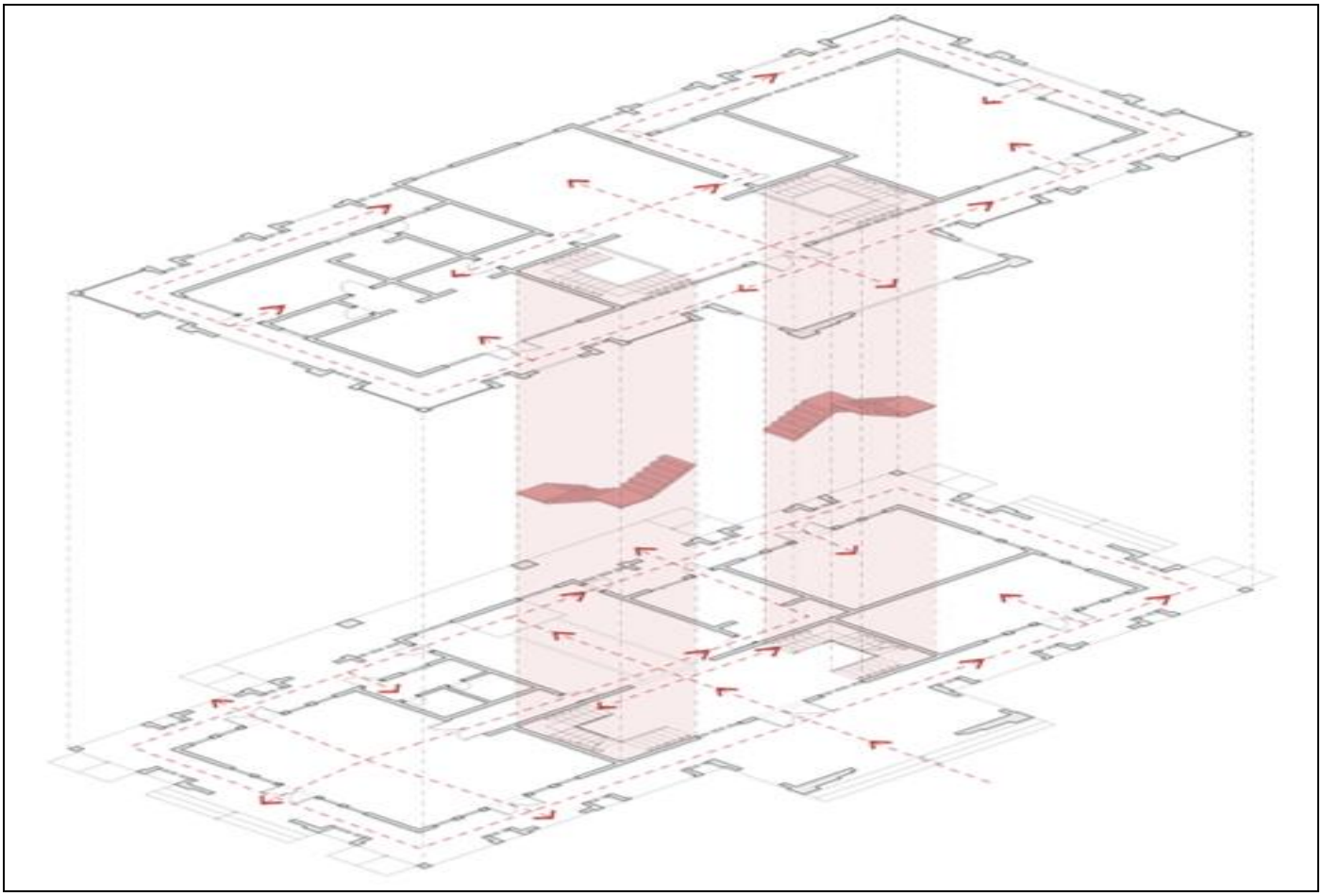

Fig 9 Circulation Diagram

- *Corner Design*

The exterior corners of the royal palace are specifically designed as refuge spaces that promote relaxation and social interaction (Figure 10). These protective zones address the need for security while maintaining a connection with the external environment. The use of organic shapes and curved lines in the design of these spaces reinforces their natural and calming character. Interior corners are treated as breathing spaces that break the monotony of linear circulation.

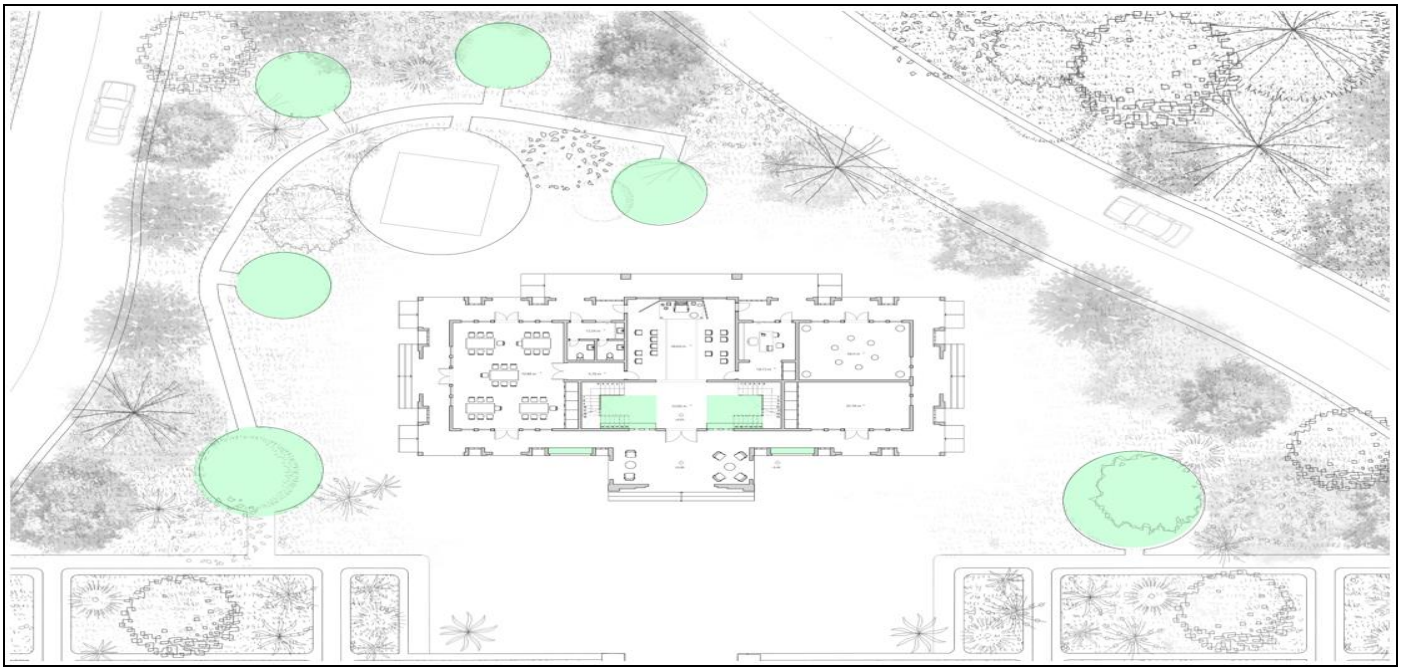

Fig 10 Corners

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- *Furniture*

The furniture of the royal palace functions as an extension of cultural identity, creating a link between users and traditional heritage. Each piece of furniture is selected or designed for its ability to strengthen the sense of belonging. The adopted approach favors the integration of objects from traditional craftsmanship, reinterpreted in a contemporary context.

- *Material Approach*

Local natural materials, such as wood, earth, stone, and bamboo, form the foundation of this approach (see figure 11). This selection not only promotes the well-being of the occupants but also reinforces the architectural identity of the project. The psychology of colors guides the application of materials according to spatial functions. Reception areas prioritize warm and energizing hues, while areas for rest and reflection adopt cool and calming tones.

Fig 11 Material Board

- *Immaterial Approach*

The harmonious integration into a natural environment rich in soothing sound sources, such as birdsong, promotes the establishment of a serene atmosphere. This immersion contributes to an architectural experience where the soundscape plays a role in the perception of space. Indoor air quality is optimized through transverse natural ventilation, ensuring efficient air circulation that maintains an ideal relative humidity level of between 30% and 60%. In addition, the use of brick walls contributes to the thermal regulation of the building. Their thermal capacity allows them to absorb heat during the day and release it slowly, thus ensuring thermal comfort regardless of external climate variations (see figure 12).

Fig 12 Aerial Render of the Palace

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➢ *Sustainable Design Strategies*

This section presents the sustainability principles that shaped our project, from minimizing the building's footprint and optimizing its orientation to integrating passive natural ventilation systems, implementing energy efficiency measures, and managing rainwater.

- *Building Footprint*

To minimize environmental impact, we limited the building footprint to 36%, preserving 64% of the plot for outdoor spaces, creating an optimal balance between construction and nature. This compact approach frees up significant space for outdoor corners, the ceremonial courtyard, and biodiversity zones (forest). This strategy, breaking with historical models of royal palaces with high land occupancy, reflects a modern desire for harmonious integration into the landscape, resource economy, and reduction of construction-related impacts.

- *Orientation and Form*

The building's orientation results from an analysis of local climate data and traditional spatial practices. The main East-West axis follows Bamileke cosmological prescriptions while optimizing solar gain and natural ventilation. This orientation allows for capturing the prevailing Southwest winds during the dry season (**figure 13**). The architectural design of the building incorporates a transition space between the interior and exterior, which limits direct exposure to solar radiation inside. Furthermore, the openings, representing between 20 and 33% of the surface area of each room (compared to the recommended 16%), promote optimal natural light.

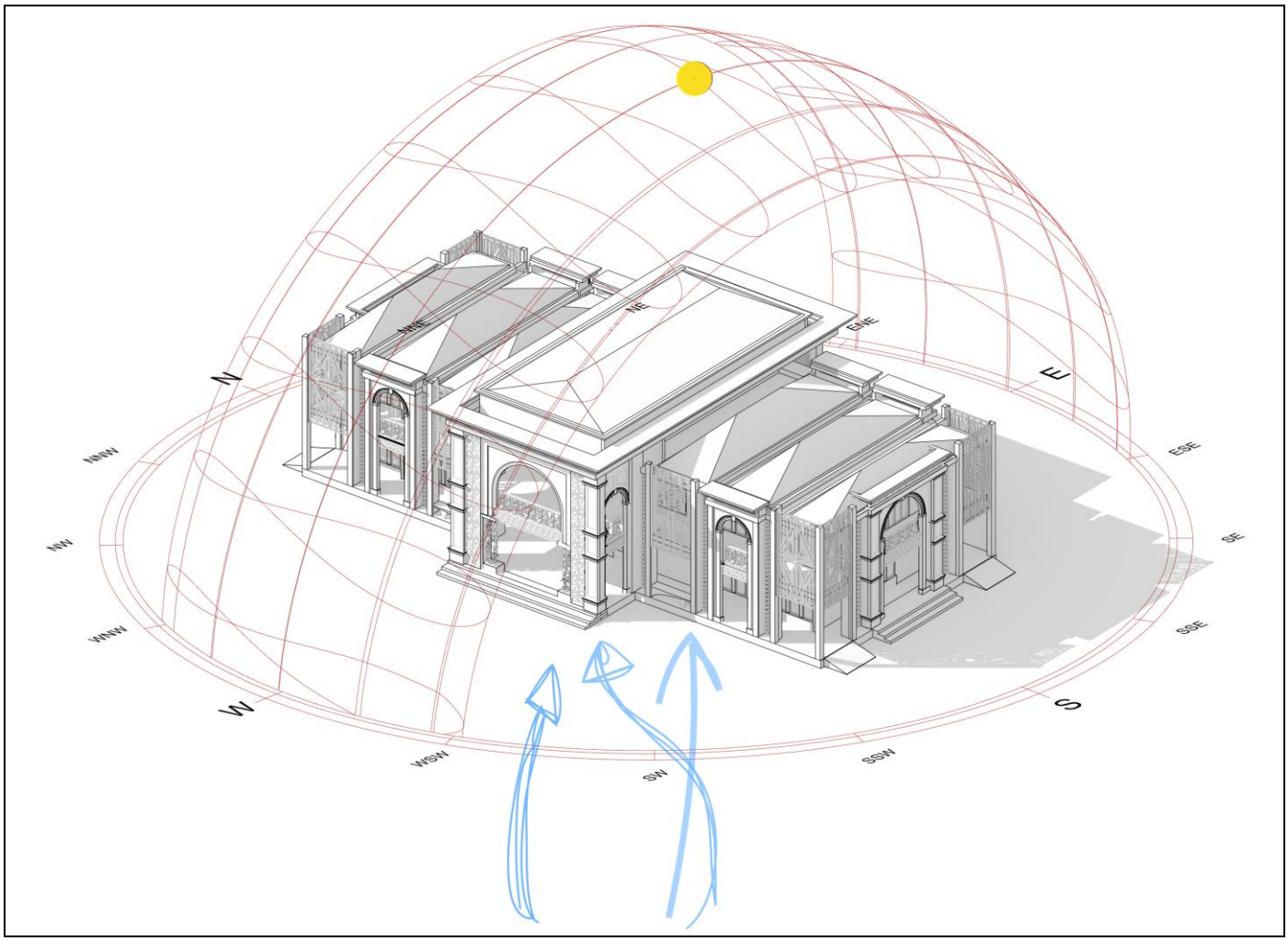

Fig 13 Orientation of the Palace

- *Natural Lighting and Ventilation*

Natural ventilation is ensured by a perforated brick envelope, promoting continuous transverse airflow within the interior spaces. This system is optimized by the presence of perforated bricks in the upper part of the walls, allowing high ventilation and constant air renewal (see figure 14). Simultaneously, the orientation and strategic placement of the East-West openings maximize natural light, thereby minimizing reliance on artificial lighting during the day.

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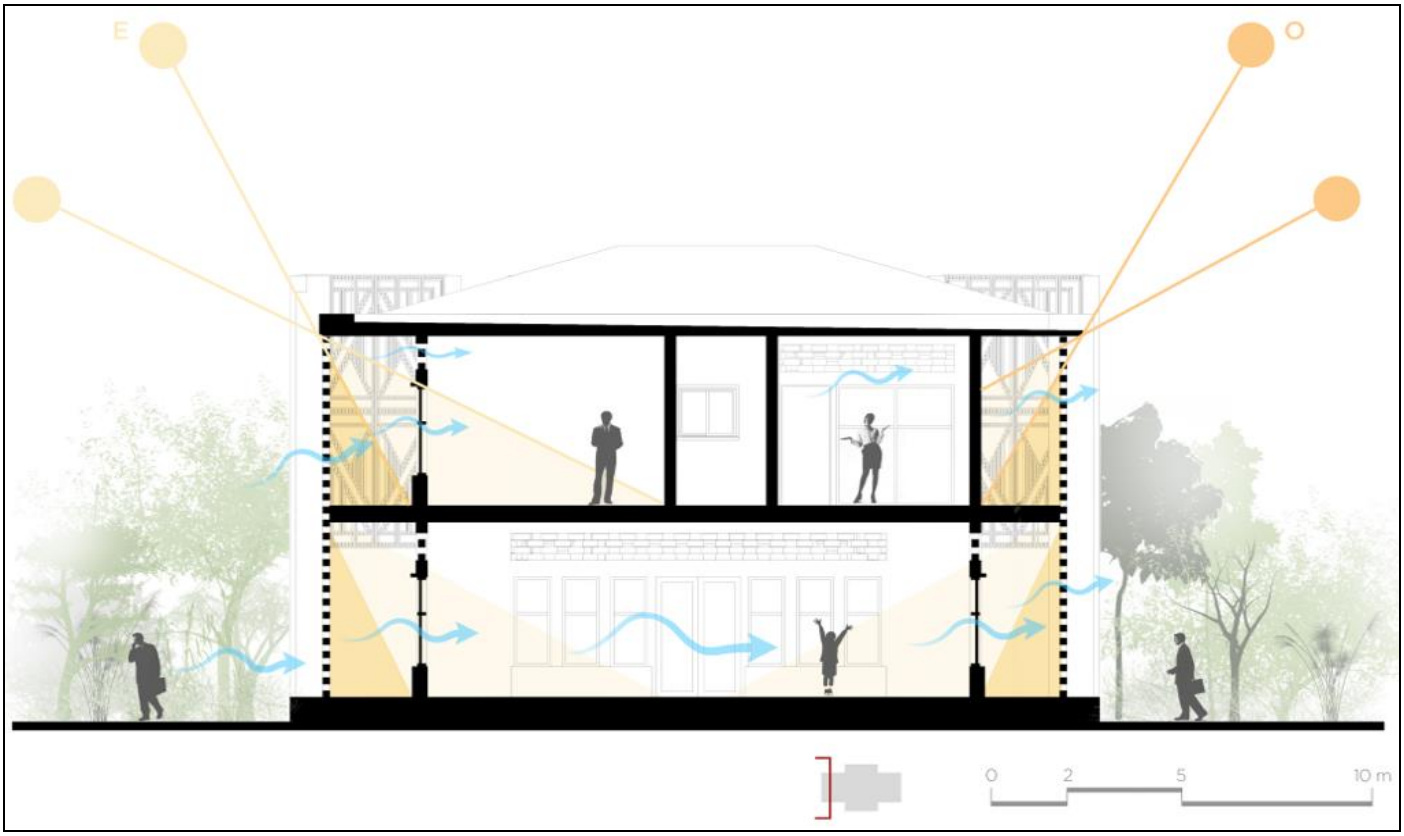

Fig 14 Natural Lighting and Ventilation

- *Rainwater Management*

The palace's rainwater management system includes underground cisterns with a capacity of 8,000 liters (8 m³), designed to store collected rainwater. This water is used for non-potable uses such as toilets, watering green spaces, and cleaning, which significantly reduces reliance on the potable water network. The sizing of this storage system, in accordance with recommendations considering the local rainfall regime, ensures sufficient autonomy in the face of climatic variations while contributing to a sustainable and responsible management of the site's water resources (see figure 15).

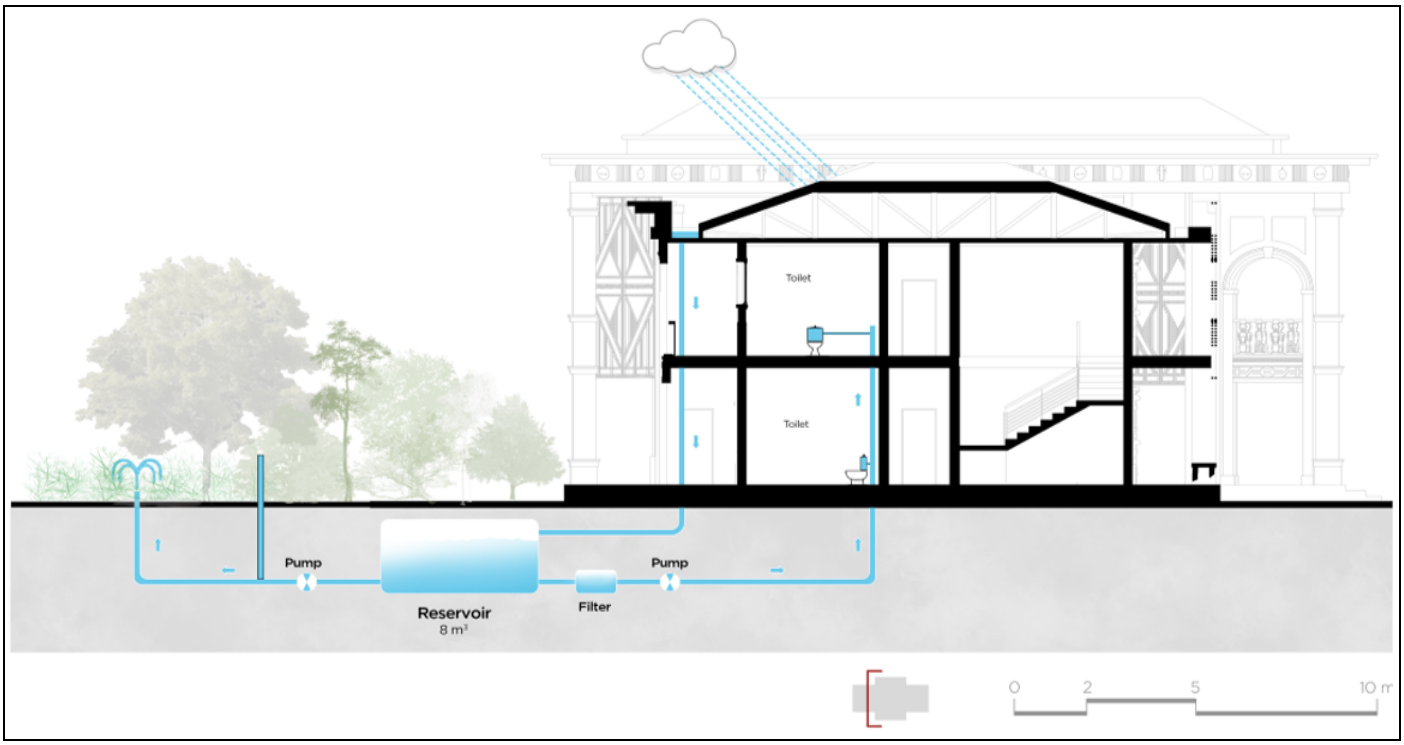

Fig 15 Rainwater Management System

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- *Integration of Energy Measures*

To reconcile renewable energy production with respect for architectural integrity, the photovoltaic system was integrated directly into the building envelope (BIPV: Building Integrated Photovoltaics). This method involves partially replacing traditional roofing elements with photovoltaic modules that simultaneously protect the building and generate electricity. The panels are oriented due south, thus optimizing solar capture and allowing for an estimated annual production of between 20,000 and 30,000 kWh. This energy capacity gives the building an autonomy of at least 6 months, significantly reducing its dependence on external networks and contributing to the overall sustainability of the project (see figure 16).

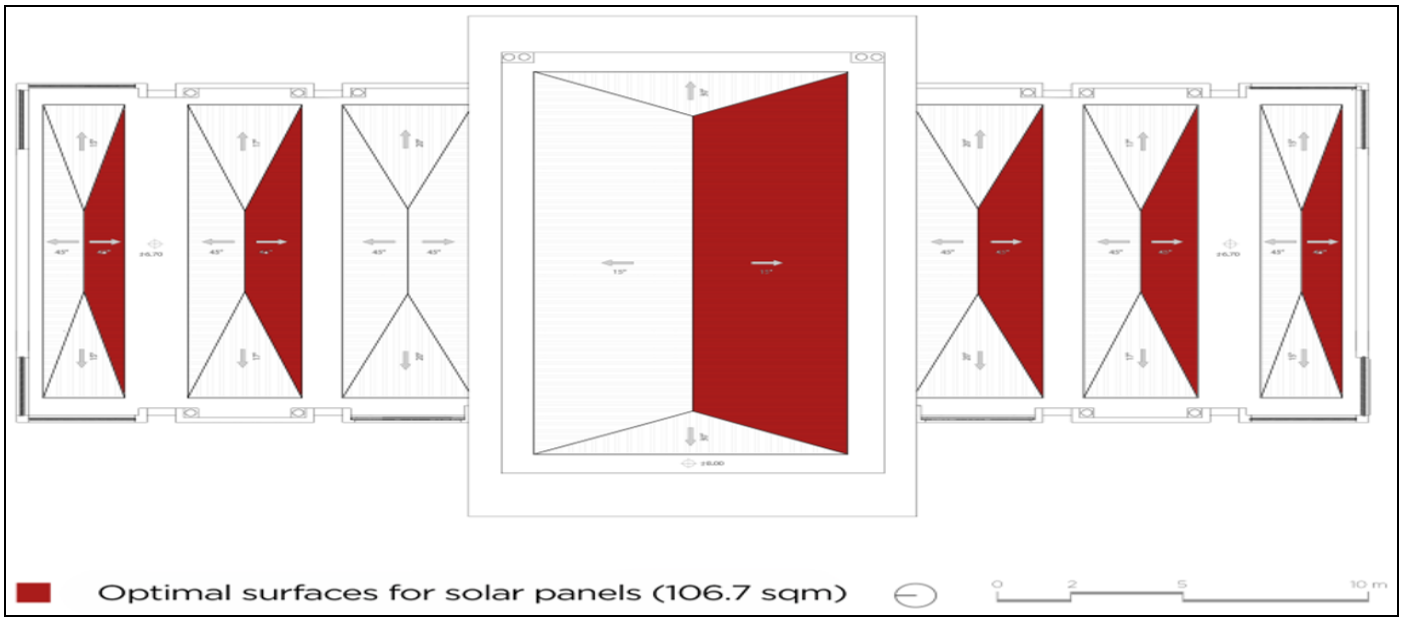

Fig 16 Optimal Surfaces for Solar Panels

- *Materials*

The sustainability strategy adopted in the project prioritizes the use of local, renewable resources with low environmental impact. The selection of materials is based on a multi-sectoral approach, integrating criteria such as local availability, technical performance, compatibility with the regional climate, and ease of implementation. Thus, the supporting structure is made of reinforced concrete, while the infill walls are composed of earth bricks, offering good thermal inertia (see figure 17).

Fig 17 Front View of the Palace

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VIII. PROJECT IMPACT ASSESSMENT RESULTS

Following this royal palace proposal for Fondonera, it is essential to evaluate its impacts across multiple dimensions, presenting significant implications at different scales, from local to regional levels.

➢ *Socio-Cultural Impact*

- Cultural heritage valorization and preservation of Fondonera specifically and Bamiléké culture generally, ensuring traditional knowledge transmission to future generations.
- Job creation through local artisan involvement, providing economic opportunities while maintaining traditional craftsmanship skills.
- Strengthened sense of belonging and social cohesion by creating a unifying symbol that reinforces community identity and pride.
- Transmission and maintenance of ritual knowledge and practices through dedicated ceremonial spaces that support cultural continuity.
- Creation of central space for gatherings and cultural expressions, facilitating community events, festivals, and traditional celebrations that strengthen social bonds.

The palace serves as a living cultural institution that bridges generational gaps while providing a platform for cultural education and community engagement, ensuring that traditional practices remain relevant in contemporary contexts.

➢ *Environmental Impact*

- Use of local and ecological materials reducing transportation emissions and supporting regional economies while minimizing environmental footprint.
- Design favoring energy efficiency through passive solar design, natural ventilation systems, and climate-responsive architecture that reduces mechanical energy consumption.
- Reduced environmental footprint and resource preservation by utilizing renewable materials and implementing sustainable construction practices that respect local ecosystems.

The environmental strategy emphasizes minimizing negative impacts through careful site planning, preservation of significant vegetation, and integration of green infrastructure that can support local wildlife while serving human needs.

➢ *Tourism and Economic Impact*

- Enhanced tourism attraction potential by creating a unique cultural destination that showcases authentic Bamileke architecture and traditions, attracting both domestic and international visitors.
- Job creation linked to construction, management, and related activities including artisanal production, hospitality services, guided tours, and cultural programming that provide sustainable employment opportunities.
- Income source diversification and local economy stimulation through tourism revenue, craft sales, and service provision that reduces community dependence on subsistence agriculture while preserving cultural practices.

The palace functions as an economic catalyst that generates multiple revenue streams while maintaining cultural authenticity, creating a sustainable model for heritage-based development that benefits the entire community.

➢ *Architectural and Technological Impact*

- Integration of ancestral techniques and contemporary solutions ensuring both cultural sustainability and technical performance, demonstrating how traditional knowledge can inform modern sustainable design practice.
- Exemplary model for other power places in Cameroon and Africa, providing replicable design principles and methodologies that can be adapted to different cultural contexts while maintaining local specificity.

The project establishes a new paradigm for institutional architecture in post-colonial African contexts, demonstrating how neuro-architectural principles can be successfully integrated with traditional design wisdom to create culturally-responsive, environmentally-sustainable, and socially-beneficial buildings that serve as catalysts for community development.

IX. CONCLUSION

The findings presented in this study underscore the significance and relevance of designing the Royal Palace of Fondonera as a synthesis of time-honored traditions and contemporary innovations, particularly through the integration of neuroscientific knowledge. This project aspires to establish a genuine place of power that promotes collective well-being, social cohesion, and the valorization of Bamileke cultural heritage. The multifunctional design respects cultural symbolism while promoting sustainability, reinforcing the chiefdom's central role in community life. Impact assessments confirm the project's feasibility and its potential to preserve cultural identity, offering a meaningful model for reinterpreting traditional architecture with contemporary insights.

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