Restorative Cancer Care Environments:
A Hybrid Sanctuary Typology for
Kota Samarahan, Sarawak

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Master of Architecture

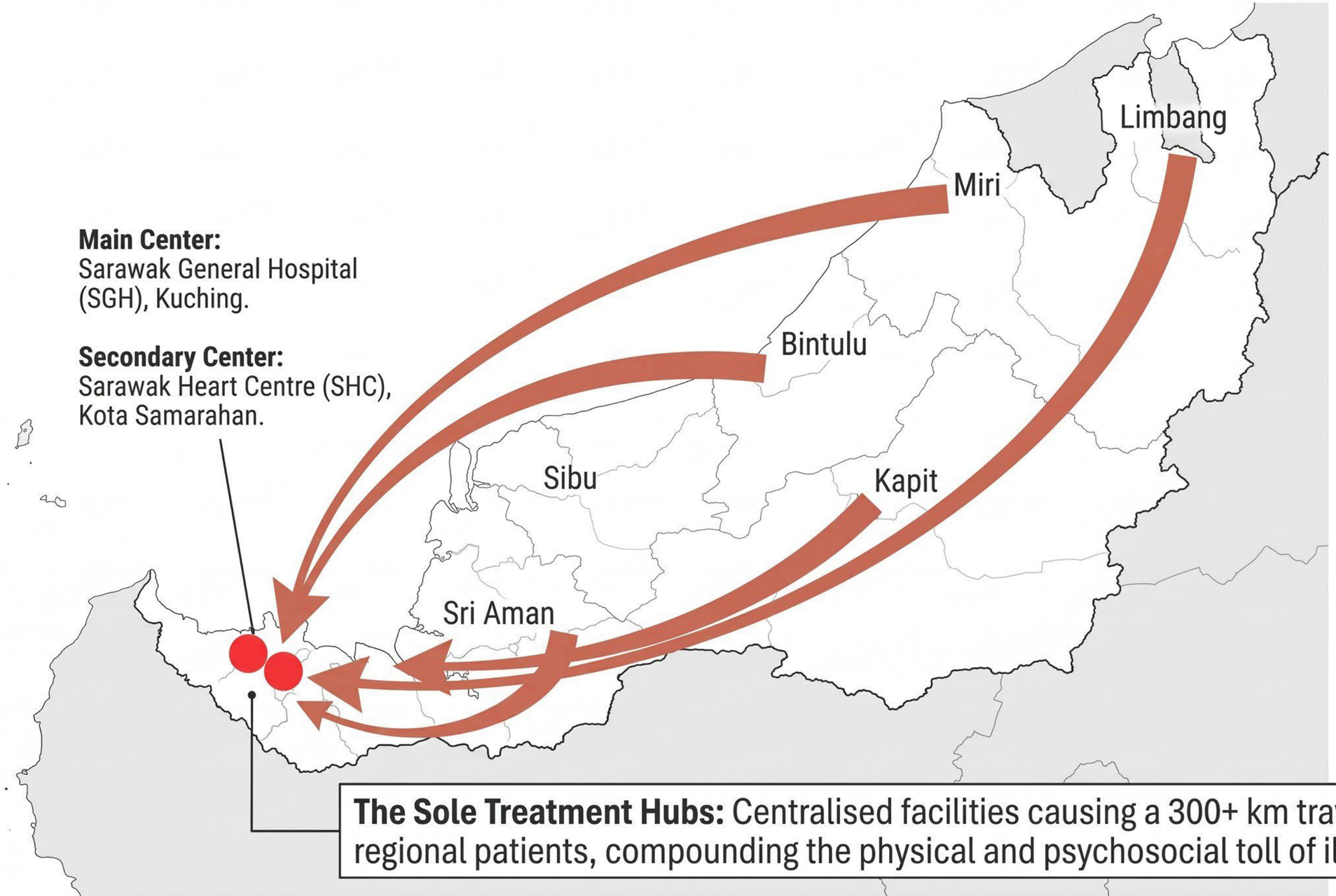
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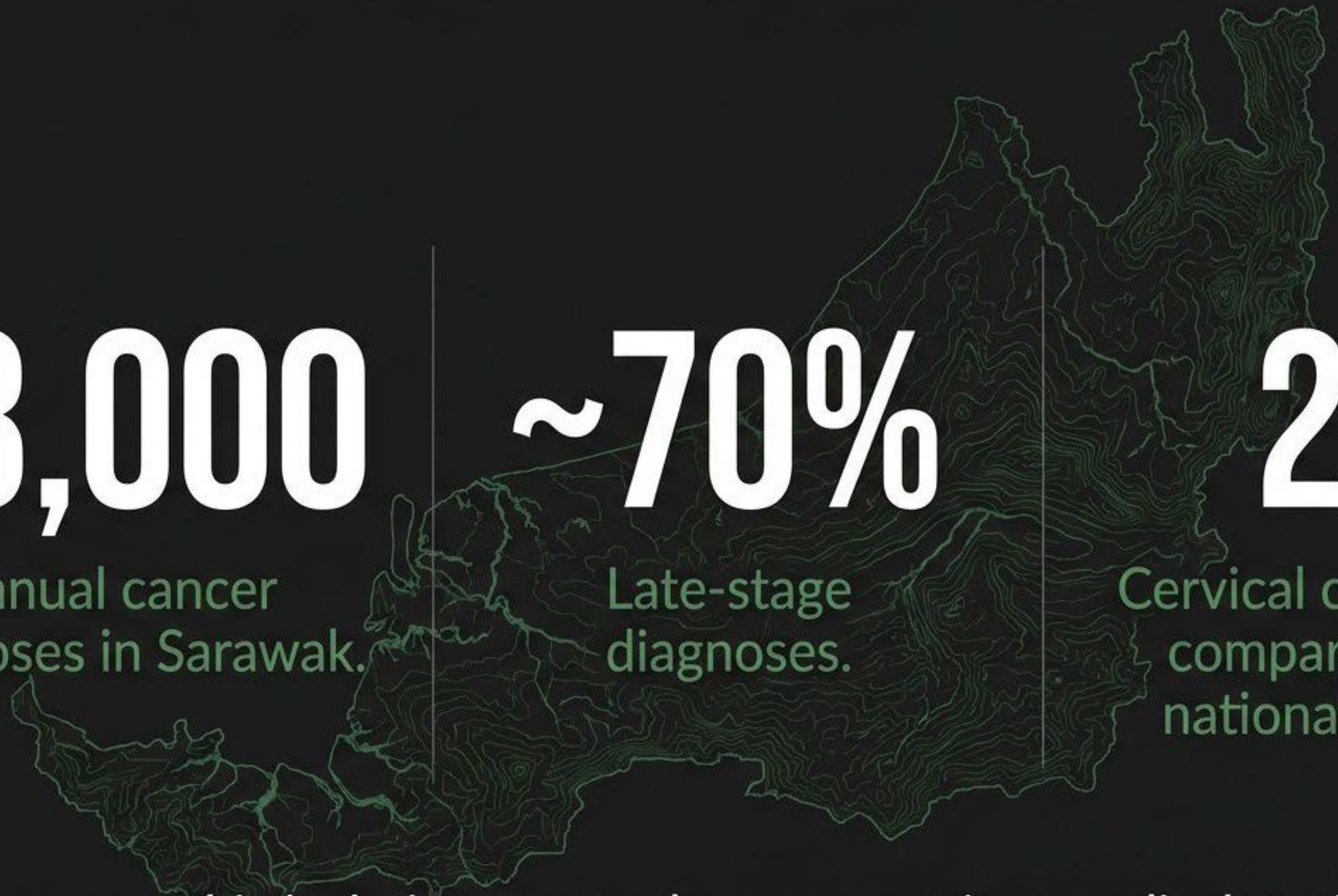
The Geographical Burden of Centralised Oncology



Main Center:
Sarawak General Hospital (SGH), Kuching.

Secondary Center:
Sarawak Heart Centre (SHC), Kota Samarahan.

The Sole Treatment Hubs: Centralised facilities causing a 300+ km travel bottleneck for regional patients, compounding the physical and psychosocial toll of illness.



>3,000

Annual cancer diagnoses in Sarawak.

~70%

Late-stage diagnoses.

2X

Cervical cancer rates compared to the national average.

Severe geographic isolation means these are not just medical statistics—they represent immense travel, financial, and family displacement burdens.

Critique of Healthcare Architecture

- Current oncology treatment systems remain highly centralised, treating the built environment merely as a backdrop for medical processes.
- Standardised clinical layouts exacerbate the burden of illness by lacking spaces for prayer, family meetings, or cultural practice.

- A paradigm shift is required: reframing architecture as an active therapeutic agent to support prolonged rehabilitation and chronic care.

Modern healthcare architecture has been shaped primarily by medical surveillance and control rather than everyday comfort... functioning as a 'neutral container'.

(Colomina, 2019)

Therapeutic Landscape (Gesler, 1992) – Healing is shaped by place, meaning, and social support.

Biophilic Design (Ulrich et al., 2008) – Nature access reduces stress and accelerates psychological recovery.

Community-Based Rehabilitation (WHO, 2010) – Localised support networks encourage inclusion, destigmatisation, and peer continuity.

Synthesis: These theories converge to form the Architectural Mechanisms for a Hybrid Sanctuary—spaces that bridge clinical treatment and community life.



GOALS AND OBJECTIVES

Primary Research Question:
How can architecture act as a medium to bridge the healthcare design and cancer community life in Sarawak?

1. **Identify User Needs:** Determine the specific spatial, psychosocial, and community-based **needs** of cancer care users, caregivers, and residents in Sarawak.
2. **Assess Environmental Factors:** Evaluate restorative, biophilic, and site-specific microclimate factors relevant to the proposed location in Kota Samarahan.
3. **Translate into Typology:** Synthesise empirical data into actionable design principles to formulate a 3-belt hybrid sanctuary typology.

Gemini Notebook

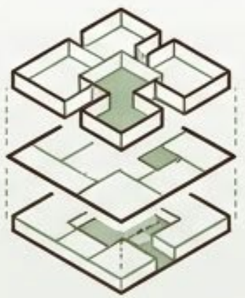
Triangulated Methodological Sequence



User Survey:
n=61 respondents (caregivers, residents, patients).
Capturing spatial and psychological preferences.



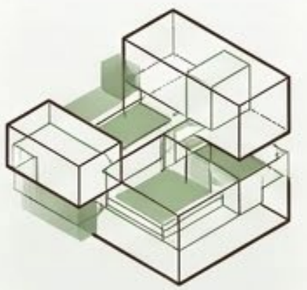
Expert Interviews:
Expert 1 & Expert 2 (Architects in healthcare/restorative design).
Evaluating privacy, dignity, and sensory comfort.



Precedent Studies:
5 regional healing environments (including the Maggie's Centre model).

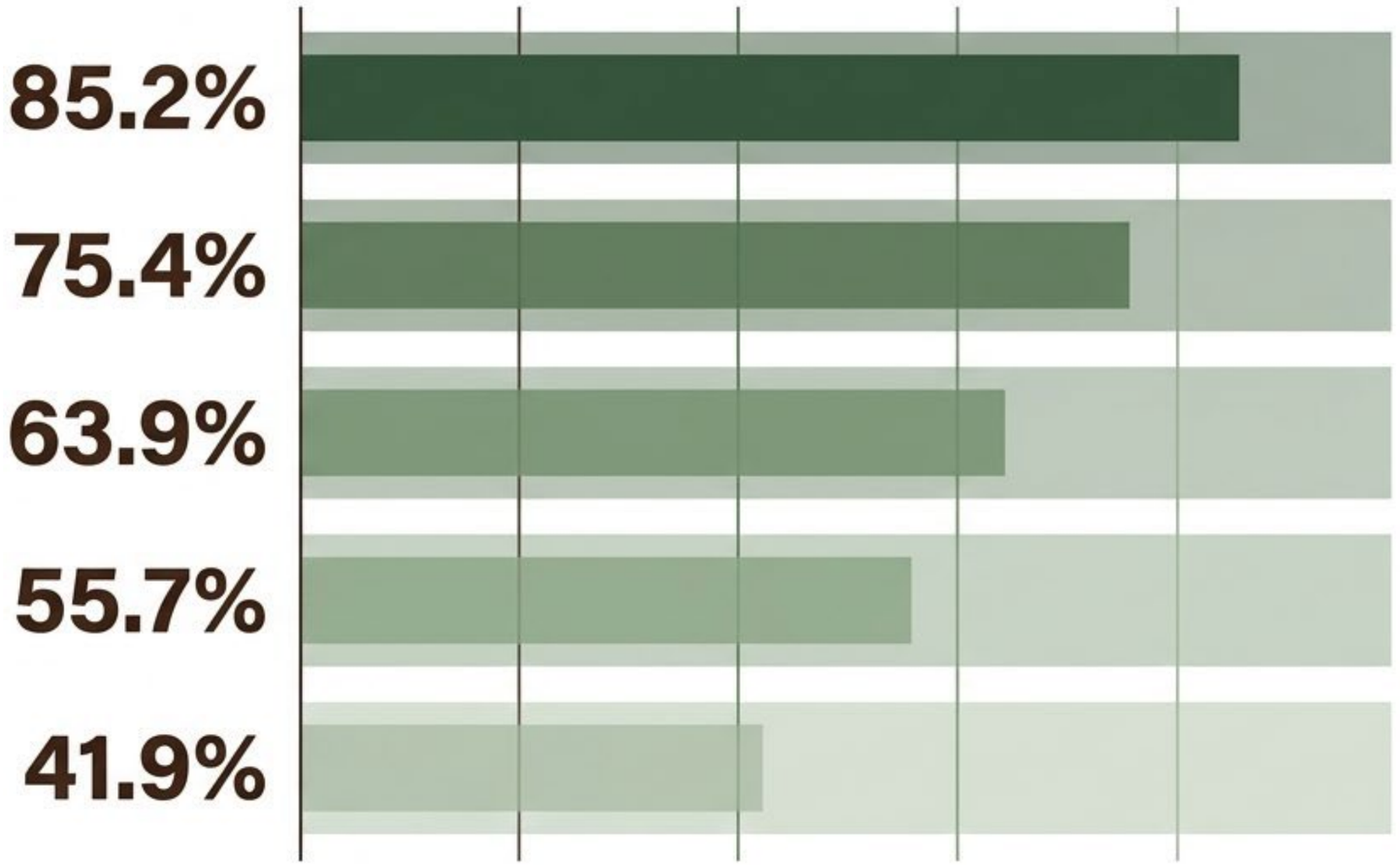


Site Analysis:
Microclimate & urban mapping adjacent to Sarawak Heart Centre, Kota Samarahan.



Typology Synthesis:
Evidence-to-design translation and framework generation

Empirical Findings



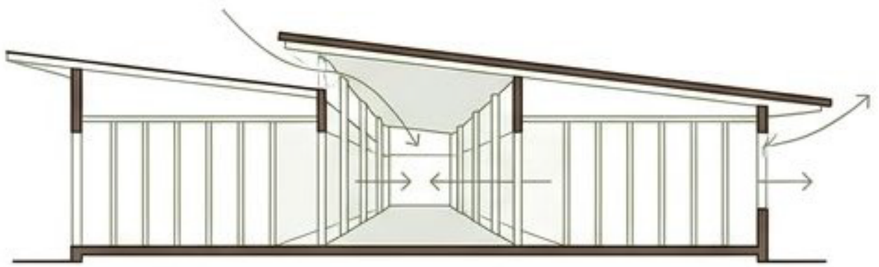
Gemini Notebook

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Synthesizing precedents and expert insights into actionable architectural rules.

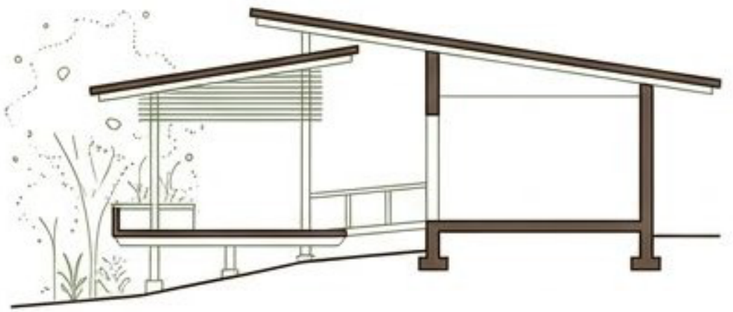
	Precedents (NCI, Khoo Teck Puat, AdventHealth, SCS Rehab, Sunway)	**Expert Insights** (Expert 1: Medical, Expert 2: Cultural)	**Synthesized Design Rules**
Biophilia (Nature & Sensory)	Khoo Teck Puat's terraced gardens facing sensitive areas; AdventHealth's natural light wells.	**Expert 1:** Clinical settings often lack the patient autonomy and psychological relief provided by structural access to nature. **Expert 2:** Proximity to the natural environment fosters communal introspection and grounds the patient in familiar spaces.	Landscape must be immersive and structural (e.g., Khoo Teck Puat), not just visual relief.
Privacy (Dignity & Quiet)	Layered layouts balancing dignity and family accommodation.	**Expert 1:** The environment must cater to the patient's need for autonomy, providing uninterrupted space for dignified reflection alongside family presence. **Expert 2:** We must balance patient autonomy with the inevitable presence of the extended family unit, creating distinct zones for both.	Implement layered zoning to balance introspection with family presence.
Community (Support & Culture)	Sunway and SCS Rehab utilizing communal hubs to stimulate engagement.	**Expert 1:** Communal hubs must be culturally legible to stimulate social interaction and support networks. **Expert 2:** Cultural expectations mandate that spaces accommodate extended family gatherings and community-based healing practices.	Flexible, culturally legible spaces must anchor the core.

Sarawak Vernacular Spatial Principles



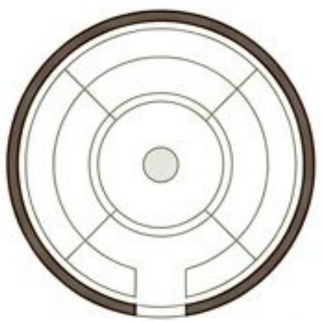
Ruai

Daylight circulation spine
Functions to aid intuitive wayfinding and foster informal social interaction



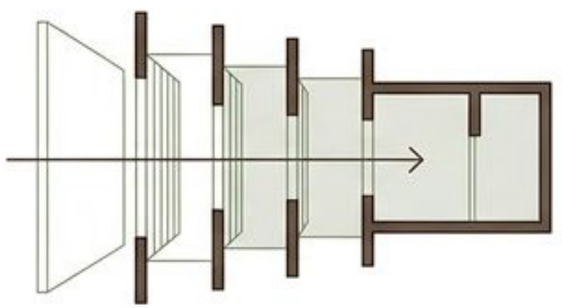
Tanju

Semi-outdoor raised deck.
Acts as a climatic buffer, providing safe, controlled access to nature.



Baruk

Circular reflection room.
A geometry that supports a non-denominational, egalitarian spiritual sanctuary.



Selasar

Threshold sequence.
Modulates the psychological transition from clinical exposure to restorative protection.

Belt 1: Public Interface

Sited on accessible margins. Features community gardens, cafes, and volunteer points.

Purpose: Breaking institutional stigma and ensuring non-intrusive community access.

Belt 2: Restorative Transitional Belt

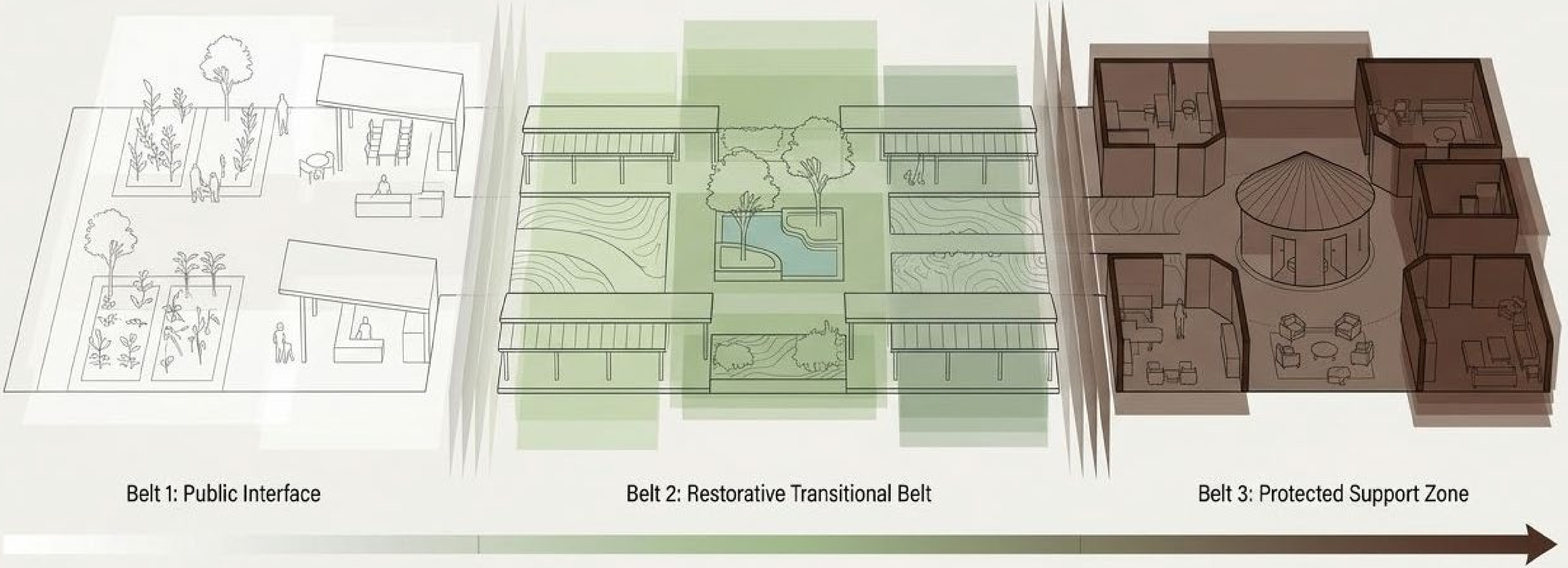
The mediating layer. Features verandahs (Tanju), courtyards, and sensory gardens.

Purpose: Climatic comfort, orientation, and soft connections to nature.

Belt 3: Protected Support Zone

The inner sanctum. Features counselling rooms, family lounges, and reflection rooms (Baruk).

Purpose: Absolute dignity, privacy, and low-acuity care.



Belt 1: Public Interface

Belt 2: Restorative Transitional Belt

Belt 3: Protected Support Zone

Three-Belt Spatial Typology

Three-Belt Spatial Typology

Architecture as an Active Medium of Healing

Reframing the Trajectory

The Hybrid Sanctuary proves that cancer care must extend beyond the walls of tertiary hospitals into environments that support everyday resilience.

Evidence-Based Empathy

By fusing biophilic strategies, community-based care, and vernacular spatial principles (Ruai, Tanju, Baruk), the typology actively mitigates the socio-spatial burden of regional travel.

A Replicable Framework

Kota Samarahan serves as a blueprint for translating clinical necessity into culturally grounded social infrastructure across East Malaysia.

Healing is not just a clinical outcome; it is a spatial experience.

Thank You

Dedicated to my beloved mom, Dayang Aisah Abang Chi



Image: Final Year Design Project MArch

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