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# Incorporating Sustainable FM Requirements in State's Infrastructural Development Plans

*by*

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# Sustainable Development

Development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs.

## 3 Pillars of Sustainable Development

1

### **Economic Sustainability**

System of production that satisfies present consumption levels without compromising future needs

2

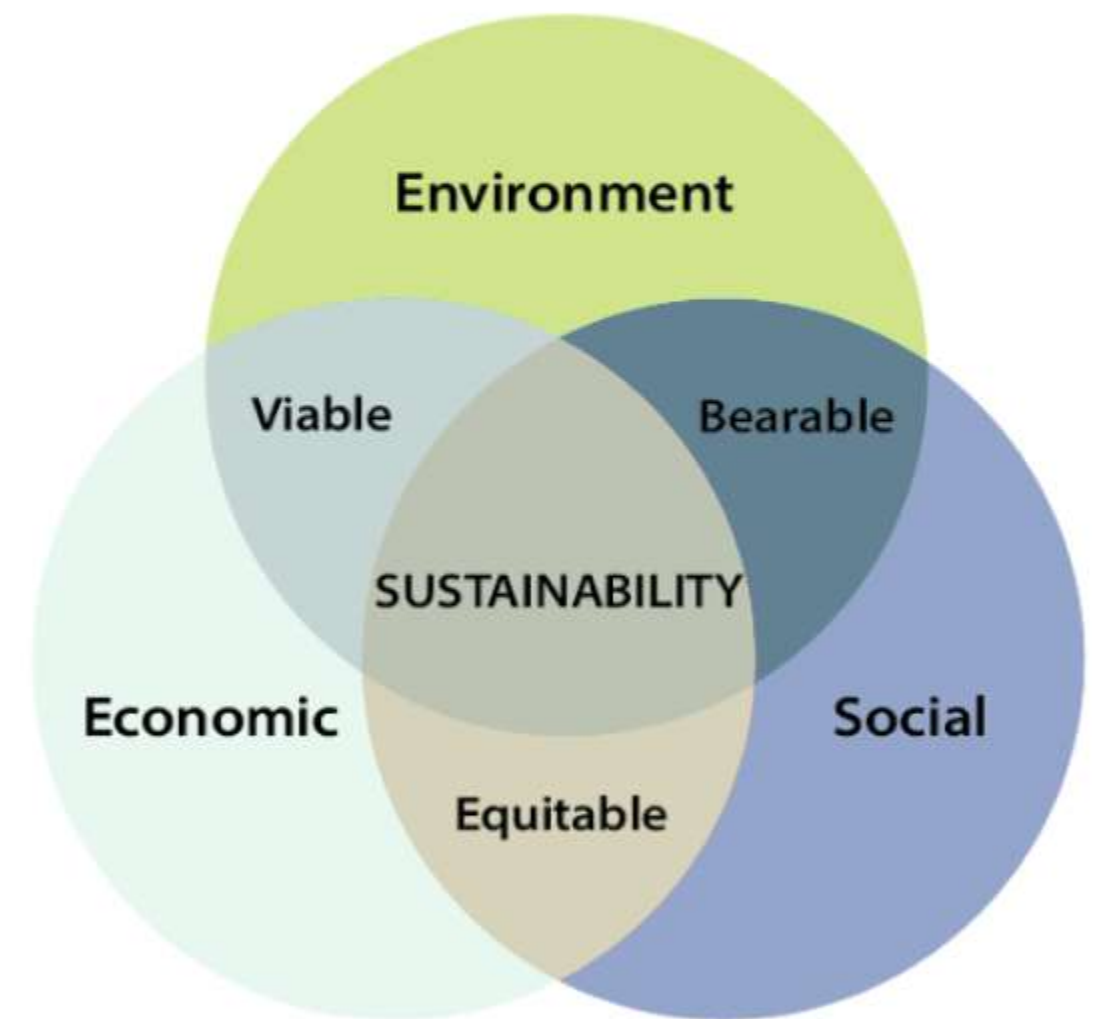
### **Social Sustainability**

Notions of equity, empowerment, accessibility, participation, cultural identity and institutional stability

3

### **Environmental Sustainability**

Ecosystem integrity and carrying capacity of natural environment



Source: Kowalczyk (2026)



# Sarawak Context & Landscape

Embedding sustainability, resilience, and efficiency into the very foundations of Sarawak's growth

## **PCDS2030**

High-income, sustainable, and digitally empowered state by 2030

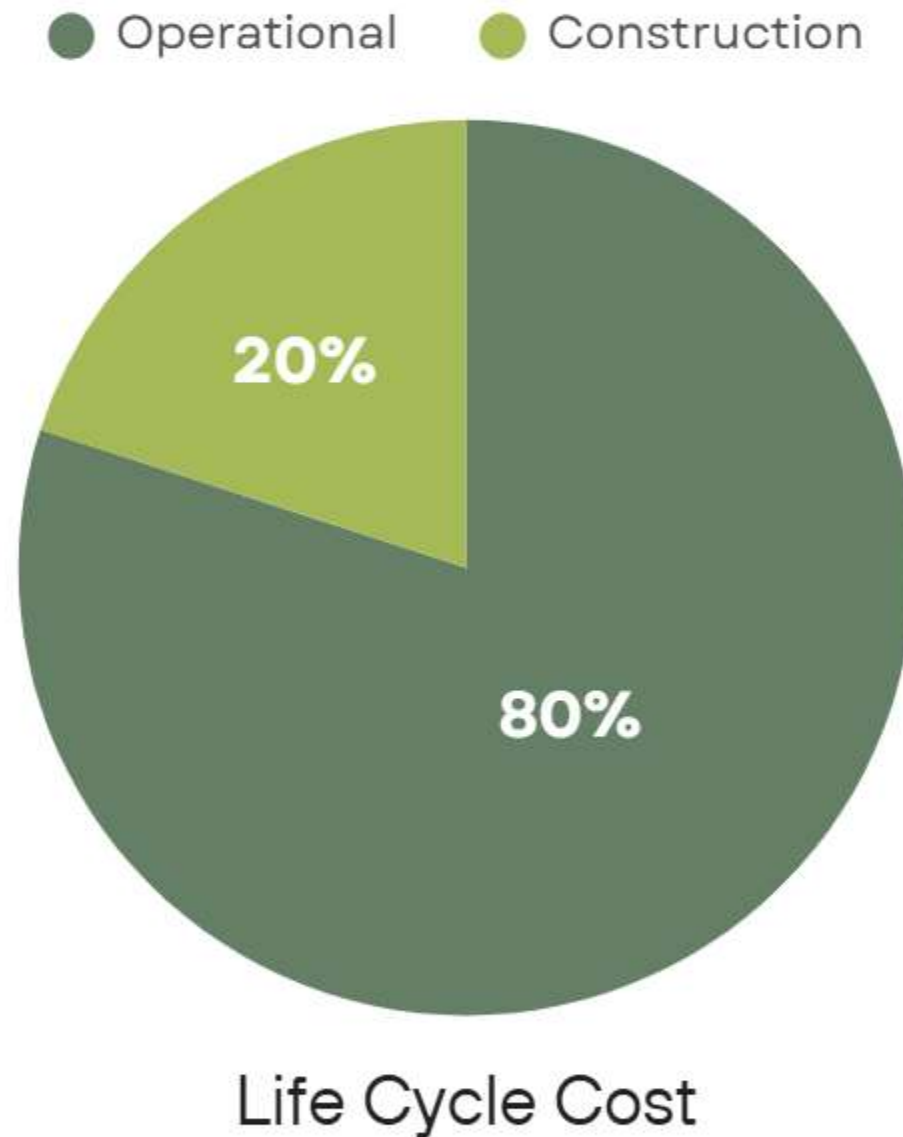
## **Sarawak Sustainability Blueprint 2030**

Embedding ESG standards, climate resilience, and smart city development into infrastructure planning

## **Sarawak Energy Transition Policy**

Integration of renewable energy systems (hydropower, hydrogen, solar) to meet Sarawak's clean energy targets.

# The Fiscal Imperative



## Focusing on the Long Term

While design and construction take up initial capital, up to 80% of a building's total cost is incurred during its **operational life**.

Integrating Sustainable FM requirements into infrastructural plans allows JKR Sarawak to mitigate these massive recurring expenditures early in the project cycle.

# Current Management Bottlenecks



## Reactive “Break-Fix”

Maintenance relies on reactive fixes, leading to unexpected asset failures and critical downtime in public facilities.



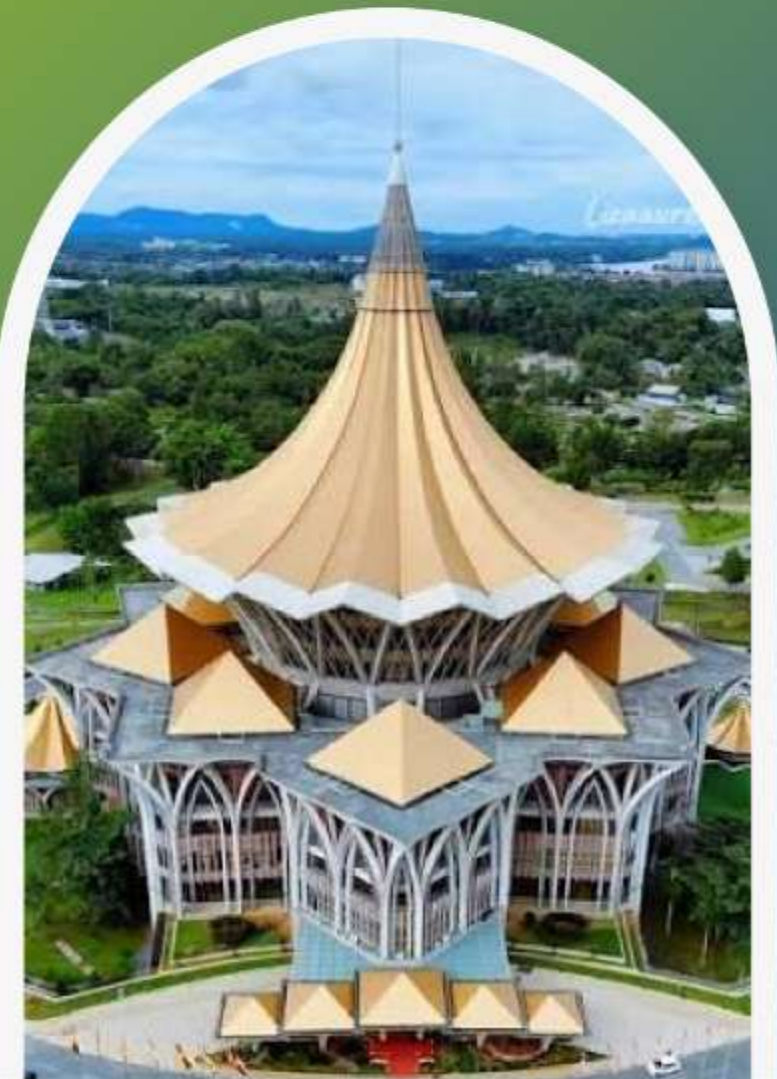
## Data & System Silos

Data is fragmented across departments, with limited integration of IoT, BIM, and asset management platforms.



## Funding & Lifecycle Costing

Current procurement practices prioritize lowest upfront cost over lifecycle sustainability, highlighting the need to secure sustainable FM models across Sarawak.



# Resource & Contractual Gaps

## Energy & Water Waste

- High operational costs
- Inefficient legacy systems
- Manual tracking methods

## Fragmented Contract

- Focus on inputs (workers)
- Ignore outcomes & performance
- Lack efficiency targets

## Skill Shortage

- Limited green FM professionals
- Remote region challenges
- Specialized expertise gaps

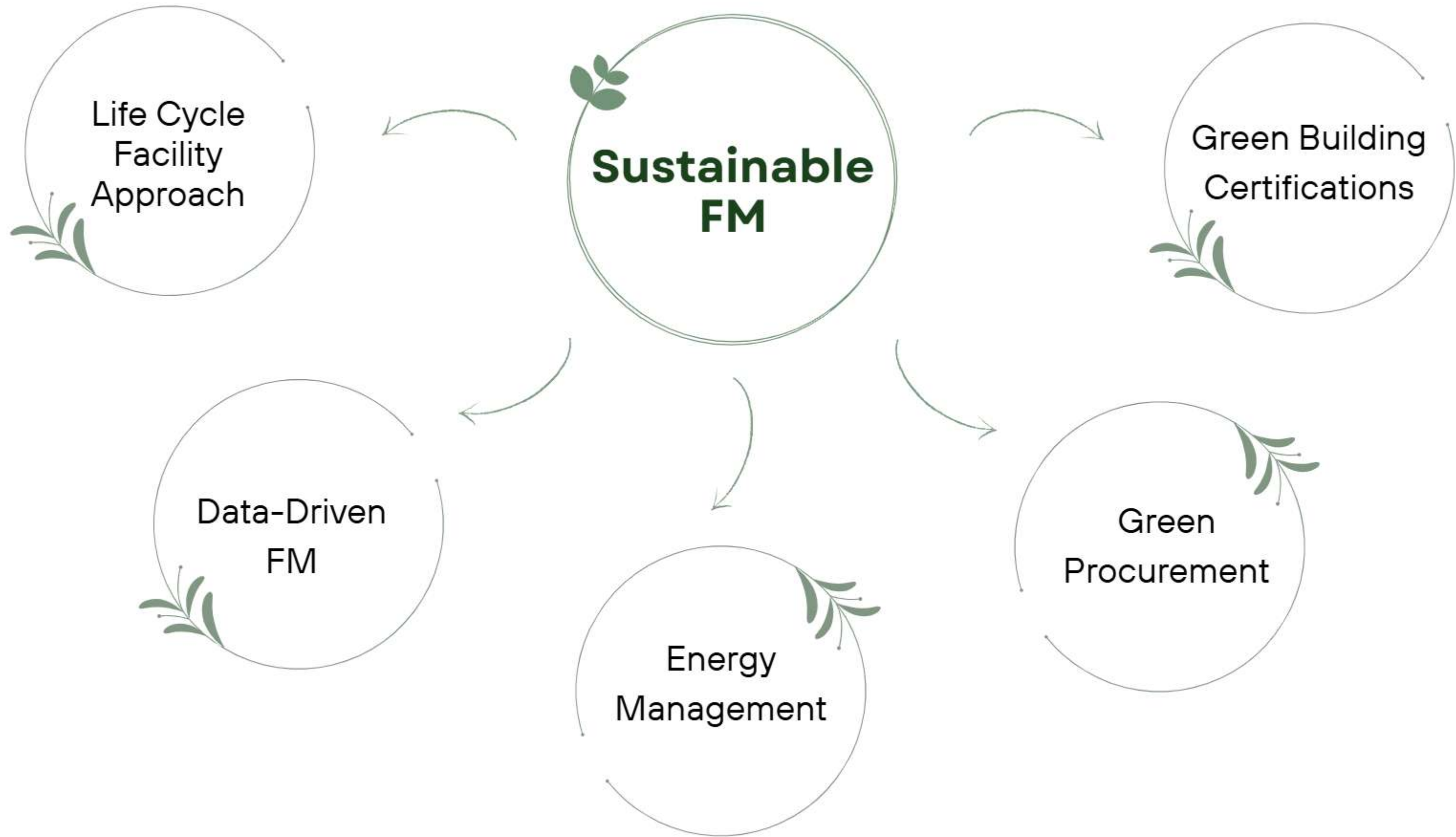


# Holistic Benefits to Stakeholders

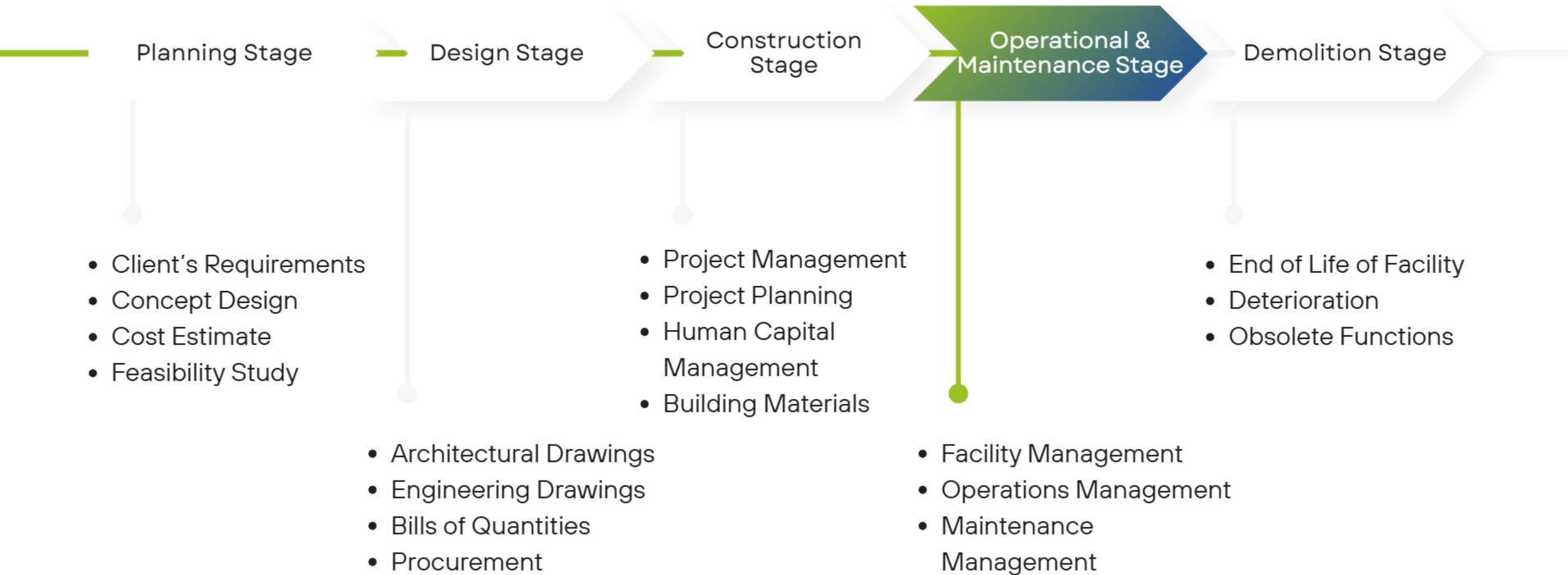
| Stakeholder      | Sustainable FM Benefits                             | Impact on Vision 2030 |
|------------------|-----------------------------------------------------|-----------------------|
| State Government | Reduced utility consumption & optimized expenditure | Fiscal Sustainability |
| Citizens & Users | Healthy, safe, and functional public spaces         | Social Wellbeing      |
| The Environment  | Reduced carbon footprint & waste management         | Green Energy Pioneer  |

# Strategic Takeaways

*Key Strategic Pillar for JKR Sarawak Infrastructural Plans*



# Life Cycle Facility Approach



# Data-Driven FM



## Smart Digital Ecosystems

**7D BIM Integration:** Delivering comprehensive asset tracking from first day of operations

**IoT Sensors:** Real-time monitoring of energy and water, enabling the transition from reactive to **predictive maintenance** strategies

# Green Procurement



## Eco-friendly Products

Procurement of products and services that have a reduced effect on human health and the environment



## Green Supply Chain

Encourage contractors to adopt designs that minimize waste and maximize recyclability



## Policy Integration

Procurement processes pinpointing sustainability, requiring suppliers to meet environmental standards



## Lifecycle Costing

Evaluation of bids based not only on upfront cost but also long-term sustainability and maintenance efficiency

# Energy Management

## Plan

Develop resources and action plans based on energy review, benchmarking and specific objectives and targets

## Check

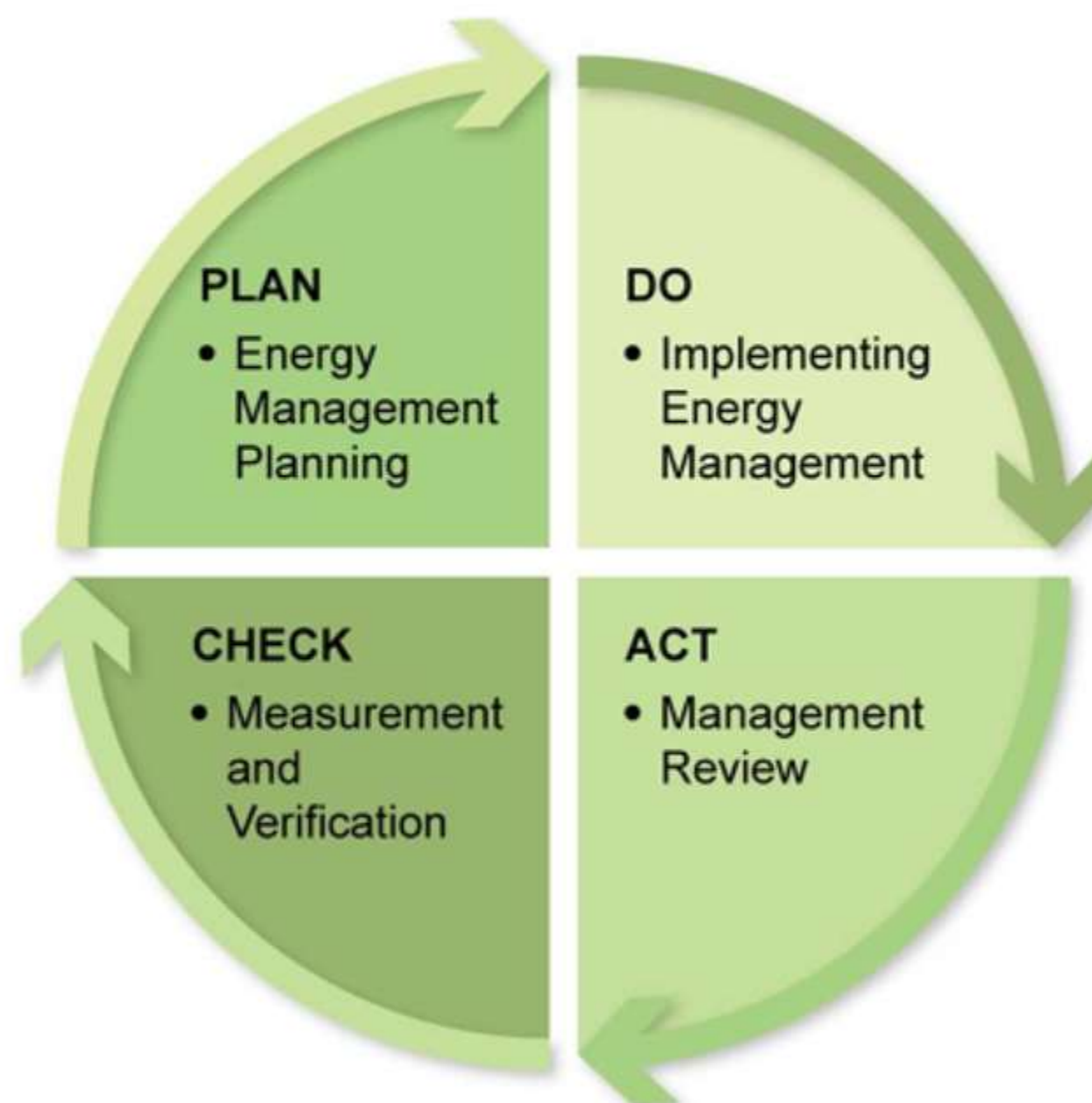
Frequently inspect and review the level of target achieved and the efficiency

## Do

Implement action plans

## Act

Constantly improve energy performance by acknowledging the achievements and deriving new objectives



PDCA Cycle

# Green Building Developments



## Definition

Holistic approaches to design of buildings to minimize environmental impact while maximizing efficiency, health, and resilience.



## Green Building Certification

Increasing the adoption in public facilities through a mandate for all large-scale public facilities in Sarawak  
Eg. Green Building Index (GBI)



## MS1525 Energy Efficiency Standard

Malaysia's primary blueprint for reducing energy consumption and associated costs in buildings

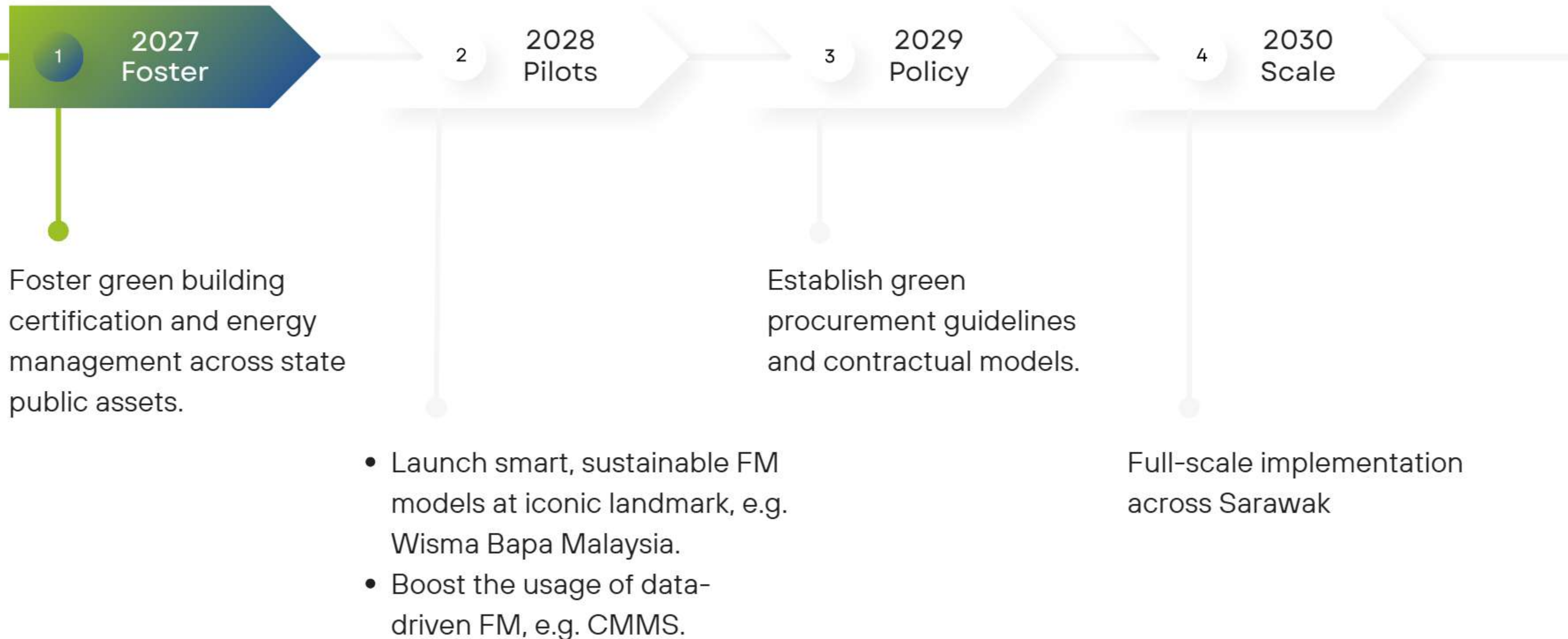


## Projects & Initiatives

Kenyalang Smart City (KSC) and Kuching Smart City Initiatives are piloting IoT-enabled green buildings as part of smart city transformation



# Sustainable FM Roadmap



# Strategic Action Items



01

## Professional Certification

Certify local FM practitioners through **CFMM** and **CFME** programs

02

## Awareness Campaigns

Shift FM perception from "cost center" to "**strategic enabler**"

03

## Triple-Helix Collaboration

Foster partnerships between **Government**, **Universities**, and **Industry**

04

## Standardization

Adopt **State-wide standards** to strengthen FM practices across all regions



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***Sustainable facility management is the  
foundation of Sarawak's resilient  
infrastructure future.***

*Thank you*

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