



GBI Platinum
MyCREST 5 Star

Malaysia Property Award 2016
Asean Energy Award 2016 (2nd)

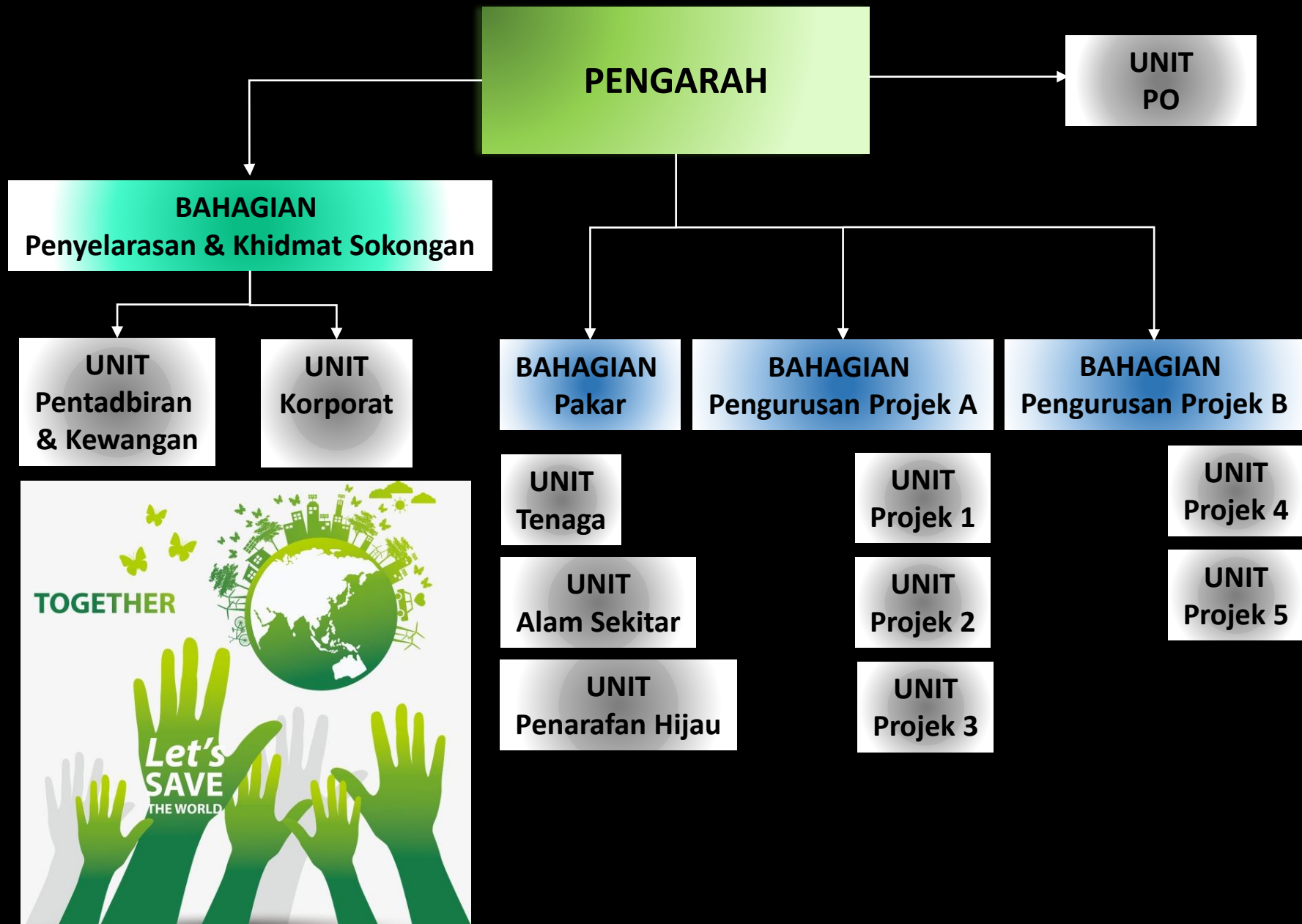
**SUSTAINABILITY
BEYOND
RATING**

CAWANGAN ALAM SEKITAR & KECEKAPAN TENAGA

MONALIZA MOHD HASSAN

KELESTARIAN MENJANGKAU

PENARAFAN



CAWANGAN ALAM SEKITAR & KECEKAPAN TENAGA

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SUSTAINABILITY BEYOND RATING

CAWANGAN ALAM SEKITAR & KECEKAPAN TENAGA

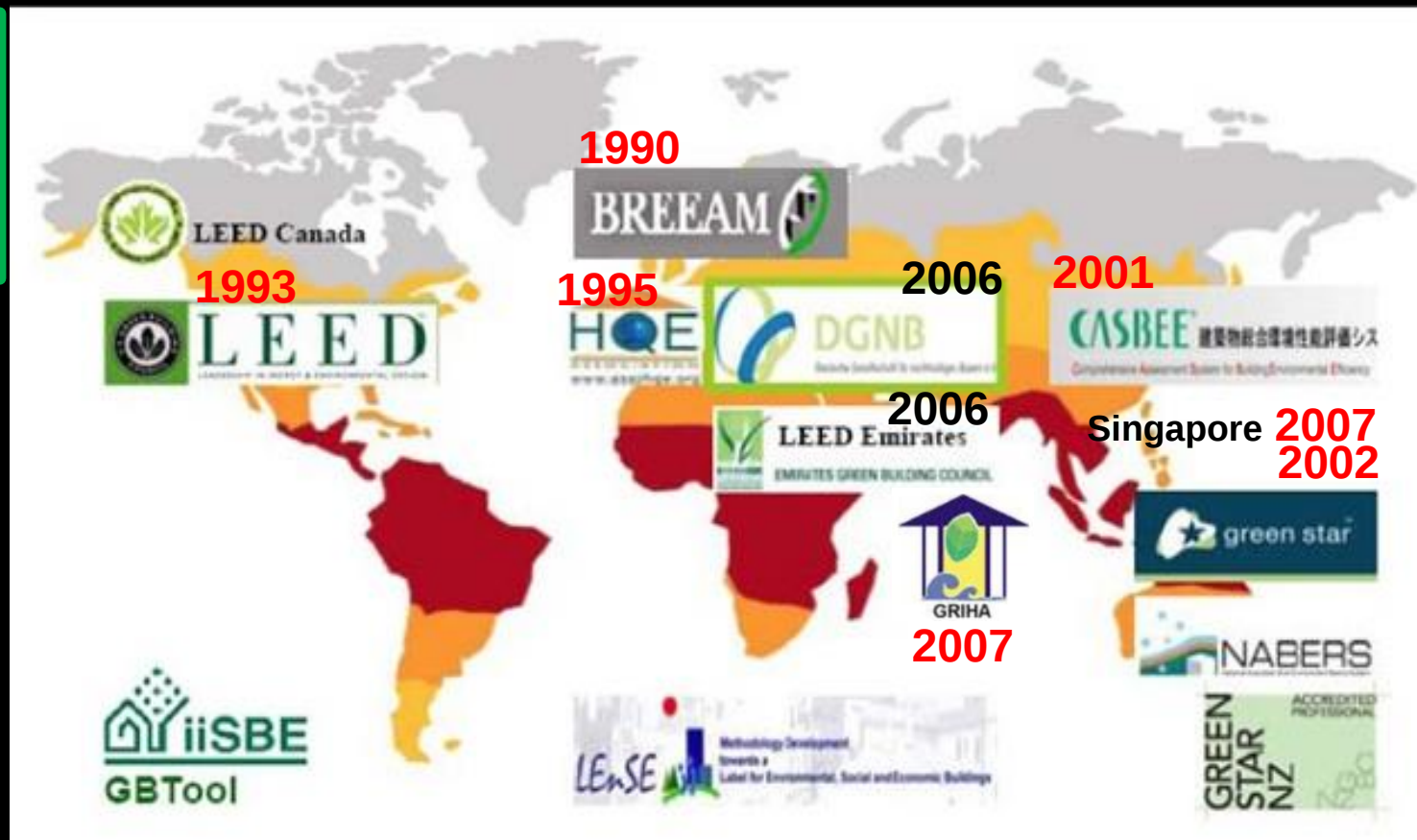
KELESTARIAN MENJANGKAU

PENARAFAN

Green Rating Tools

1

1



A Comparison of International Sustainable Building Tools, Deakin University Melbourne

SUSTAINABILITY BEYOND RATING

Green Rating Tools

1

2



ISKANDAR

2016



2015



2016



2016



2013



2013

SUSTAINABILITY BEYOND RATING

CAWANGAN ALAM SEKITAR & KECEKAPAN TENAGA

KELESTARIAN MENJANGKAU

PENARAFAN

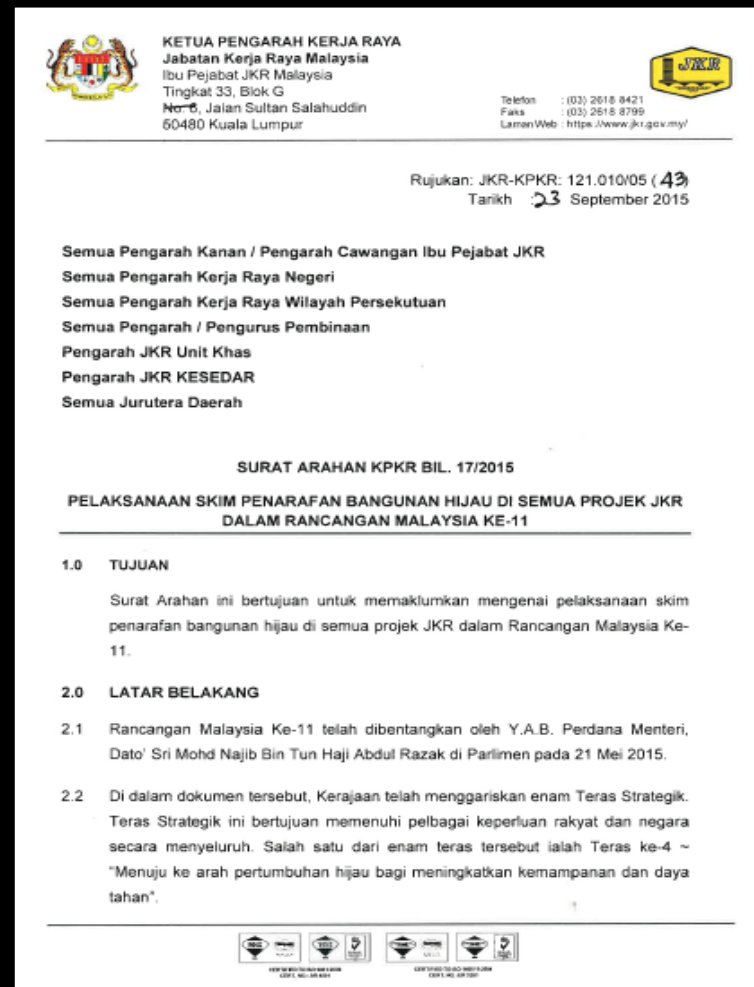
OBJECTIVES

- ❑ AS A TOOL TO MEASURE SUSTAINABILITY PERFORMANCE OF A PROJECT
- ❑ AS A TOOL TO ASSIST ON THE CONTINUOUS IMPROVEMENT OF THE PERFORMANCE
- ❑ TO MOTIVATE SUSTAINABLE DEVELOPMENT
 - BY REDUCING GOVT OPERATIONAL INFRASTRUCTURE **COST**
 - BY IMPROVING USER'S **COMFORT** AND PRODUCTIVITY
 - BY REDUCING THE **ENVIRONMENTAL** IMPACT

Actions 2 1



Project Cost	Green Rating Tools	Buildings Category
<RM 20 Juta	pH JKR / MyCREST	All
>RM20 juta	pH JKR	Office
>RM50 juta	MyCREST	All



SUSTAINABILITY BEYOND RATING

Actions

2 2

Sustainability & Green Mission 2.0

15. Utilise pHJKR or MyCREST green rating tools



Jabatan Kerja Raya Malaysia

Sustainability & Green Mission 2.0

In line with the Government's commitment towards sustainable development, JKR through its Strategic Plan 2016-2020 and Sustainability Policy 2016 has outlined multiple initiatives to ensure that all government development is done sustainably. Therefore, in meeting these objectives, JKR shall ensure the following activities are carried out:

1. Preserve as many trees as possible on site;
2. Ensure minimal disturbance to the existing natural terrain, implement Erosion Sediment Control Plan (ESCP) and On Site Detentions (OSD);
3. Control the construction of cut slopes within the project boundaries by not exceeding 6 berms;
4. Provide landscaping and turfing as early as possible after reaching formation level to ensure maturity and usability before handing over to the client;
5. Implement safe & approved Traffic Management Plan;
6. Avoid using fish-tail end guard rails in road projects and maintenance works;
7. Ensure 30% ceilingless design to residential and office buildings;
8. Promote cost-effectiveness and optimal use of energy through energy efficiency and renewable energy initiatives;
9. Provide clean and safe Indoor Environment and Working Ecosystem;
10. Use Rainwater Harvesting System and Water Efficient fittings;
11. Implement Solid and Schedule Waste Management holistically;
12. Avoid having utility manholes on roads;
13. Ensure safe operation of cranes by lowering of booms after daily operations on site;
14. Utilise pH JKR or MyCREST green rating tools; and
15. Incorporate green procurement practices in JKR's procurement.


DATO' SRI Ir. Dr. ROSLAN BIN MD TAHA
Ketua Pengarah Kerja Raya Malaysia
2 Mei 2017

Actions

2

3

Pelan Strategik Kementerian Kerja Raya 2016 - 2020

TERAS 1

Pembangunan infrastruktur jalan, lebuh raya dan bangunan

TERAS 2

Penyenggaraan infrastruktur jalan, lebuh raya dan bangunan

TERAS 3

Pemantapan industri pembinaan berteraskan pembangunan lestari

TERAS 4

Pemantapan modul insan dan daya saing penggiat Industri pembinaan

TERAS 5

Pemantapan tadbir urus organisasi



KEMENTERIAN KERJA RAYA



PELAN STRATEGIK KKR 2016 - 2020



SUSTAINABILITY BEYOND RATING

Actions

2

4

Pelan Strategik Kementerian Kerja Raya 2016 - 2020

3.2 Meningkatkan penggunaan teknologi hijau dalam industri pembinaan

	Pelan Tindakan	Indikator Sasaran (KPI)	Tahun Sasaran	Tindakan	Status Pencapaian	Catatan
3.2.1	Menilai tahap kemampanan alam sekitar menggunakan kaedah myCREST	20 projek	2016	CIDB	◆	KPI sehingga 2016 dan selesai 100%
3.2.2	Peratusan projek infrastruktur di rekabentuk untuk mencapai penarafan hijau 3 bintang	100 % (5 projek)	2016 – 2020	CAST, JKR	●	100% On Target 20 projek daftar pHJKR dan MyCrest. 2 projek telah laksana Penilaian Rekabentuk (4 Bintang) dan 3 projek laksana Pra Penilaian (3 Bintang).
3.2.3	Pembangunan sistem penilaian infrastruktur mampan	Satu sistem penilaian infrastruktur mampan dibangunkan	2017	CIDB	●	25-50% Exceed Target Sistem telah sedia untuk diuji kepada projek perintis
		Semua projek RM 100 juta ke atas melepasi tahap keperluan lestari	2018 - 2020	CIDB		BERMULA TAHUN 2018
	menyeluruh di antara pusat-pusat tempatan mengenai kecekapan pembangunan lestari (COE)	Sebuah pusat kecekapan pembangunan lestari (COE)	2016	CIDB	●	30% On Target Tajuk penyelidikan dikenalpasti dan telah dibentangkan kepada Majlis Penasihat Penyelidikan CREAM.



KEMENTERIAN KERJA RAYA



PELAN STRATEGIK KKR 2016 - 2020



SUSTAINABILITY BEYOND RATING

CAWANGAN ALAM SEKITAR & KECEKAPAN TENAGA

KELESTARIAN MENJANGKAU

PENARAFAN

Actions

2

5

Kerangka Strategik JKR 2016 - 2020



SUSTAINABILITY BEYOND RATING

Actions

2

6

Kerangka Strategik JKR 2016 - 2020



TEMA 4 : MEMACU KELESTARIAN – KP & TKP



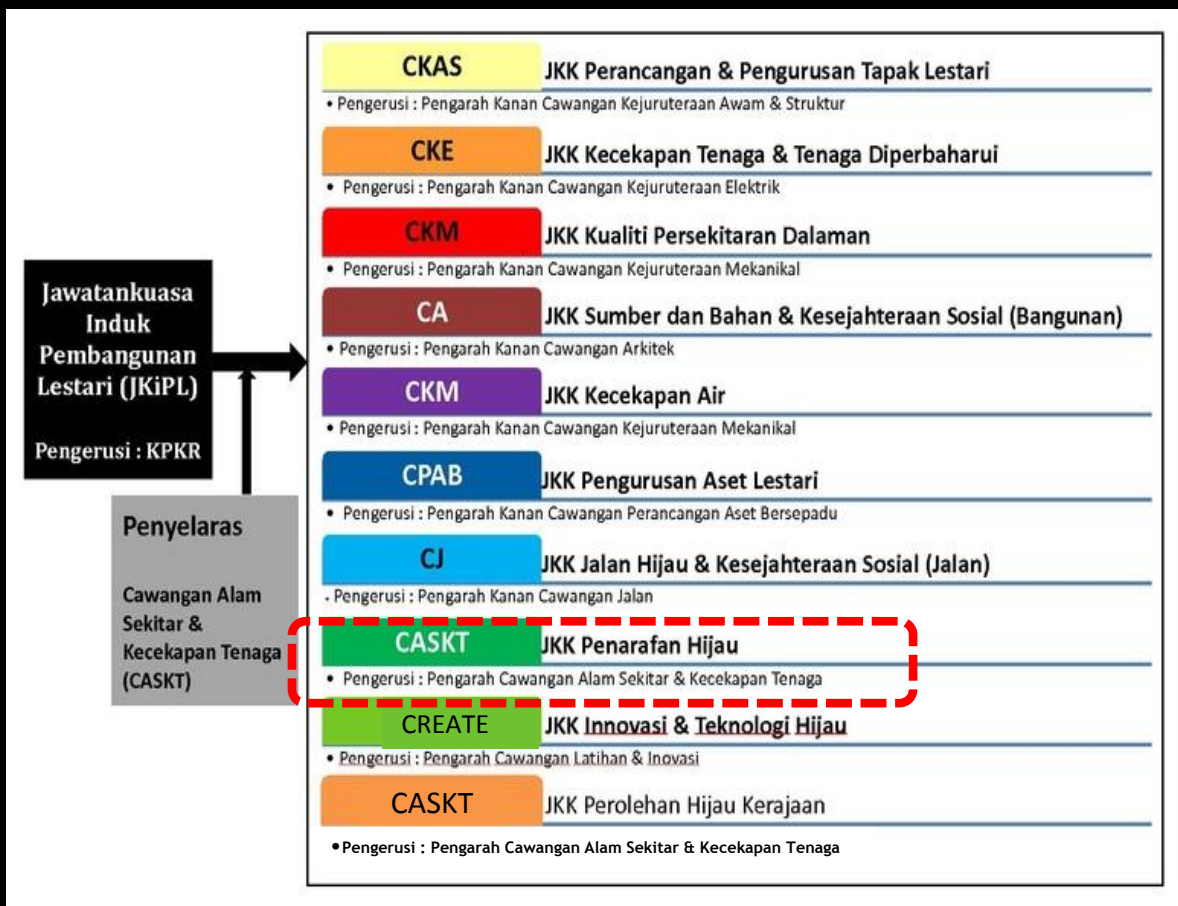
SUSTAINABILITY BEYOND RATING

Actions

2

7

Polisi Pembangunan Lestari JKR Malaysia 2016 - 2020



Actions

2

8

Polisi Pembangunan Lestari JKR Malaysia 2016 - 2020



POLISI PEMBANGUNAN LESTARI 2016-2020: PELAN TINDAKAN – JKK PENARAFAN HIJAU (pH JKR & MyCREST)

PERSPEKTIF	OBJEKTIF STRATEGIK	INISIATIF	PELAN TINDAKAN	PELAKSANA	TEMPOH PELAKSANAAN	OUTPUT	
						PETUNJUK PRESTASI	SAARAN
Belanggan/ Stakeholder	T4-1 Kelestarian Infrastruktur	SKOP: Penarafan Hijau -pH JKR & MyCREST Objektif Korporat : Pelaksanaan Skim Penarafan Bangunan Hijau di semua projek JKR dalam RMK-11	1. Mendapatkan penilaitan tenaga elektrik semasa pengoperasian bangunan bagi projek bangunan (pengukuran bermula dari tahun 2019)	CASKE	Jan 2019 – Dis 2020	Bil. Projek Bangunan	2019 = – 2020 = 5
			2. Mendapat penilaitan penggunaan air semasa pengoperasian bangunan bagi projek bangunan (pengukuran bermula dari tahun 2019)	CASKE	Jan 2019 – Dis 2020	Bil. Projek Bangunan	2019 = – 2020 = 5
			3. Mendapat penilaitan kos penyelenggaraan bagi projek jalan (pengukuran bermula dari tahun 2020)	CASKE/ CJ/ CSFJ	Jan 2020 – Dis 2020	Bil. Projek Jalan	2020 = 1



WHY GREEN RATING TOOLS ?
WHY SUSTAINABLE DESIGN ?
WHY SUSTAINABLE DEVELOPMENT?

**SUSTAINABILITY
BEYOND
RATING**

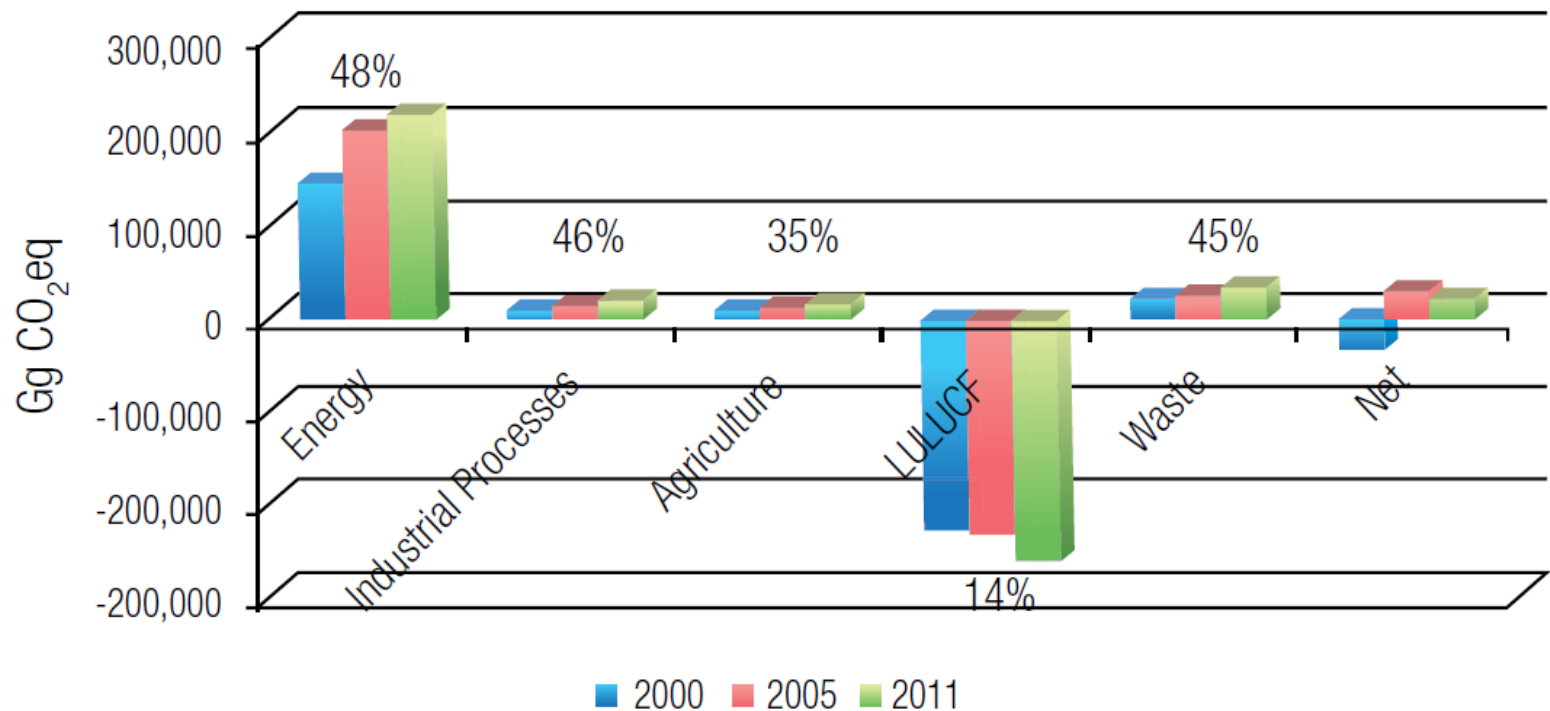
KENAPA
WHY?

3

2

GREENHOUSE GAS EMISSIONS

Figure 2.1: Comparison of Greenhouse Gas Emissions by Sector between 2000 and 2011



Note: Percentage indicates the % emission increase/decrease between 2000 and 2011.

KENAPA
WHY?

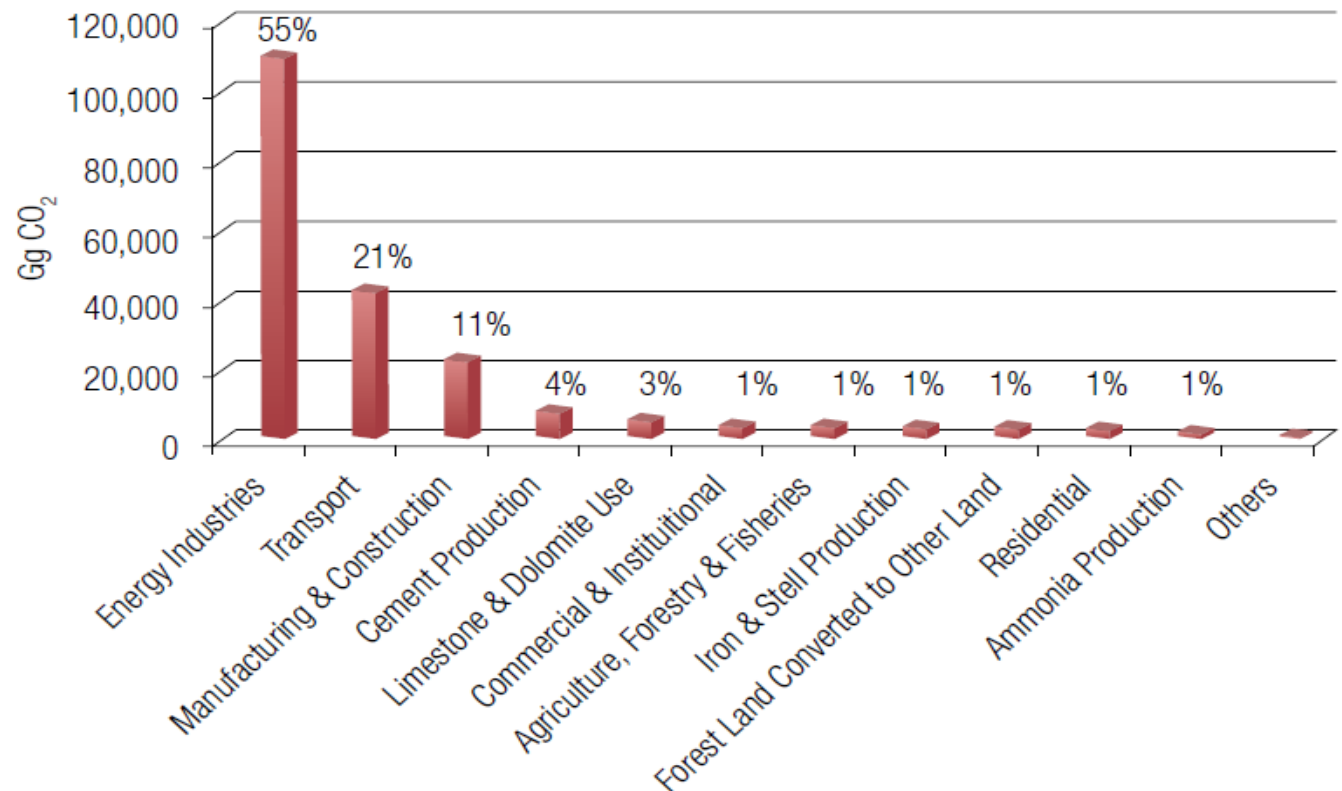
3

3

MAJOR SOURCES OF CO₂ EMISSIONS

Source : Biennial Update report to the UNFCCC

Figure 2.5: Major Sources of Carbon Dioxide Emissions in 2011



3

4

This sunburst chart illustrates the distribution of greenhouse gas emissions across various sectors and sub-sectors. The data is as follows:

Sector	Sub-Sector	Emissions (Mt)	Percentage (%)
Transportation (35%)	Road Transportation (Gasoline)	18	5.3
	Road Transport (Diesel)	1	0.3
	Propane & Natural Gas	0.5	0.1
	Civil Aviation	0.5	0.1
	Railways	0.5	0.1
	Navigation (Marine)	0.5	0.1
	Off-Road	1	0.3
	Iron & Steel	1	0.3
	Cement	1	0.3
	Chemicals	1	0.3
Industry (28%)	Refining	1	0.3
	Other Reporting Industry	1	0.3
	Non-Reporting Industry	1	0.3
	Buildings (19%)	33	19
	Commercial & Institutional	1	0.3
Buildings (19%)	Commercial	1	0.3
	Residential	1	0.3
	Electricity (7%)	11	7
	Commercial	1	0.3
	Residential	1	0.3
Agriculture (6%)	Enteric Fermentation	1	0.3
	Manure Management	1	0.3
	Agriculture Soils	1	0.3
	Industrial	1	0.3
	Commercial	1	0.3
Waste (5%)	Waste Incineration	1	0.3
	Wastewater Handling	1	0.3
	Solid Waste Disposal on Land	1	0.3

CAWANGAN ALAM SEKITAR & KECEKAPAN TENAGA

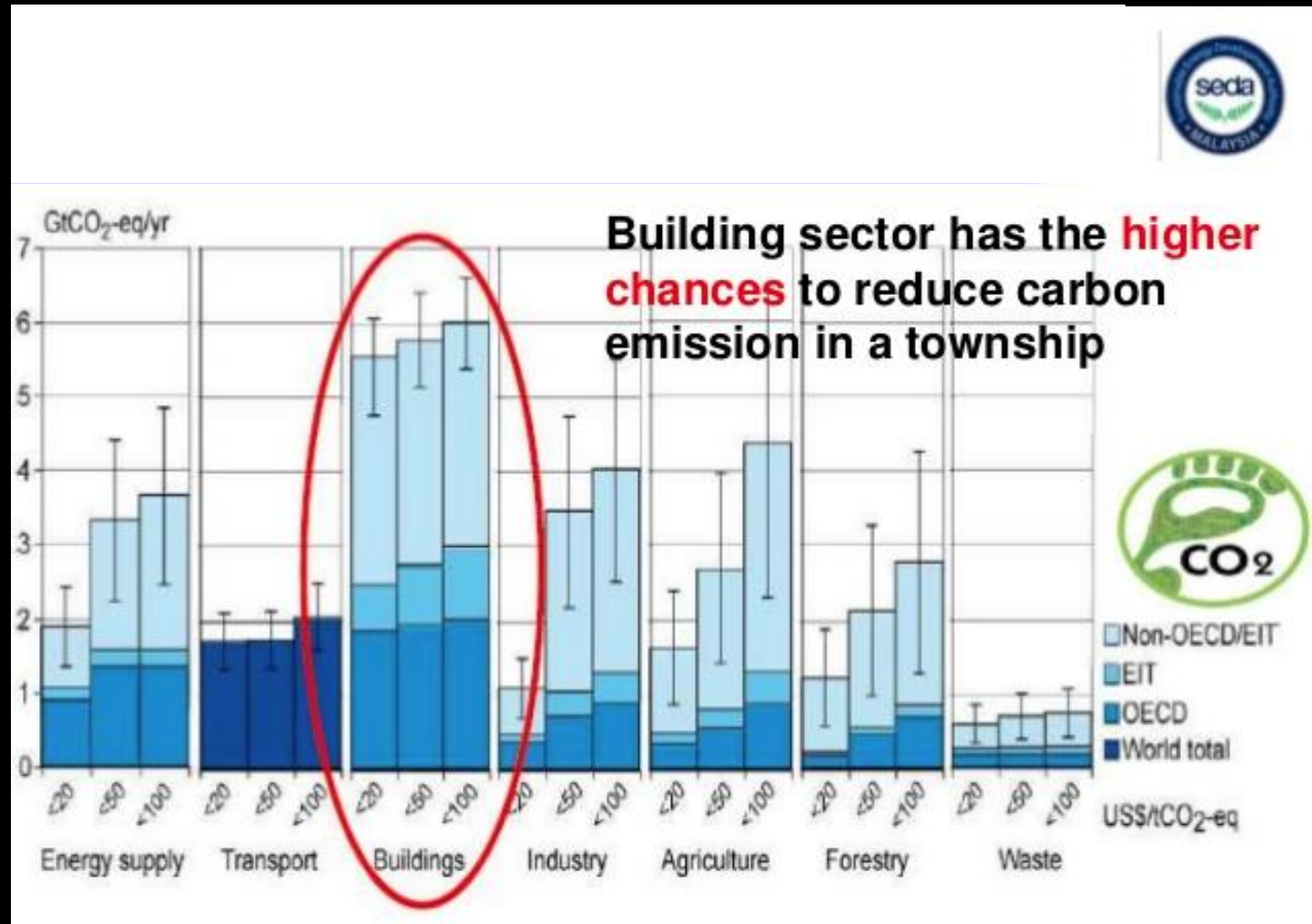
PENARAFAN

KENAPA
WHY?

3

5

CHANCES TO REDUCE CO₂ EMISSIONS



KENAPA
WHY?

3

6

ENVIRONMENTAL PERSPECTIVE

6
MILESTONE

SUSTAINABLE
DEVELOPMENT
EXCELLENT

SA
SELF
ASSESSMENT

SDM
SUSTAINABLE DEVELOPMENT
MAINSTREAMING

SDE

SA

SDM

ENVIRONMENTAL
PERSPECTIVE

EHSAN
(sweetness
of faith)

TAKWA
(piety)

AMAL SOLEH
(good
deeds –
Pillars)

ISLAMIC
PERSPECTIVE

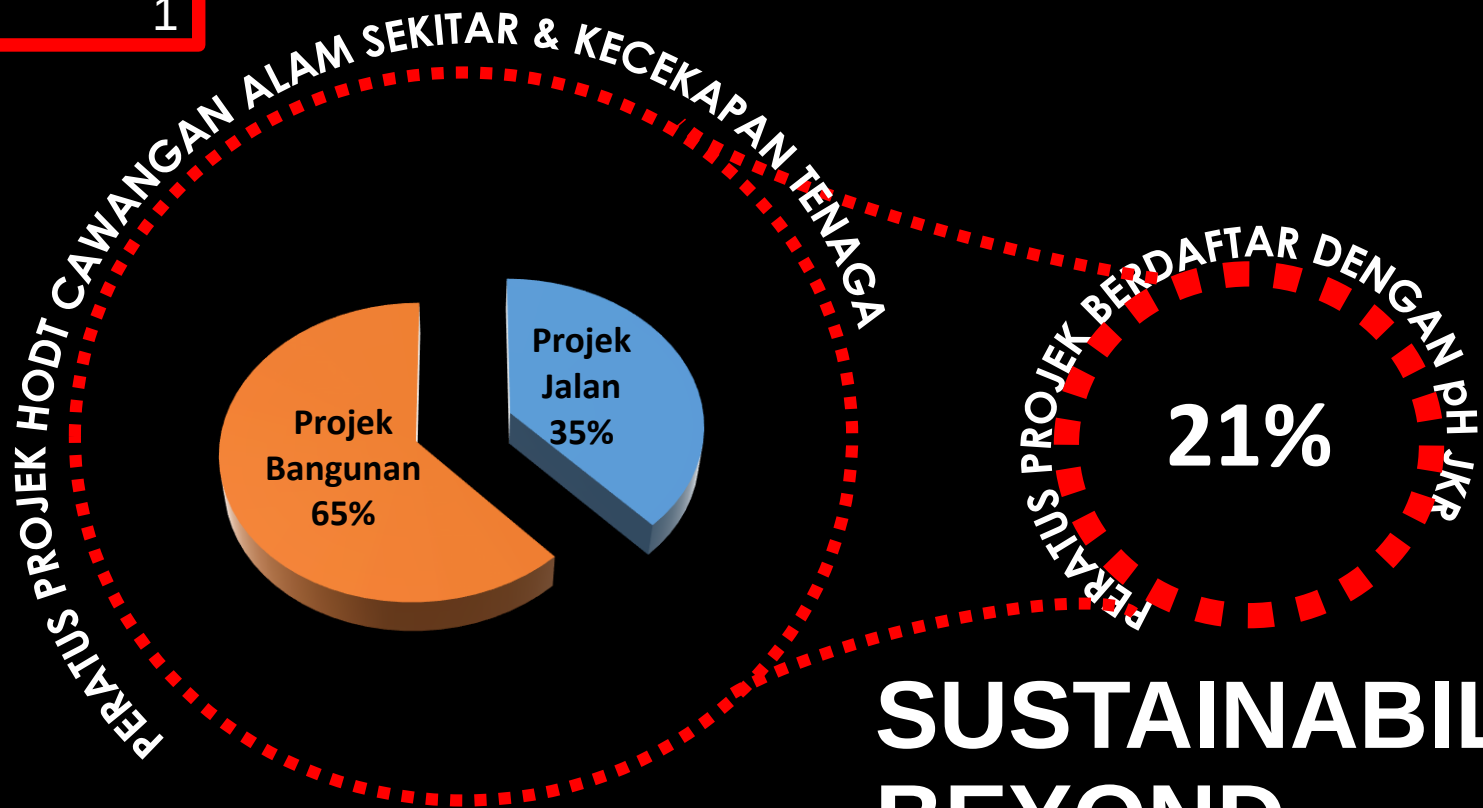
NATURE IS SPEAKING
ARE YOU LISTENING?

Current
Status

4

1

PENDAFTARAN pHJKR & MyCREST



SUSTAINABILITY BEYOND RATING

Current
Status

4

2

Projek daftar pHJKR

Tahun	Pendaftaran		Projek Digugurkan		Jumlah Sebenar
	Bangunan	Jalan	Bangunan	Jalan	
2012	3	1	1	1	2
2013	4	0	3	0	3
2014	13	3	3	1	13
2015	23	0	2	0	22
2016	7	8	0	1	14
2017	4	1	0	0	5
2018	1	0	0	0	-3
Jumlah	55	13	9	3	56

**SUSTAINABILITY
BEYOND
RATING**

Current
Status

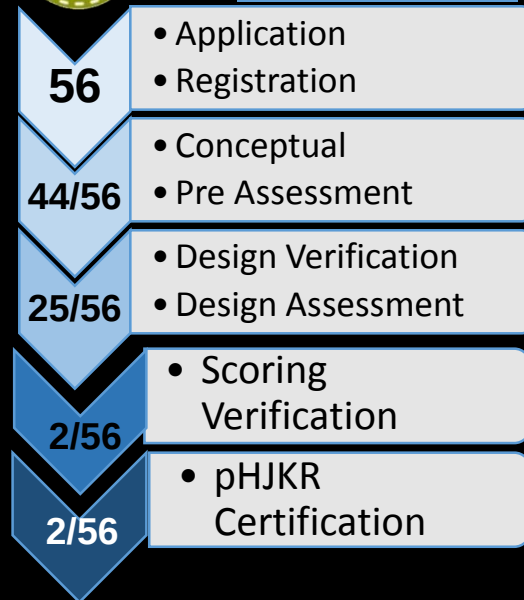
4

3

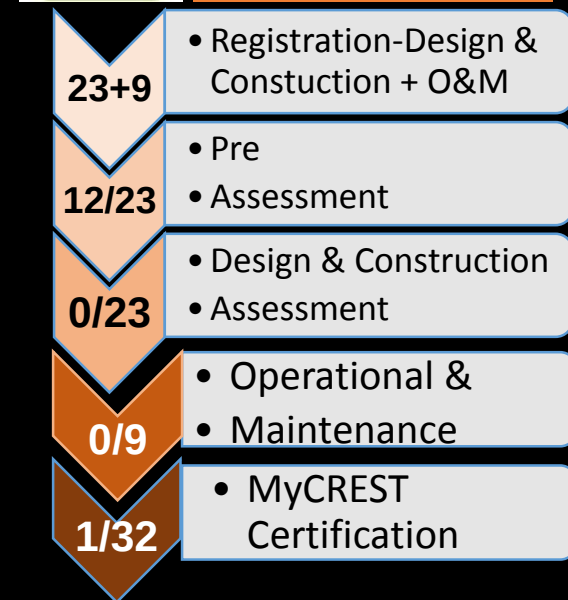
PROJEK pHJKR dan MyCREST



pHJKR



MyCREST

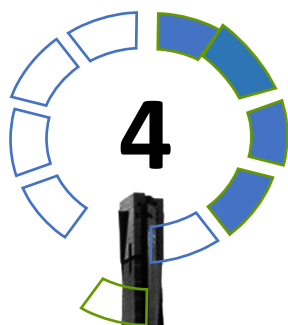


Current
Status

4

4

PENDAFTARAN PROJEK KERAJAAN - MyCREST (Jumlah: 23 projek)



● Hospital

● Politeknik & Sekolah

● Universiti

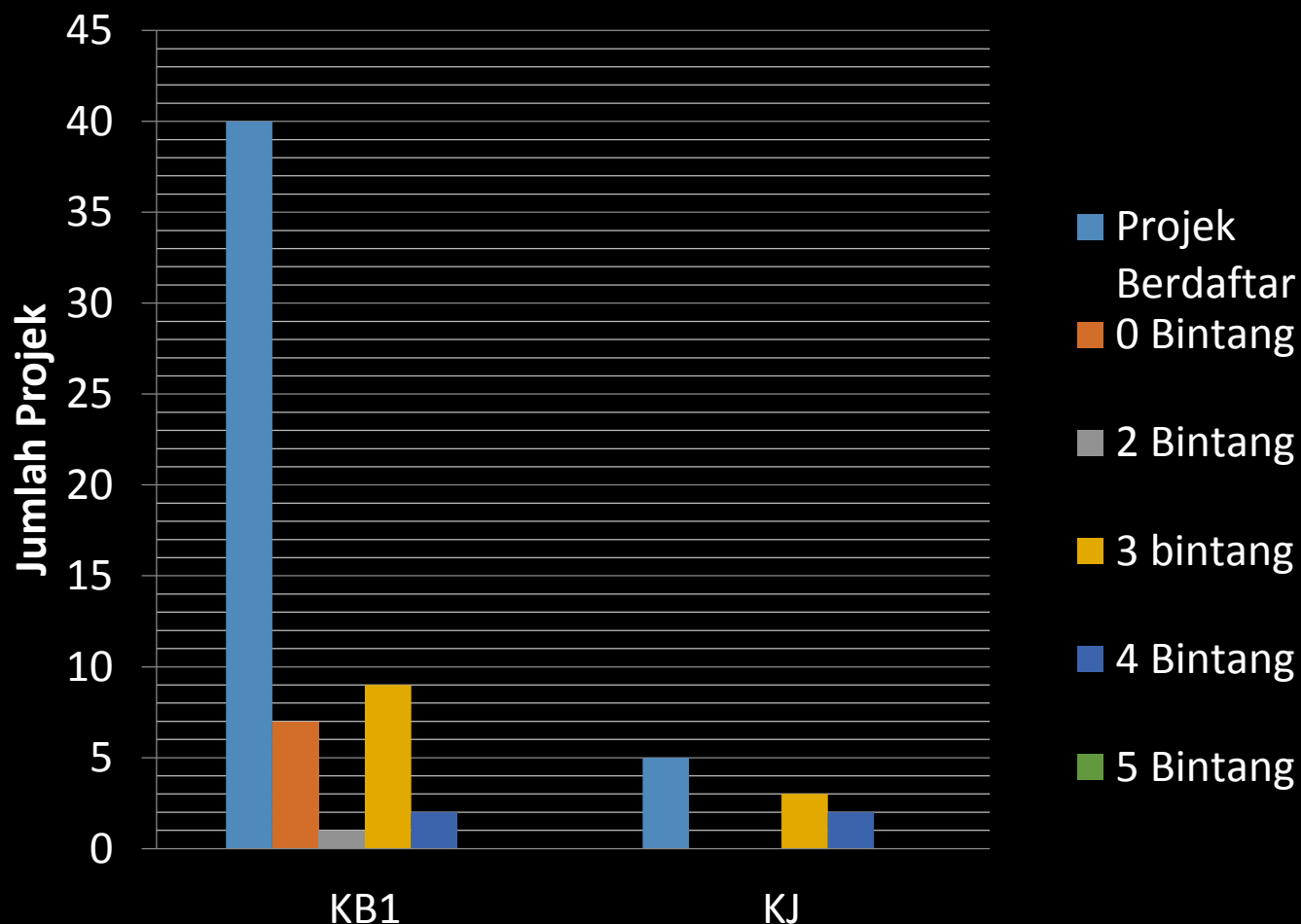
● Pejabat Kerajaan

Current
Status

4

5

PENCAPAIAN PENILAIAN REKABENTUK pHJKR



Current
Status

4

6

DATA ANALISIS pHJKR

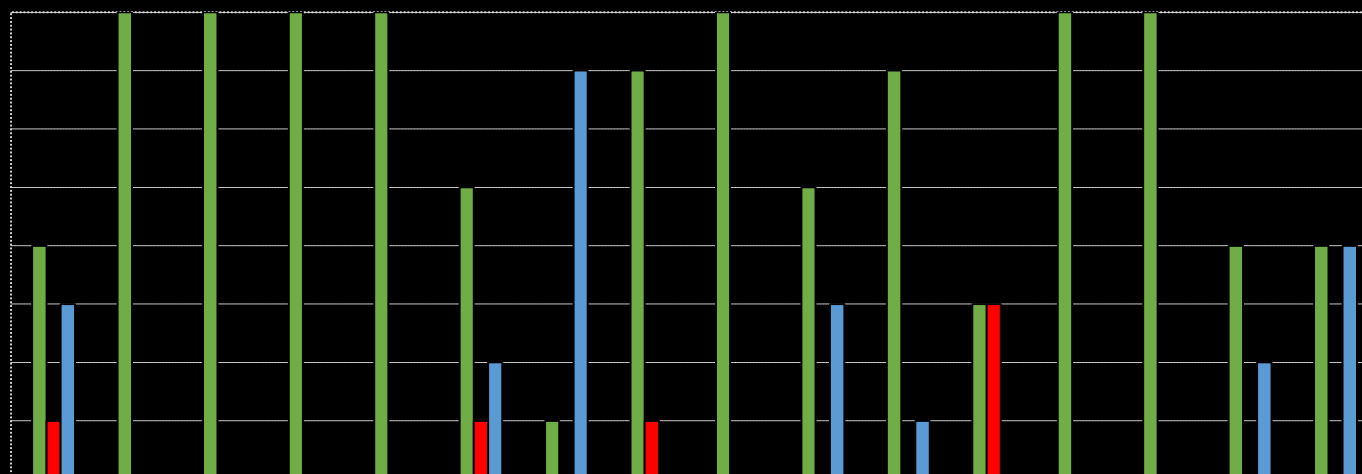
- Analisis Kriteria Kurang Mencapai



■ Mematuhi

■ Tidak Mencapai

■ Tidak berkaitan



Kerja Tanah Lestari
Rakabentuk Mesra OKU
Landskap Strategik
Rekabentuk Bumbung
Orientasi Bangunan
OTTV & RTTV
Tenaga Boleh Baharu
Pengujian & Pentauliahahan
Kualiti Visual
Keselesaan Akustik
Sistem Binaan Berindustri...
Green Product
Pengurusan Sisa Semasa...
3R - Semasa Operasi
SPAHS
Inovasi

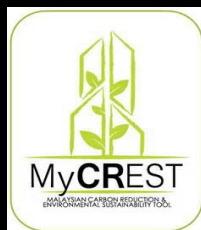
TINDAKAN HOW?

5

1

DESIGN CRITERIA (pHJKR & MyCREST)

MyCREST CRITERIA		
PD	PRE DESIGN	6
IS	INFRASTRUCTURE AND SEQUESTRATION	7
EP	ENERGY PERFORMANCE IMPACTS	12
OH	OCCUPANT AND HEALTH	3
EC	EMBODIED CARBON	6
WE	WATER EFFICIENCY	4
SC	SOCIAL AND CULTURAL SUSTAINABILITY	4
DP	DEMOLATION AND DISPOSAL FACTORS	3
IN	INNOVATION	3
HC	HEALTH CARE	6



pHJKR CRITERIA		
TL	TAPAK LESTARI	9
KT	KECEKAPAN TENAGA	12
PD	PERSEKITARAN DALAMAN	10
SB	SUMBER DAN BAHAN	4
PA	PENGUNAAN AIR	6
IN	INOVASI	1



TINDAKAN HOW?

5

2

DESIGN CRITERIA (pHJKR & MyCREST) -TAPAK LESTARI

pHJKR CRITERIA

TL	TAPAK LESTARI	9
----	---------------	---

MyCREST CRITERIA

PD	PRE DESIGN	6
IS	INFRASTRUCTURE AND SEQUESTRATION	7



It costs **38 trillion** dollars to create oxygen for 6 months for all human beings on earth.
"Trees do it for free"



**TINDAKAN
HOW?**

5

3

DESIGN CRITERIA (pHJKR & MyCREST) -TAPAK LESTARI

pHJKR CRITERIA

TL	TAPAK LESTARI	
		9

TL1 TAPAK LESTARI

TL2 SISTEM PENGURUSAN ALAM SEKITAR

TL3 KERJA TANAH LESTARI

TL4 ESCP

TL5 PENGURUSAN AIR LARIAN HUJAN

TL6 REKABENTUK MESRA (OKU)

TL7 LANDSKAP STRATEGIK

TL8 BUMBUNG DAN DINDING HIJAU

TL9 TEMPAT LETAK KENDERAAN



CAWANGAN ALAM SEKITAR & KECEKAPAN TENAGA

KELESTARIAN MENJANGKAUI

PENARAFAN

**TINDAKAN
HOW?**

5

4

DESIGN CRITERIA (pHJKR & MyCREST) -TAPAK LESTARI

MyCREST CRITERIA		
PD	PRE DESIGN	6
IS	INFRASTRUCTURE AND SEQUESTRATION	7

PD1 TARGET IN NEEDS STATEMENT Ci

PD2 GREEN BUDGET S

PD3 GREEN ECO-CHARRETTE S

PD4 INTEGRATED DESIGN PROCESS S

PD5 ENVIRONMENTAL IMPACT S

PD6 FACILITIES MANAGER

IS - Infrastructure and Sequestration

Req1 SITE INVENTORY ANALYSIS Cr

Req2 Carbon Sequestration LOCAL AUTHORITY Cr

IS1 LOW CARBON CITY Cr

IS2 CARBON ACCOUNTING ON SITE

IS3 ENVIRONMENTAL MANAGEMENT PLAN (EMP) Ci

IS4 STORMWATER MANAGEMENT

IS5 LOW-CARBON TRANSPORT FACTORS Ci

IS6 URBAN HEAT ISLAND MITIGATION Cr

IS7 EXTERNAL LIGHT SPILL AND BRIGHTNESS S



CAWANGAN ALAM SEKITAR & KECEKAPAN TENAGA

National Grids HQ, UK (11,000sqm)

KELESTARIAN MENJANGKAUI

PENARAFAN

TINDAKAN HOW?

5

5

DESIGN CRITERIA (pHJKR & MyCREST) -IS - CARBON CALCULATOR

IS - Infrastructure and Sequestration

Req1 SITE INVENTORY ANALYSIS Cr

Req2 Carbon Sequestration Cr

IS2 CARBON ACCOUNTING ON SITE

IS4 STORMWATER MANAGEMENT

IS6 URBAN HEAT ISLAND MITIGATION Cr

MyCREST CRITERIA

IS

INFRASTRUCTURE AND
SEQUESTRATION

7

Malaysian Carbon Reduction and Environmental Sustainability Tool Urban Heat Island Mitigation Calculator Template

MyCREST
MALAYSIAN CARBON REDUCTION &
ENVIRONMENTAL SUSTAINABILITY TOOL

Project Details	
Project Name	
Building Rating	
Date	28-07-18

IS6.1: Heat Island Mitigation - Roof/Wall

Option	
At least 30% of flat roof area is prepared for shady trees or non-intensive landscaping that is grassy area or shrubs	☐
At least 30% of façade area must be designed as a landscaped wall	☐

Carbon Sequestration for Green Roof/Wall

Option 1: Vegetated Roof	
Total roof area (excluding mechanical equipment, photovoltaic panels and skylights)(m ²)	m ²
Total vegetated roof area (m ²)	m ²
Vegetated roof area, as percentage of total roof area	0.00 %
<i>The vegetated roof area must be at least 50% of the total roof area to earn 1 point.</i>	
Type of Planting	
Grass, Shrubs and Groundcovers	☐
Shady Trees	☐
For Grass, Shrubs and Groundcovers	

Total Dry Weight (TDW)	0.00	kg
Total Carbon Weight (TCW)	0.00	kg
Carbon Sequestration, tCO2e	0.0000	tCO2e

Option 2: Landscaped Wall

Total facade area		m ²
Total vegetated facade area (m ²)		m ²
Vegetated facade area, as percentage of total facade area	0.00	%
<i>The vegetated wall area must be at least 20% of the total roof area to earn 1 point.</i>		
For Grass, Shrubs and Groundcovers		
Total Grass Area		m ²
Total Dry Weight (TDW)	0.00	kg
Total Carbon Weight (TCW)	0.00	kg
Carbon Sequestration, tCO2e	0.0000	tCO2e

SUMMARY

IS6.1 Heat Island Mitigation Roof/Wall point Documented:	NO POINT
Total Carbon Sequestration for Green Roof/Wall :	0.0000 tCO2e/year

TINDAKAN HOW?

5

6

DESIGN CRITERIA (pHJKR & MyCREST) -ENERGY EFFICIENCY (PASSIVE DESIGN)

Req1 BUILDING ENVELOPE PERFORMANCE – OTTV & RTTV

Req2 ROOF THERMAL PERFORMANCE

Req3 BUILDING ENERGY EFFICIENCY PERFORMANCE

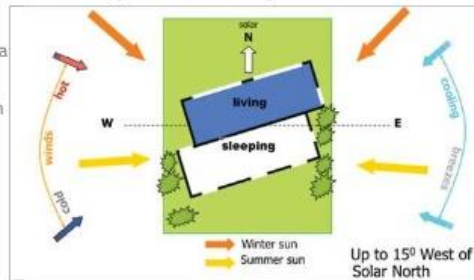
EP1 BUILDING ENVELOPE PERFORMANCE - THERMAL
PERFORMANCE

EP3 ADMISSION OF DAYLIT ZONE AND PROVISION OF
AUTOMATIC CONTROLS

Site/Building Layout and Orientation

The simple act of proper building orientation can create savings of up to 25%. As little as 8 degrees of rotation can impact. Consider the following when siting and orienting

- Elongate the plan on the east/west axis
- Maximize north and south exposure for daylight
- Minimize east and west facing windows
- Orient most populated areas to the north



Double Glazing unit

TINDAKAN
HOW?

5

7

DESIGN CRITERIA (pHJKR & MyCREST) -ENERGY EFFICIENCY (PASSIVE DESIGN)

EP11 BUILDING ENERGY EFFICIENCY PERFORMANCE
EP12 HEAT GAIN CONTROL AND COMFORT
THROUGH NATURAL VENTILATION

CASA LAPIS, DAMANSARA KL

CAWANGAN ALAM SEKITAR & KECEKAPAN TENAGA

KELESTARIAN MENJANGKAUI PENARAFAN

**TINDAKAN
HOW?**

5

8

DESIGN CRITERIA (pHJKR & MyCREST) -ENERGY EFFICIENCY **(ACTIVE DESIGN)**

pHJKR CRITERIA		
KT	KECEKAPAN TENAGA	12

MyCREST CRITERIA		
EP	ENERGY PERFORMANCE IMPACTS	12

- Req4 FUNDAMENTAL REFRIGERANT MANAGEMENT
- EP2 DECENTRALIZATION OF LIGHTING SYSTEMS CONTROL
- EP3 ADMISSION OF DAYLIT ZONE AND PROVISION OF AUTOMATIC CONTROLS
- EP4 ARTIFICIAL LIGHTING
- EP5 INDIVIDUAL METERING
- EP6 RENEWABLE ENERGY
- EP7 ENERGY EFFICIENT UNITARY AIR-CONDITIONING SYSTEMS
- Req5 MAIN COMMISSIONING OF BUILDING ENERGY SYSTEMS
- EP8 IMPROVED COMMISSIONING DURING DESIGN STAGE
- EP9 AIR PENETRATION
- EP10 BUILDING ENERGY MANAGEMENT SYSTEM
- EP11 BUILDING ENERGY EFFICIENCY PERFORMANCE
- Req6 ENERGY EFFICIENCY – PERFORMANCE AND ASSESSMENT



TINDAKAN HOW?

5

9

DESIGN CRITERIA (pHJKR & MyCREST) -PERSEKITARAN DALAMAN

pHJKR CRITERIA		
PD	PERSEKITARAN DALAMAN	10

MyCREST CRITERIA		
OH	OCCUPANT AND HEALTH	3

Req 1 AIR QUALITY PERFORMANCE –

Fresh air rate

Req 2 SMOKING RESTRICTION INDOOR

OH1 MOULD CONTROL

OH2 AIR QUALITY – Low VOC

OH3 CO2 LEVEL CONTROL ci

- PD1 LARANGAN MEROKOK
- PD2 PERANCANGAN RUANG
- PD3 KUALITI VISUAL
- PD4 PRESTASI PENGUDARAAN
- PD5 KESELESAAN THERMAL DAN KAWALAN SUHU
- PD6 KUALITI PERSEKITARAN DALAMAN
- PD7 KESELESAAN AKUSTIK
- PD8 KUALITI UDARA
- PD9 PENCEGAHAN KULAPUK
- PD10 POE



TINDAKAN HOW?

5

10

DESIGN CRITERIA (pHJKR & MyCREST) -EMBODIED CARBON



pHJKR CRITERIA

SB	SUMBER DAN BAHAN	4
----	------------------	---

- SB1 SISTEM BINAAN BERINDUSTRI (IBS)
- SB2 PRODUK HIJAU
- SB3 PENGURUSAN SISA SEMASA PEMBINAAN
- SB4 3R – SEMASA OPERASI

MyCREST CRITERIA

EC	EMBODIED CARBON	6
----	-----------------	---

- Req1 RECYCLING FACILITY
- EC1 GREEN PRODUCTS
- EC2 SUSTAINABLY SOURCES MATERIALS & PRODUCT
- EC3 INDUSTRIAL BUILDING SYSTEM
- EC4 SOLID WASTE MANAGEMENT - ROUTE AND RECYCLERS
- EC5 LIFE CYCLE ANALYSIS (LCA) - BUILDING WORKS
- EC6 SALVAGED AND REUSED MATERIALS



TINDAKAN HOW?

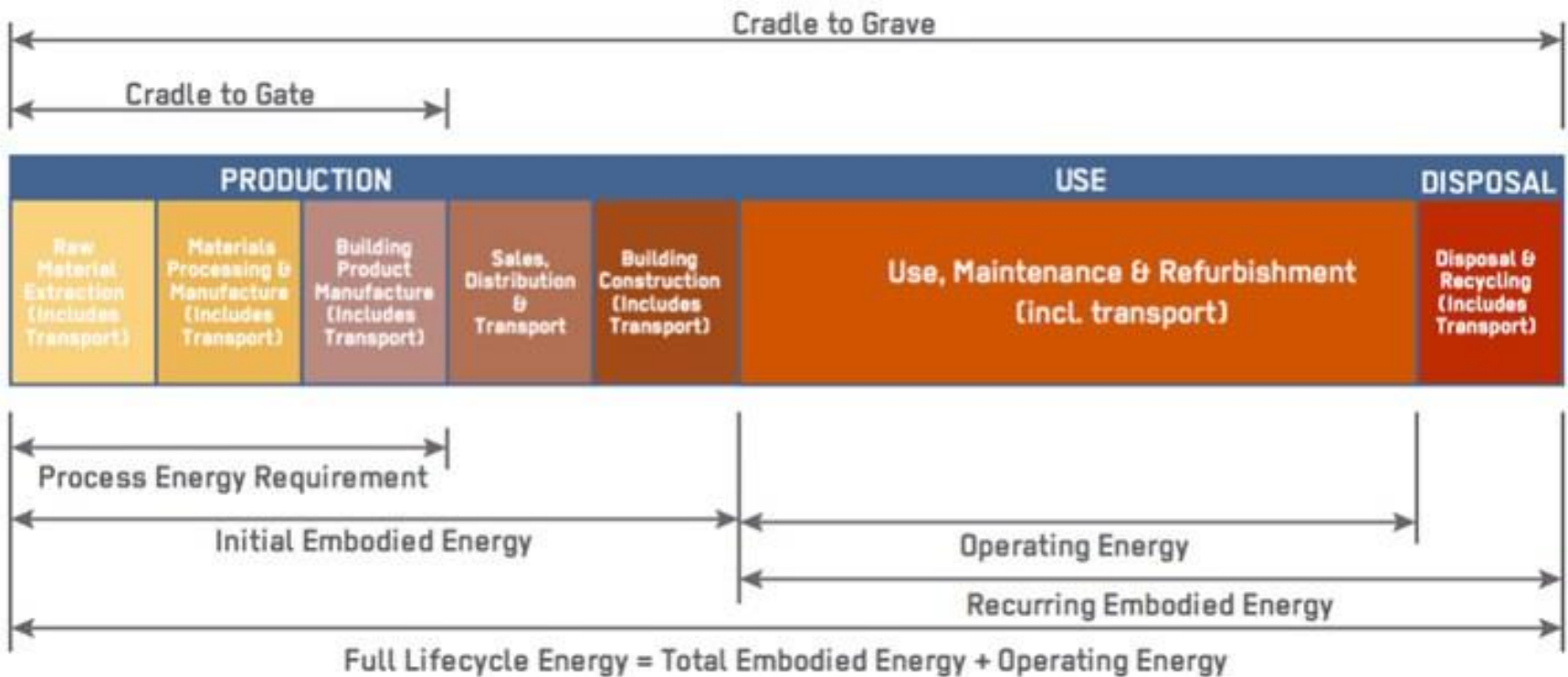
5

11

DESIGN CRITERIA (pHJKR & MyCREST) -EMBODIED CARBON

- EC1 GREEN PRODUCTS
- EC2 SUSTAINABLY SOURCES MATERIALS & PRODUCT

MyCREST CRITERIA		
EC	EMBODIED CARBON	6



TINDAKAN HOW?

5

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DESIGN CRITERIA (pHJKR & MyCREST) -WATER EFFICIENCY

pHJKR CRITERIA

PA	PENGUNAAN AIR	6
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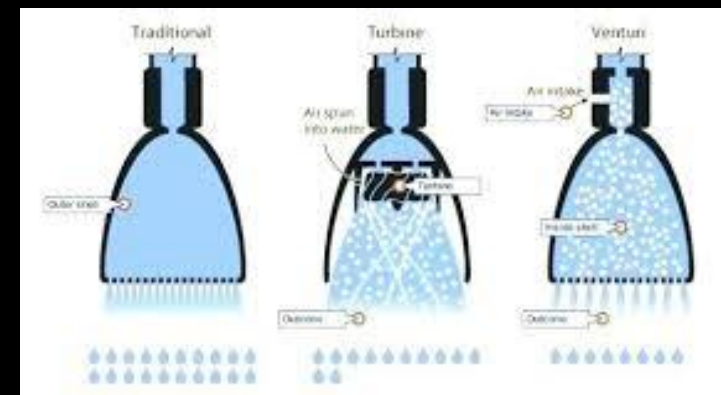
- PA1 PRODUK KECEKAPAN AIR
- PA 2 PENJIMATAN PENGGUNAAN AIR
- PA3 SISTEM PENGUMPULAN DAN PENGGUNAAN SEMULA AIR HUJAN (SPA H)
- PA4 KITAR SEMULA AIR SISA
- PA5 SUB-METER AIR
- PA6 SISTEM PENGESAN KEBOCORAN AIR



MyCREST CRITERIA

WE	WATER EFFICIENCY	4
----	------------------	---

- Req1 REDUCE POTABLE WATER - 10% REDUCTION
- WE1 WATER CONSERVATION STRATEGIES
- WE2 REDUCED POTABLE WATER FOR LANDSCAPE
- WE3 WATER SUB-METERING AND LEAK DETECTION
- WE4 RECYCLED GREY WATER



TINDAKAN
HOW?

5

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DESIGN CRITERIA (pHJKR & MyCREST) -SOCIAL AND CULTURAL SUSTAINABILITY

MyCREST CRITERIA

SC	SOCIAL AND CULTURAL SUSTAINABILITY	4
----	---------------------------------------	---

- SC2 ACCESS TO VIEWS FROM WORK AREAS
- SC3 COMPATIBILITY OF URBAN AND FAÇADE DESIGN TO CULTURAL VALUES
- SC4 MAINTENANCE OF HERITAGE VALUE OF EXISTING FACILITIES



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KELESTARIAN MENJANGKAUI

PENARAFAN

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DESIGN CRITERIA (pHJKR & MyCREST) -SOCIAL AND CULTURAL SUSTAINABILITY

City Hall, Penang



**TINDAKAN
HOW?**

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DESIGN CRITERIA (pHJKR & MyCREST) -SOCIAL AND CULTURAL SUSTAINABILITY

- SC3 COMPATIBILITY OF URBAN AND FAÇADE DESIGN TO CULTURAL VALUES
- SC4 MAINTENANCE OF HERITAGE VALUE OF EXISTING FACILITIES

MyCREST CRITERIA

SC	SOCIAL AND CULTURAL SUSTAINABILITY	4
----	------------------------------------	---



TINDAKAN HOW?

5

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DESIGN CRITERIA (pHJKR & MyCREST) -DEMOLITION AND DISPOSAL FACTORS

MyCREST CRITERIA

DP	DEMOLITION AND DISPOSAL FACTORS	3
----	---------------------------------	---

- DP1 RESPONSIBLE SOURCING OF MATERIALS
- DP2 DESIGN FOR DIS-ASSEMBLY
- DP3 EXISTING STRUCTURAL MATERIAL REUSED



KENGO KUMA, CAFE



TINDAKAN
HOW?

5

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DESIGN CRITERIA (pHJKR & MyCREST) -INOVATION

pHJKR CRITERIA

IN	INOVASI	1
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MyCREST CRITERIA

IN	INNOVATION	3
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THE LOUVE, ABU DHABI, UAE

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KELESTARIAN MENJANGKAUI

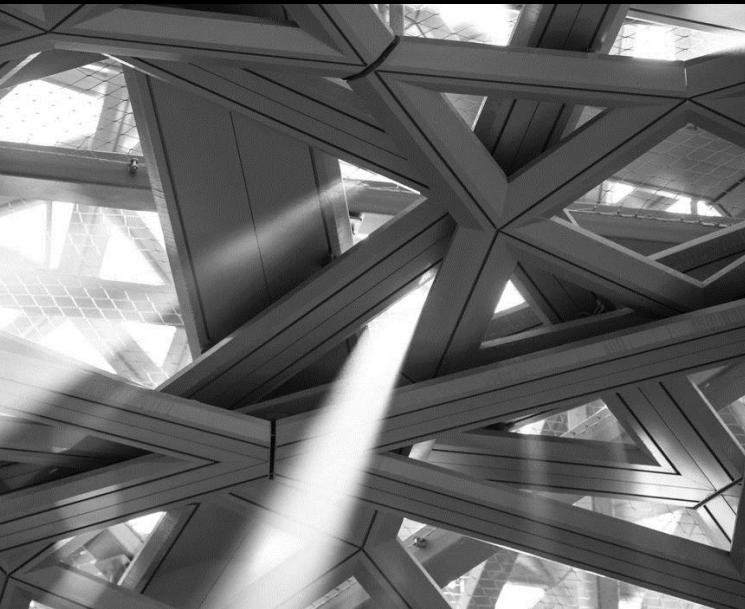
PENARAFAN

TINDAKAN
HOW?

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DESIGN CRITERIA (pHJKR & MyCREST) -INNOVATION



THE LOUVE, ABU DHABI, UAE

JEAN NOUVEL

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KELESTARIAN MENJANGKAUI

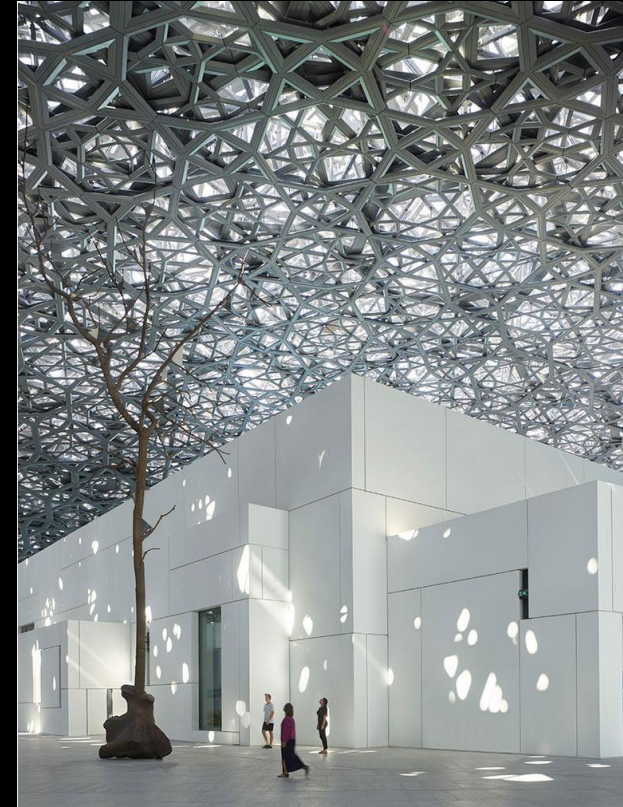
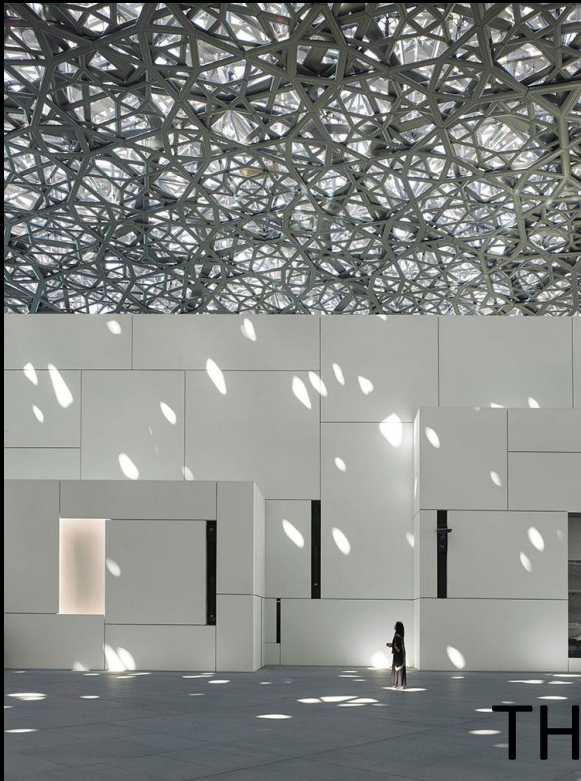
PENARAFAN

TINDAKAN
HOW?

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DESIGN CRITERIA (pHJKR & MyCREST) -INOVASI



THE LOUVE, ABU DHABI, UAE

JEAN NOUVEL

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HOW?

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DESIGN CRITERIA (pHJKR & MyCREST) -HEALTH CARE

INFRASTRUCTURE AND SEQUESTRATION

HC1 CONNECTION TO NATURAL WORLD

HC2 EQUIPMENT AND MEDICAL EQUIPMENT EFFICIENCY

MyCREST CRITERIA

HC

HEALTH CARE

6

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WOMEN HOSPITAL,
BOSTON , MA USA



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KELESTARIAN MENJANGKAUI

PENARAFAN

TINDAKAN
HOW?

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PENARAFAN

TINDAKAN
HOW?

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HOW?**

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INFRASTRUCTURE AND SEQUESTRATION

HC1 CONNECTION TO NATURAL WORLD

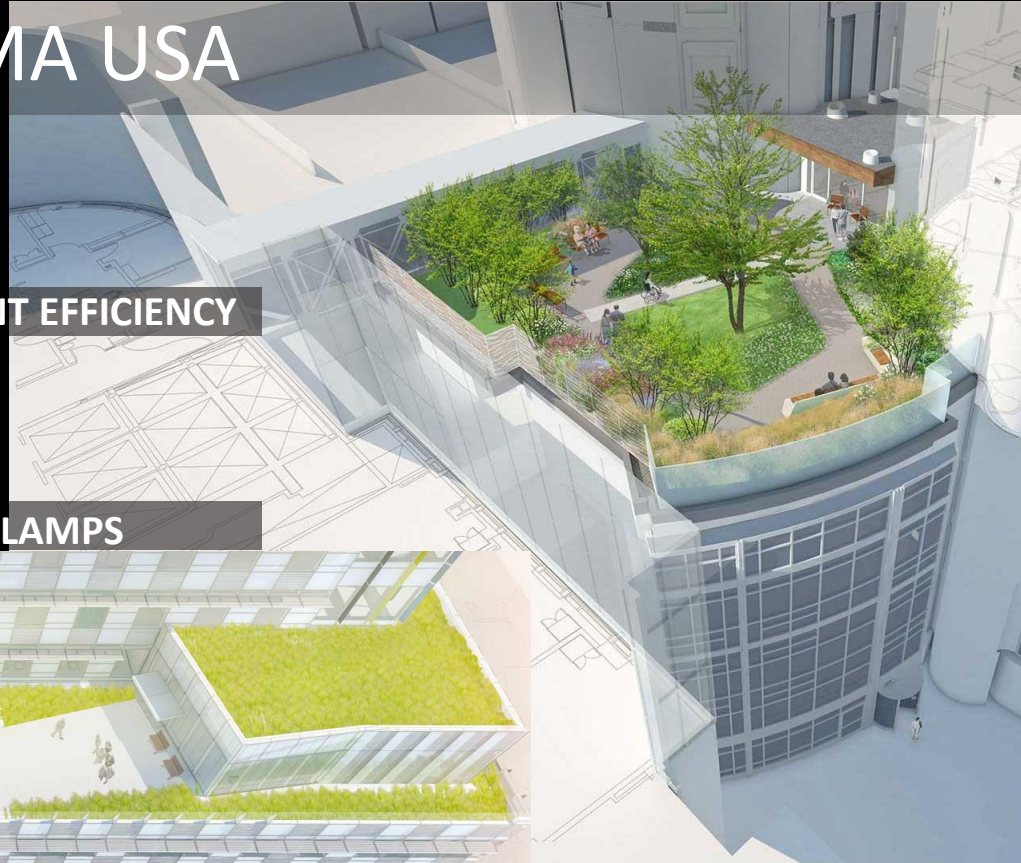
HC2 EQUIPMENT AND MEDICAL EQUIPMENT EFFICIENCY

OCCUPANT & HEALTH

HC4 INDOOR LEISURE AREAS

LOWERING THE EMBODIED CARBON

HC6 PBT SOURCE DECREASE - MERCURY IN LAMPS



CAWANGAN ALAM SEKITAR & KECEKAPAN TENAGA

KELESTARIAN MENJANGKAUI

PENARAFAN

**TINDAKAN
HOW?**

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DESIGN CRITERIA (pHJKR & MyCREST) -HEALTH CARE

**INFRASTRUCTURE AND SEQUESTRATION
OCCUPANT & HEALTH**

**HC3 CONTROL & STRATEGIES TO REDUCE MOULD
OCCURANCE FOR HEALTHCARE**

HC4 INDOOR LEISURE AREAS

HC5 DAYLIGHT & VIEWS: LIGHTING & CIRCADIAN RHYTHMS

LOWERING THE EMBODIED CARBON

HC6 PBT SOURCE DECREASE - MERCURY IN LAMPS



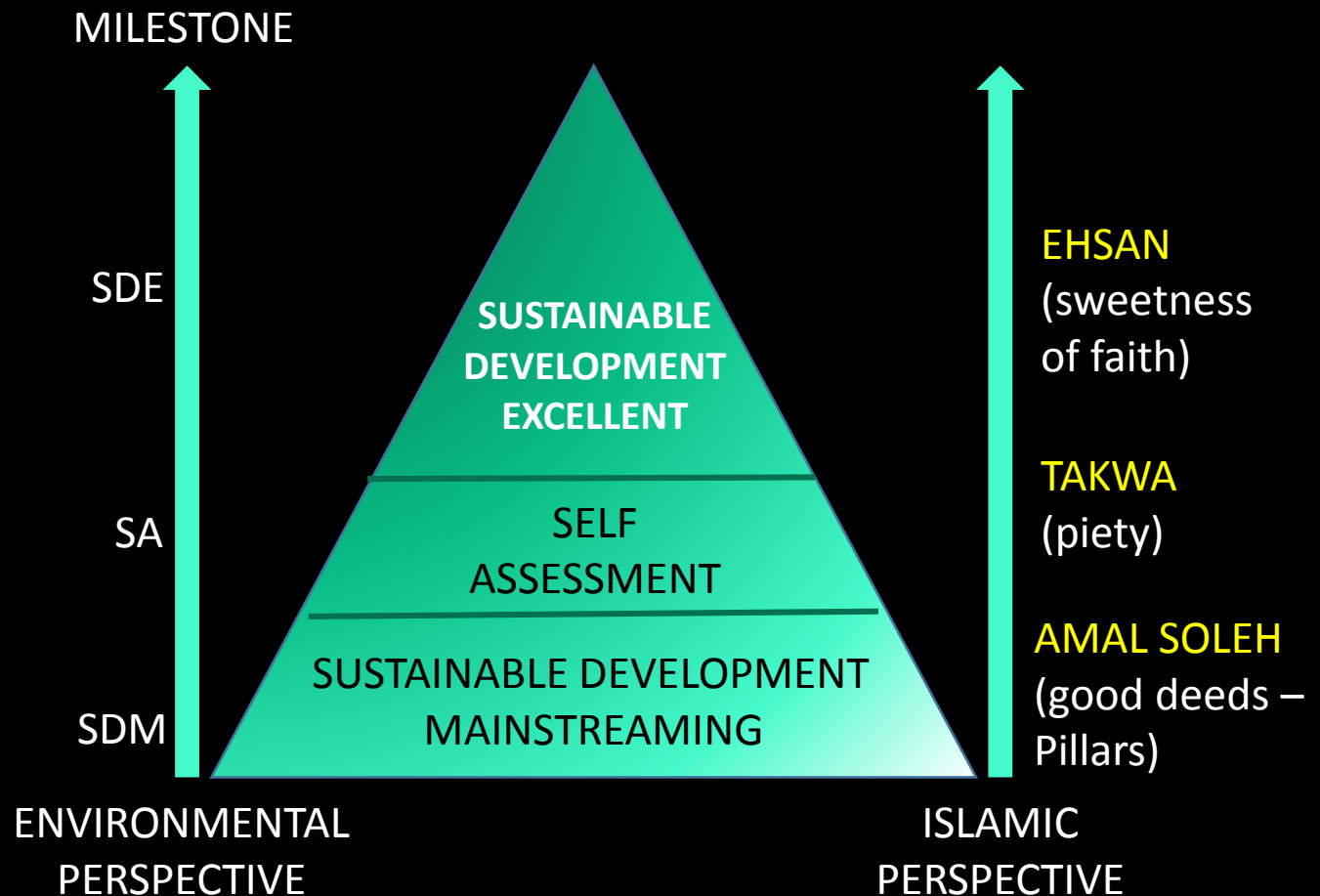
ZULEKHA HOSPITAL, DUBAI UAE

TINDAKAN
HOW?

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ENVIRONMENTAL RESPONSIBILITY





BE KIND TO
EVERYTHING
THAT LIVES.

Thank you