



KEMENTERIAN
PENDIDIKAN
MALAYSIA



BENGKEL
**BLUEPRINT POLYGreen POLITEKNIK
MALAYSIA**

21-23hb Januari 2015
Hotel Equatorial, Melaka



KEMENTERIAN
PENDIDIKAN
MALAYSIA



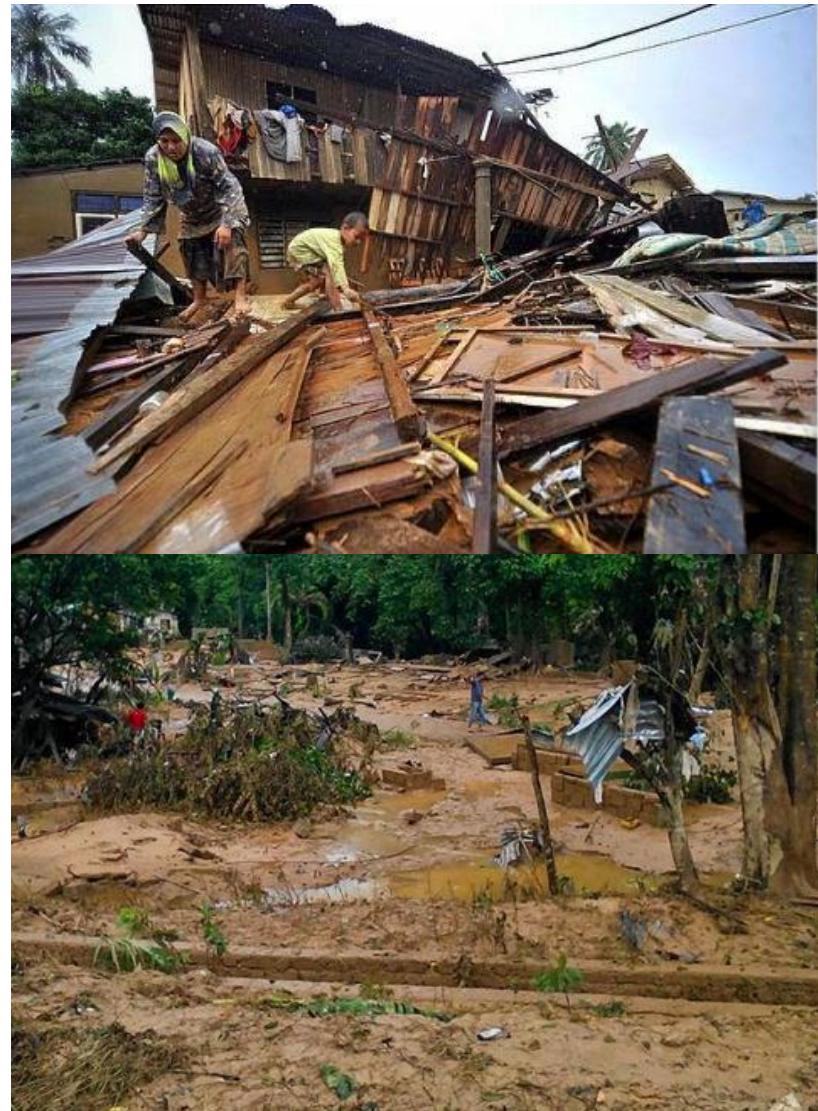
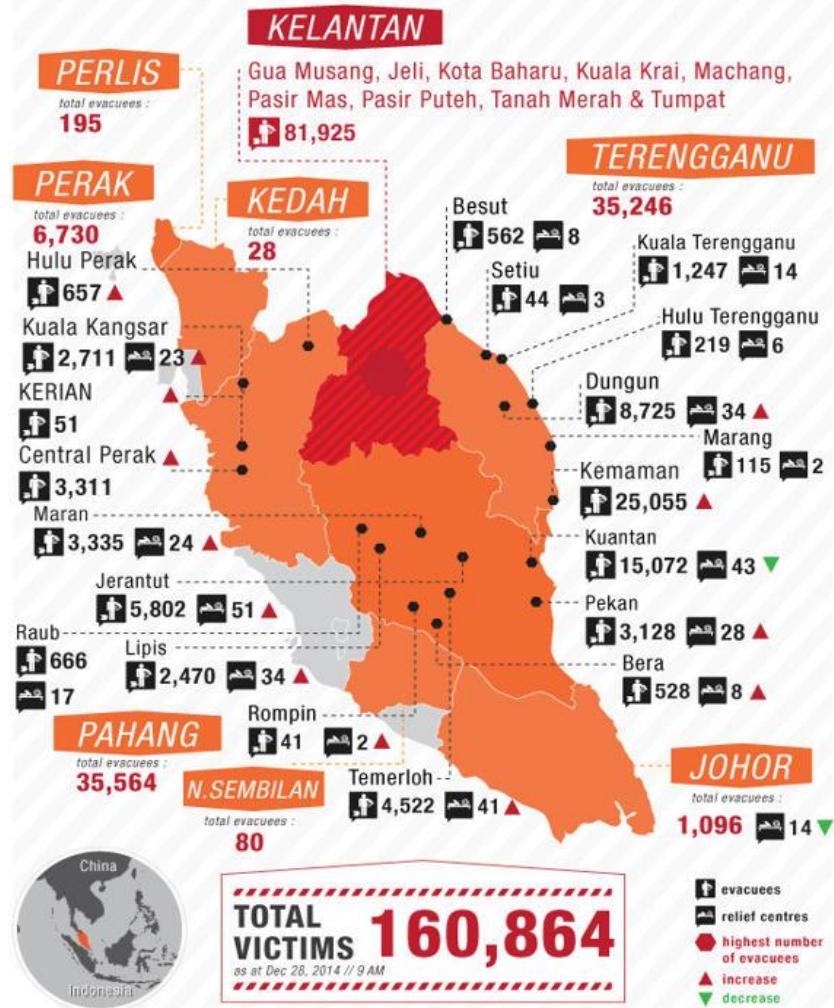
PENGENALAN
BLUEPRINT POLYGreen
POLITEKNIK MALAYSIA

MATLAMAT BENGKEL

Memberi penerangan, pendedahan dan maklumat tentang kaedah penyediaan Blueprint POLYGreen, pengurusan, perlaksanaan, pemantauan, pengukuran & verifikasi serta pelaporan kepada Pengurusan Tertinggi Jabatan Pembangunan Politeknik supaya Program POLYGreen dapat berjalan dengan lancar dan berjaya mencapai matlamat.

PERUBAHAN IKLIM MENINGKATKAN INTENSI HUJAN YANG MENYEBABKAN BANJIR BESAR

FLOOD-HIT AREAS IN PENINSULAR MALAYSIA



BANJIR KILAT AKIBAT LIMPAHAN AIR EMPANGAN KERANA INTENSITI AIR HUJAN YANG SANGAT TINGGI DI CAMERON HIGHLAND



TAUFAN HAIYAN (2013) & TAUFAN HAGUPIT (2014) MEMBAWA KEMUSNAHAN TERUK DI FILIPINA AKIBAT PERUBAHAN IKLIM

Super typhoon **HAIYAN**

(locally known as YOLANDA)

Haiyan hit the Philippines on Nov. 8 as a Category 5 storm with maximum sustained winds of 146 m.p.h. as well as wind gusts over 170 m.p.h.

11.8 MILLION
PEOPLE AFFECTED

921,212 PEOPLE
DISPLACED

4,460 REPORTED
DEATHS

995 EVACUATION
CENTERS

HOUSING

345,834 PEOPLE

OCHA totals as of Nov. 14



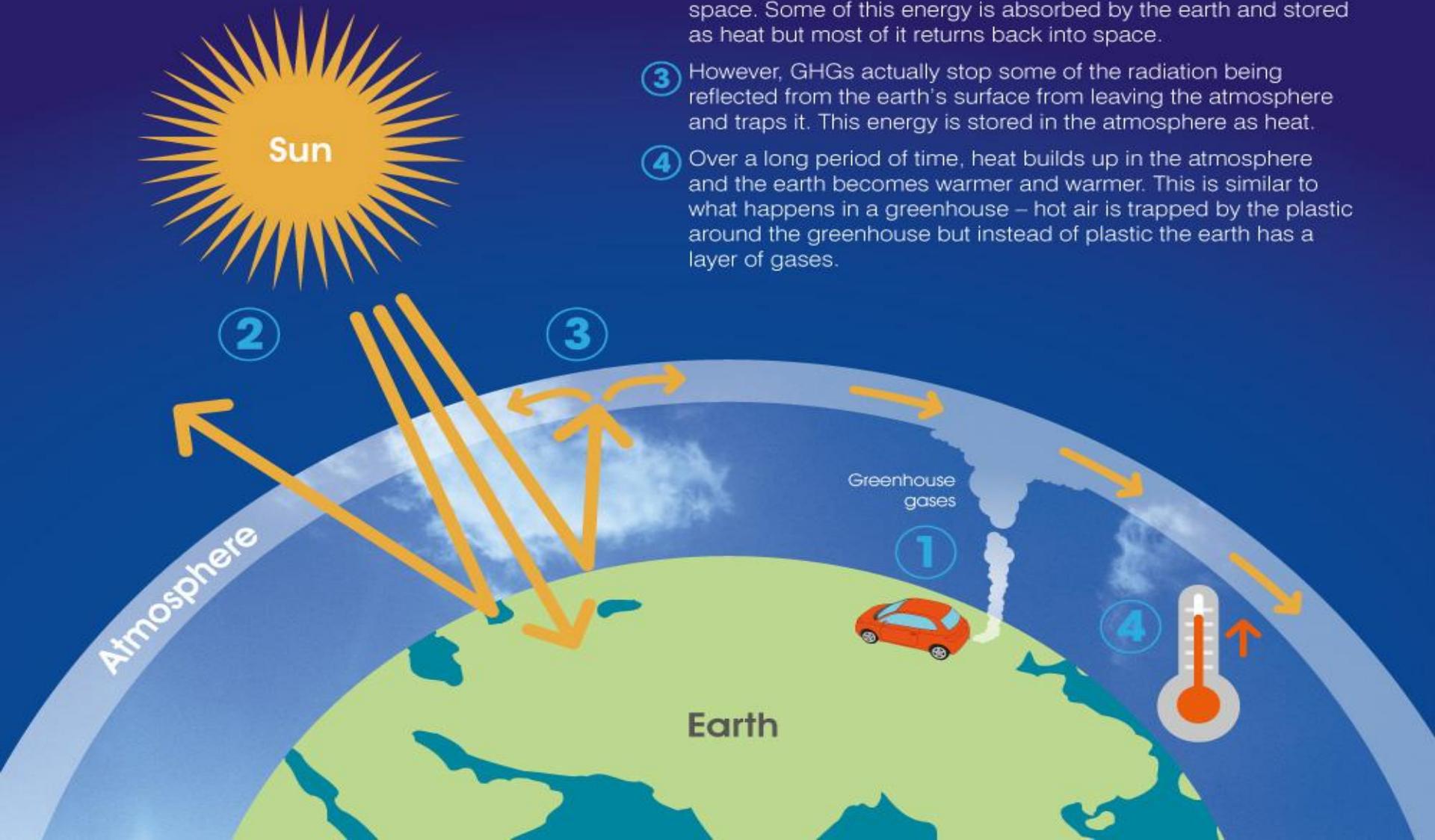
RICH CLABAUGH /STAFF



TAUFAN HAGUPIT MENYEBAB 1 JUTA MENCARI PERLINDUNGAN



The enhanced Greenhouse Effect



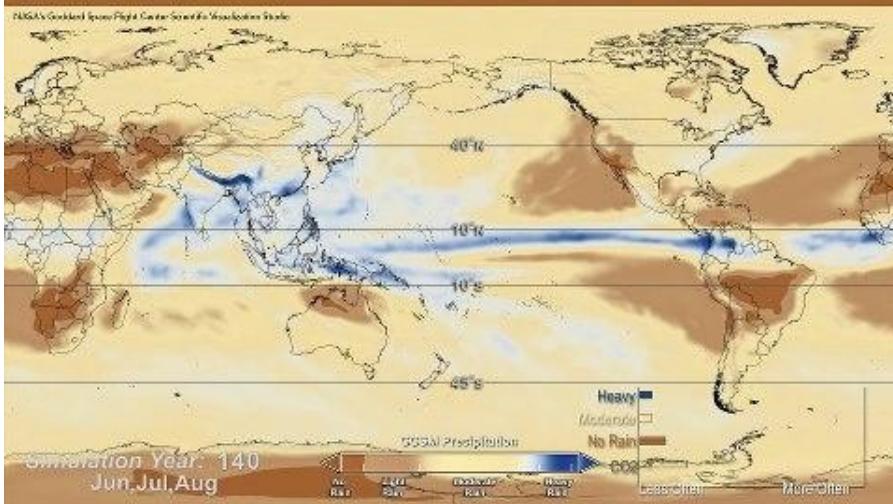
Too much GHG emissions can lead to a problem called the Greenhouse Effect.

- ① When GHGs are released into the air from sources such as cars, they are trapped around the earth in the atmosphere.
- ② As energy from the sun (radiation) comes through the atmosphere to earth, it bounces off the earth's surface and goes back out into space. Some of this energy is absorbed by the earth and stored as heat but most of it returns back into space.
- ③ However, GHGs actually stop some of the radiation being reflected from the earth's surface from leaving the atmosphere and traps it. This energy is stored in the atmosphere as heat.
- ④ Over a long period of time, heat builds up in the atmosphere and the earth becomes warmer and warmer. This is similar to what happens in a greenhouse – hot air is trapped by the plastic around the greenhouse but instead of plastic the earth has a layer of gases.

RAINFALL GETS EXTREME

Warming from CO₂ will change the frequency at which regions around the planet receive rainfall

PREDICTED RAINFALL CHANGES OVER THE NEXT 140 YEARS



PERBEZAAN TEKANAN SUHU AIR LAUT DAN DATARAN YANG TINGGI MENYEBABKAN TAUFAN BERLAKU

PEMANASAN GLOBAL AKAN MEMYEBAKAN KEKURANGAN SUMBER AIR DIDARATAN

“These weather events are not simply an example of what climate change could bring.

They are caused by climate change.”

—James Hansen
NASA Climate Scientist

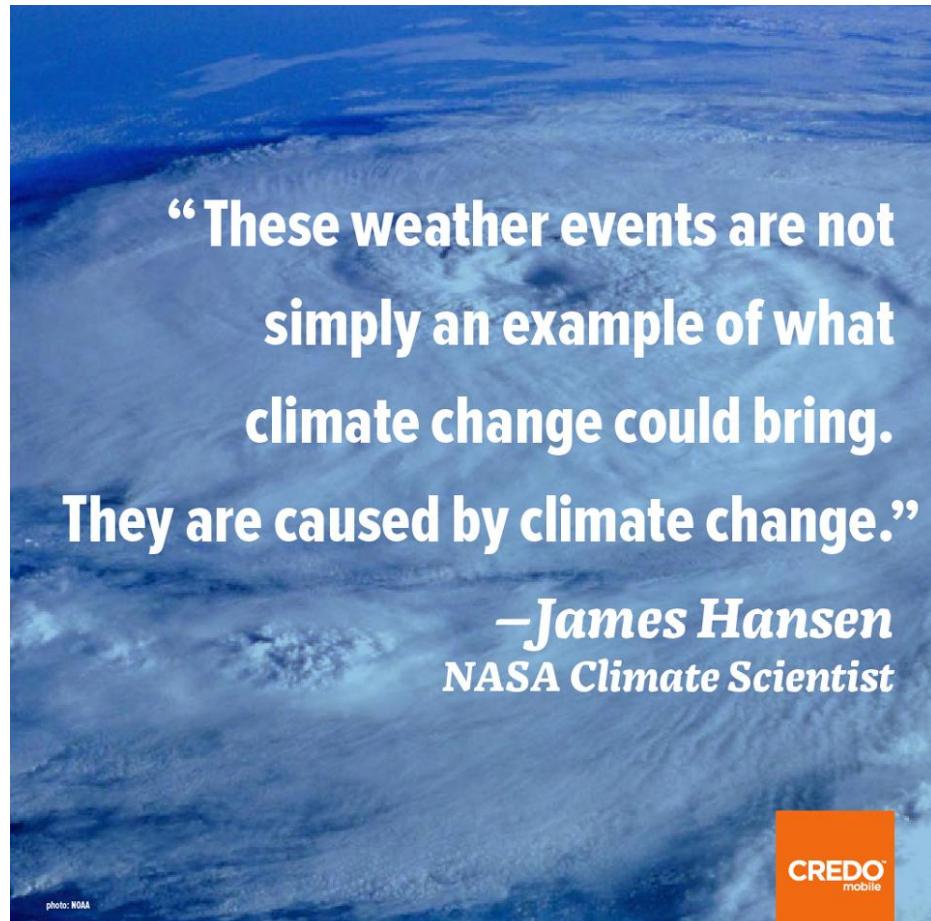
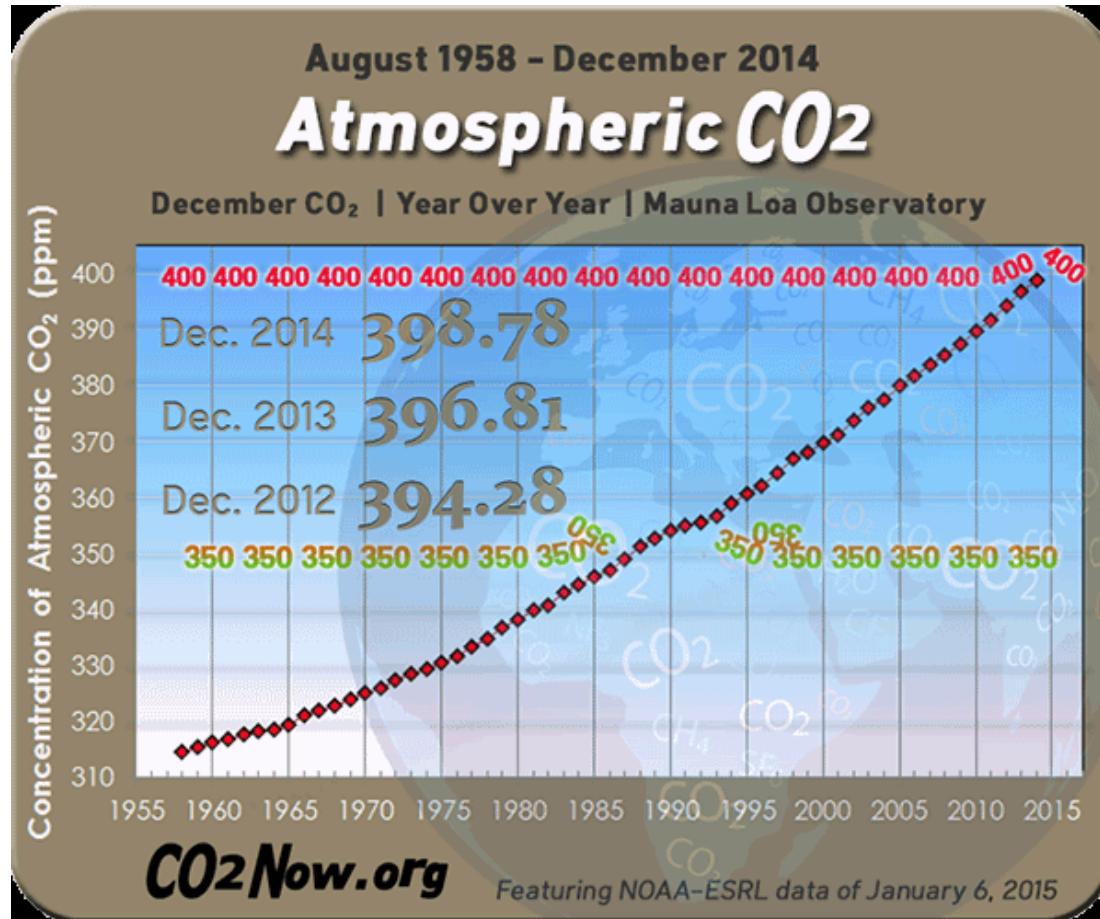
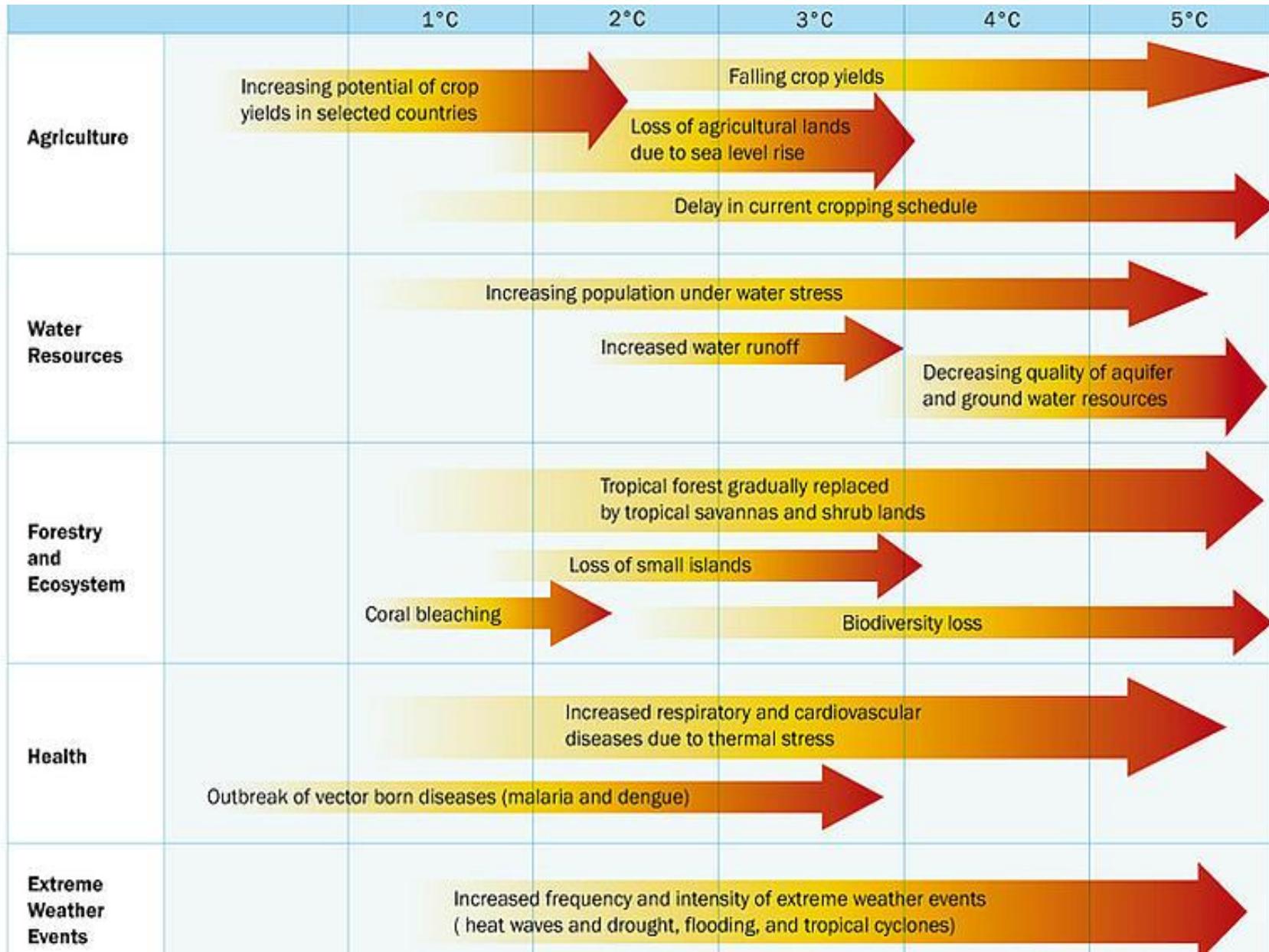


photo: NOAA

KEDUDUKAN INTENSITI CO₂ PADA DISEMBER 2014



IMPAK AKIBAT PEMANASAN GLOBAL



PARAS AIR LAUT NAIK AKIBAT KECAIRAN AIS DI KUTUB UTARA DAN SELATAN

1982



2007



National Snow and Ice Data Center, 2007

2010 - 2030



2040 - 2060

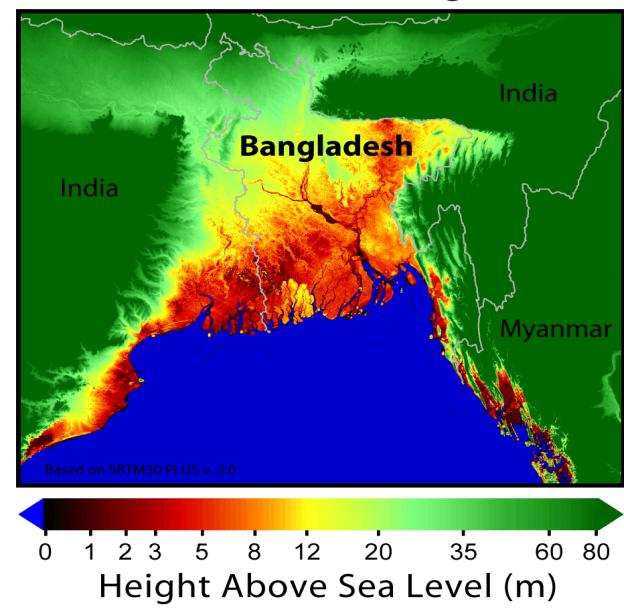


2070 - 2090

Arctic Climate Impact Assessment, 2004

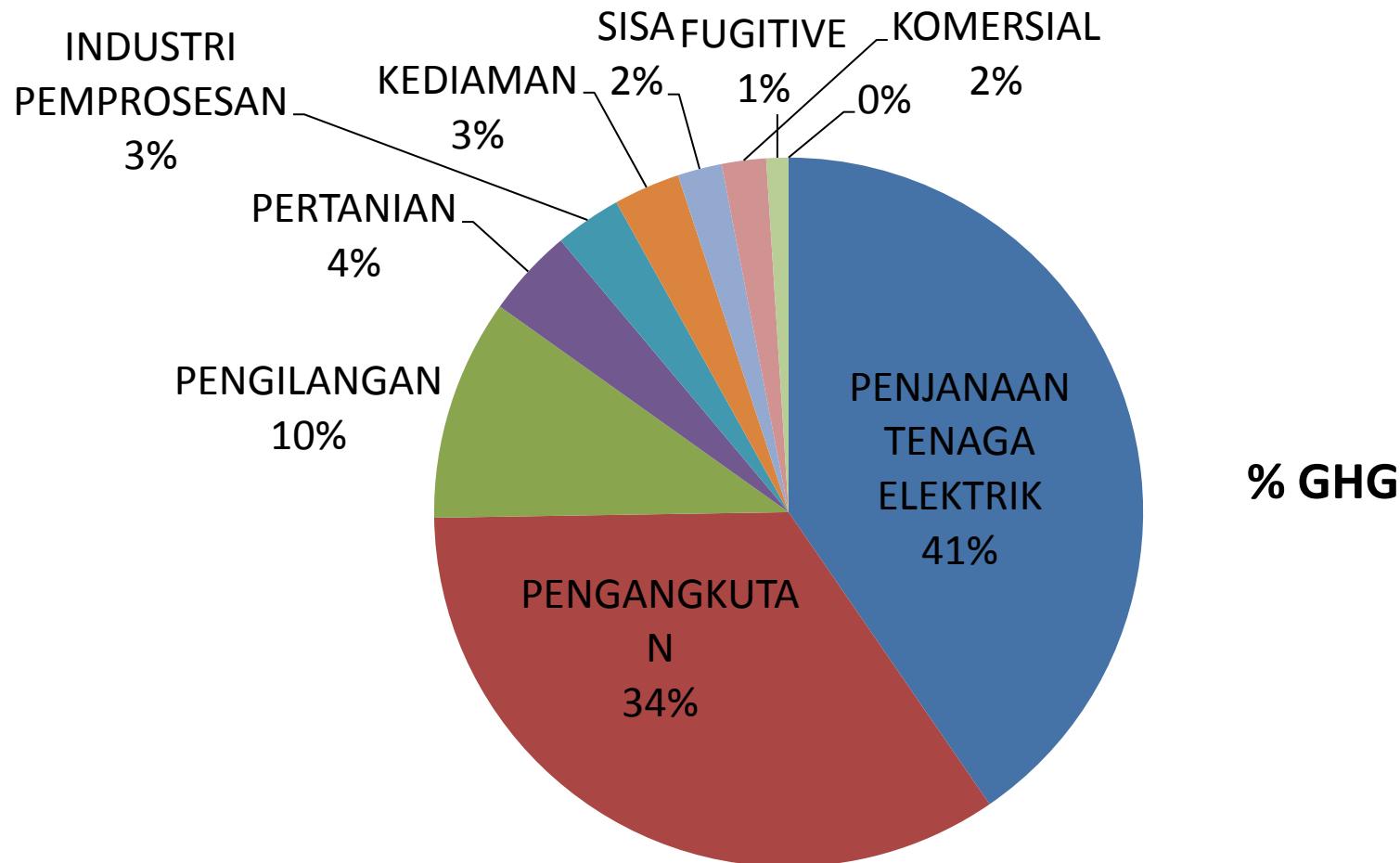


Sea Level Risks - Bangladesh

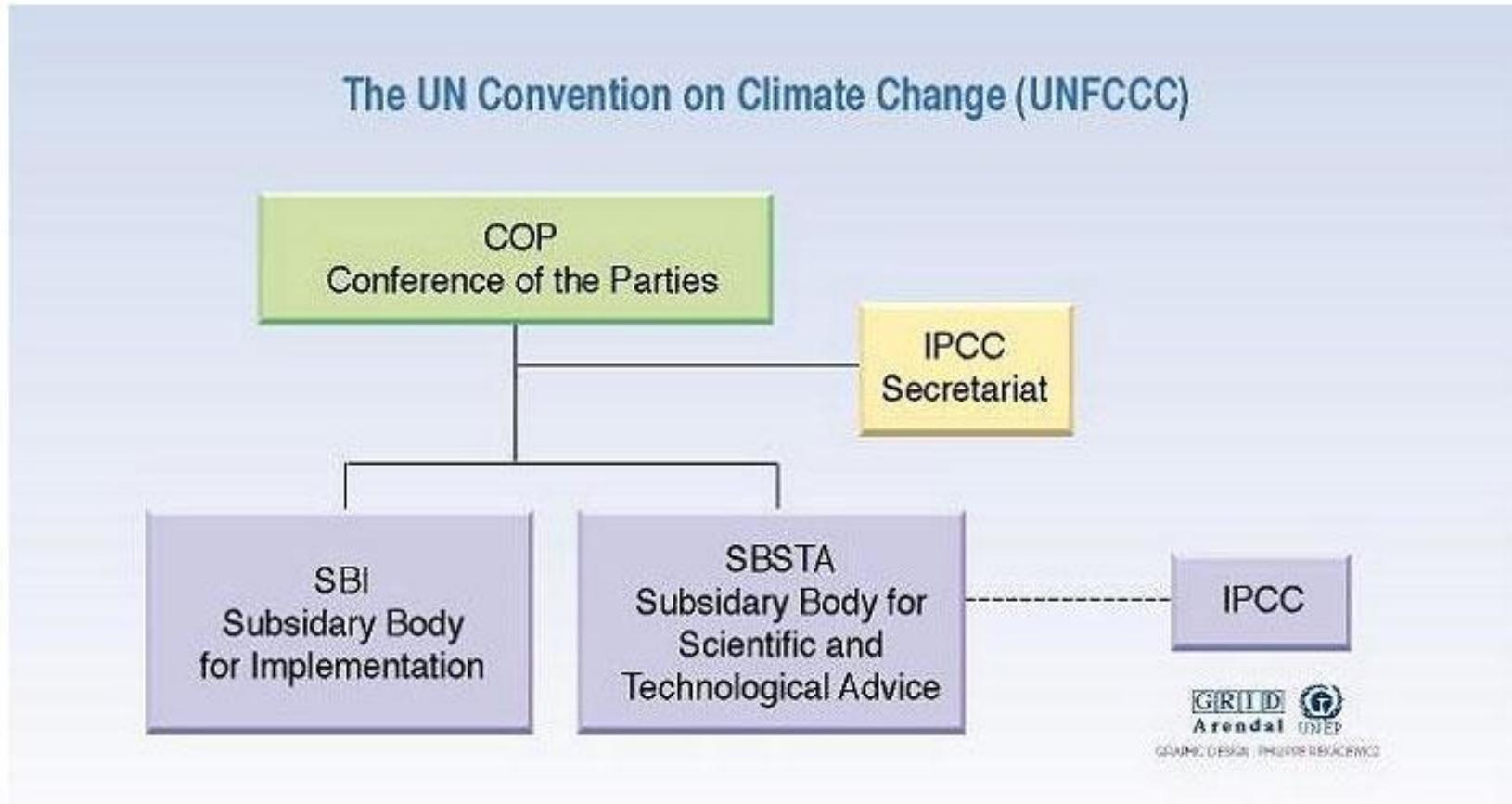


0 1 2 3 5 8 12 20 35 60 80
Height Above Sea Level (m)

PUNCA PELEPASAN GAS RUMAH HIJAU (GHG) (secara am)



STRUKTUR BADAN ANTARABANGSA PBB MENGENAI PERUBAHAN IKLIM

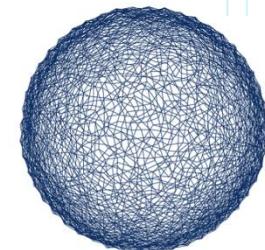


Source: United Nations framework convention on climate change (UNFCCC)

SEJARAH “THE UNFCCC- CONFERENCE OF THE PARTIES (COP)”



Kyoto Protocol



COP15
COPENHAGEN
UN CLIMATE CHANGE CONFERENCE 2009



1972 First UN environmental conference

1992 Earth Summit: climate change convention was signed

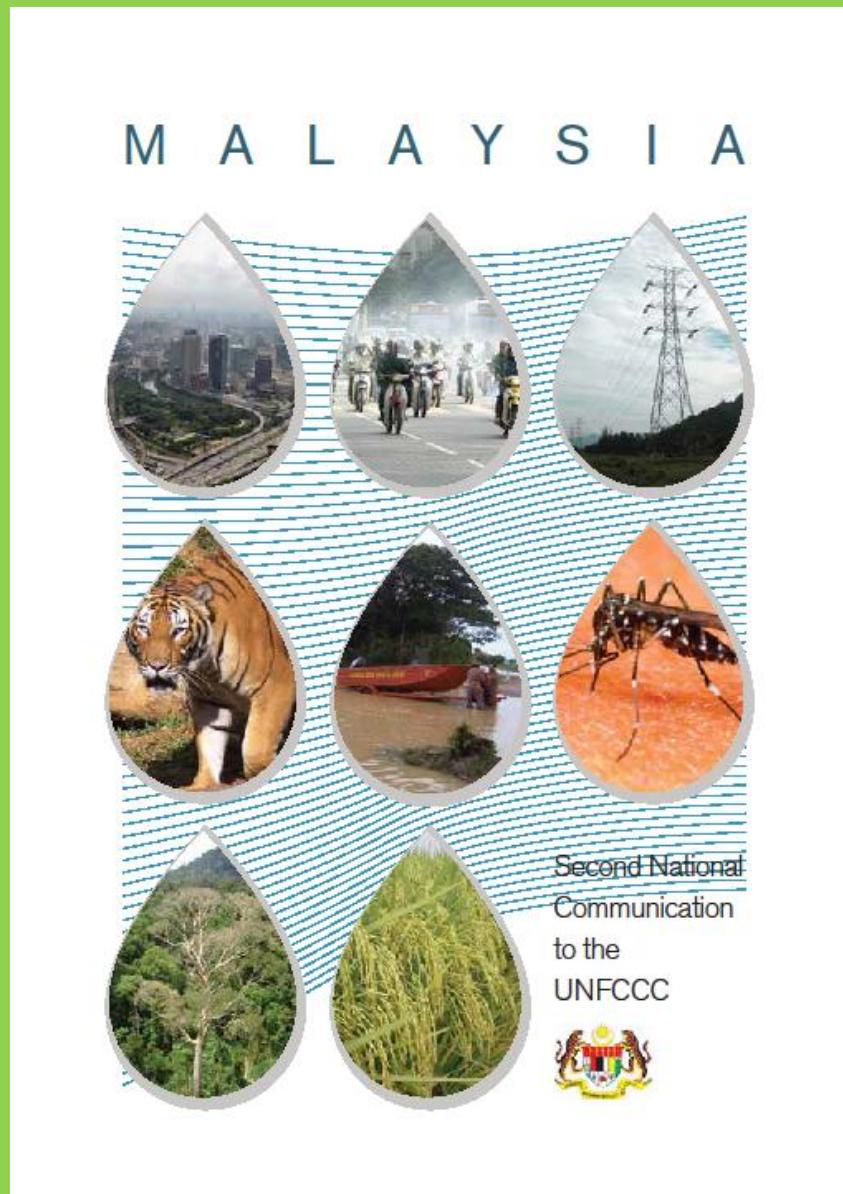
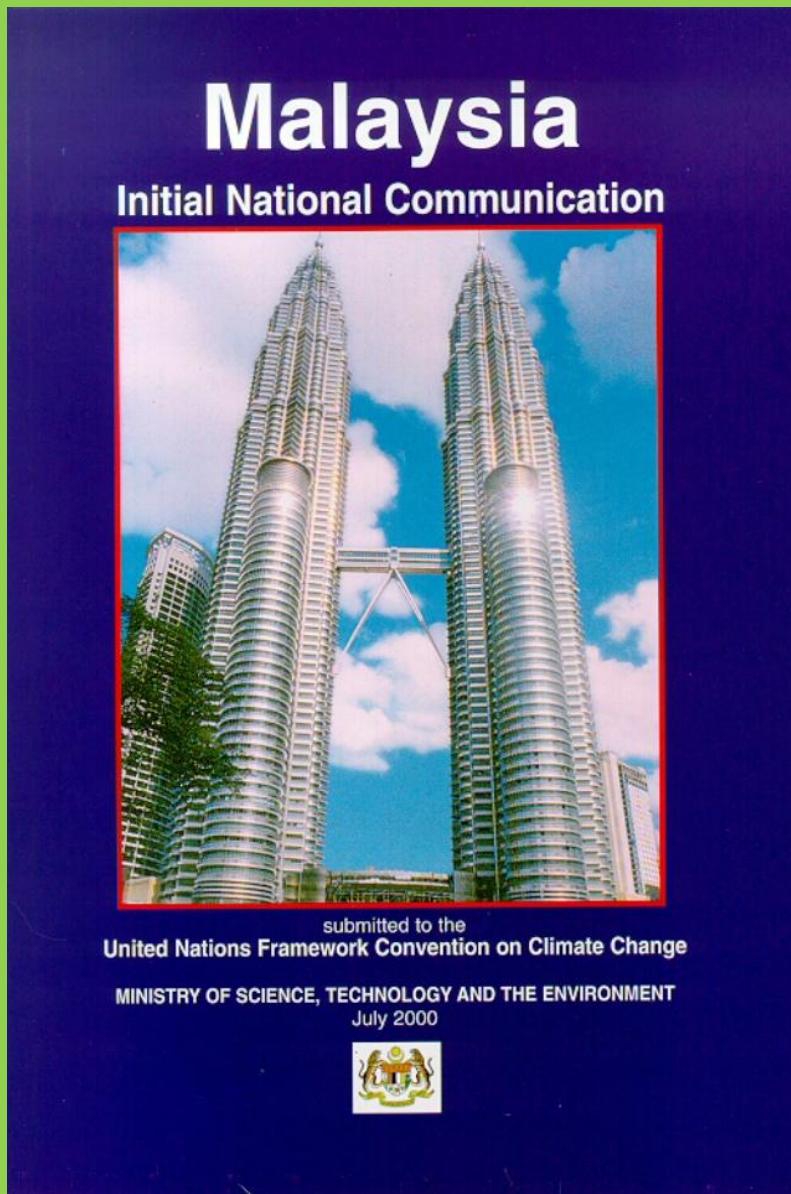
1997 Kyoto Protocol was signed

2005 Kyoto Protocol entered into force

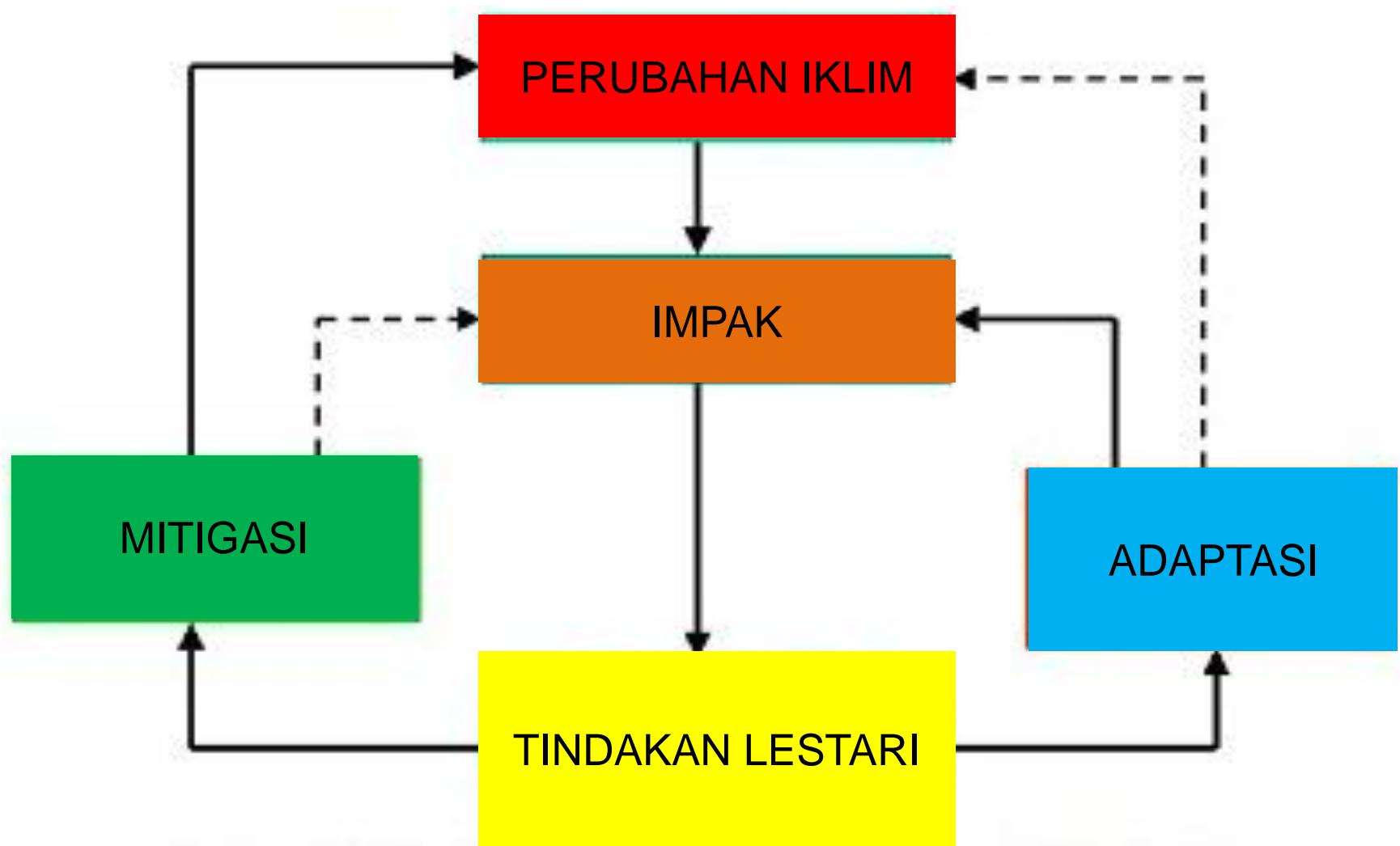
2007 Bali Road Map set the course to the next agreement

2009 Copenhagen's post 2012 agreement

PELAPORAN KE UNFCCC



KAEDAH UNTUK MENANGANI PERUBAHAN IKLIM & PEMANASAN GLOBAL



MENGAPA PERLU PROGRAM KELESTARIAN/HIJAU?

1. Hakikat manusia untuk menjaga alam semulajadi
2. Usaha antarabangsa yang wajib/sukarela untuk dipatuhi/ikuti (*Kyoto protocol, Durban Platform, dll*)
3. Halangan perdagangan antarabangsa (*Carbon tax, eco-labeling, carbon neutral state, dll*)
4. Perhubungan antarabangsa (*green NYPD, green army, dll*)
5. Kesatuan antarabangsa (*ACI-carbon neutral airport, World Maritime-green seaport, dll*)
6. Peluang pekerjaan dan perniagaan baru

COPENHAGEN – BANDAR YANG BERTARAF NEUTRAL KARBON PERTAMA



LAPANGAN TERBANG AMSTERDAM SCHIPHOL BERPENARAFAN NEUTRAL KARBON PADA APRIL 2014



LEED CERTIFIED RENSSELAER POLYTECHNIC INSTITUTE



KILANG KERETA HONDA ADALAH YANG TERAWAL BERPENARAFAN HIJAU



KOMITMEN MALAYSIA SEMASA COP15



“ I would also like to announce here in Copenhagen that Malaysia is adopting an indicator of a voluntary reduction of up to 40% in terms of emissions intensity of GDP by the year 2020 compared to 2005 levels. This indicator is conditional on receiving the transfer of technology and finance of adequate and correspond to what is required in order to achieve this indicator”

YAB PM semasa di Copenhagen pada 17^{hb}
Disember 2009

KEDUDUKAN INTENSITI KARBON MALAYSIA

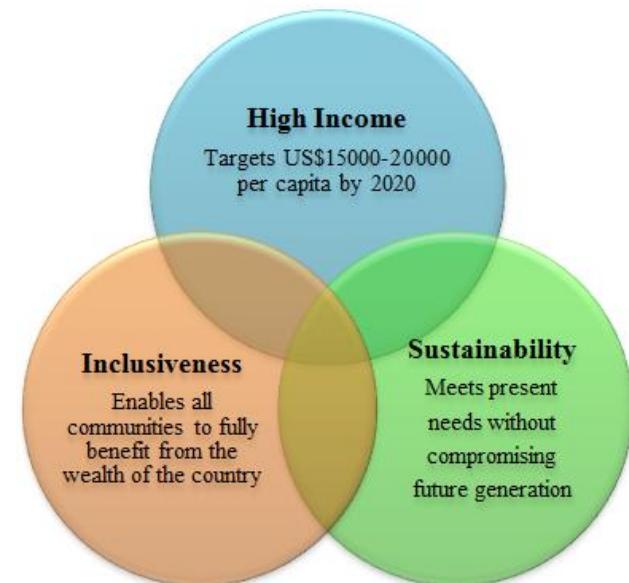
Index	Unit	2000	2005	2020 (BAU)	2020 (mitigation)
GDP	RM Billion	356.401	449.250	906.640*	906.640*
Emissions	Million tons	223	279	375.5	336.6
Carbon Intensity of GDP (CO ₂ e/ GDP)	Million tons / RM Billion	0.63	0.62	0.42	0.37 (40% reduction of 2005 level)

PM BERUCAP DI PBB SEMASA CLIMATE SUBMIT PADA 23 SEPT.2014



*NEW YORK:
Malaysia is well
on track to hit its
target of cutting
the carbon
emissions
intensity of the
country's Gross
Domestic Product
(GDP) by 40
percent*

VISI MALAYSIA UNTUK MENCAPAI STATUS NEGARA MAJU BERPENDAPATAN TINGGI & RENDAH KARBON PADA TAHUN 2020





ULASAN BANK DUNIA MENGENAI WAWASAN MALAYSIA

- ✓ Real growth rate of 6% per annum over next 10 years beginning 2010 will assure Malaysia of achieving HIGH INCOME NATION where projected Gross National Income (GNI) per capita (2020) will be RM48,000 or USD 15,000.00
- ✓ For Malaysia to reach its ambition of becoming a developed nation by 2020, the World Bank proposed a four pillar strategy;
 - i. efforts to specialise the economy further,
 - ii. improve the skills of its workforce,
 - iii. make growth more inclusive and
 - iv. strengthen public finances.



International
Labour
Organization

CONCEPT AND POLICY DEFINITION OF GREEN JOBS

Green jobs are decent jobs in any economic sector that:

- (i) reduce consumption of energy and raw materials;
- (ii) limit greenhouse gas emissions;
- (iii) minimize waste and pollution; and
- (iv) protect and restore ecosystems (UNEP, ILO, IOE, ITUC, 2008).

Green jobs help reduce environmental impact, ultimately to levels that are sustainable.

GREEN JOBS MAPPING STUDY IN MALAYSIA

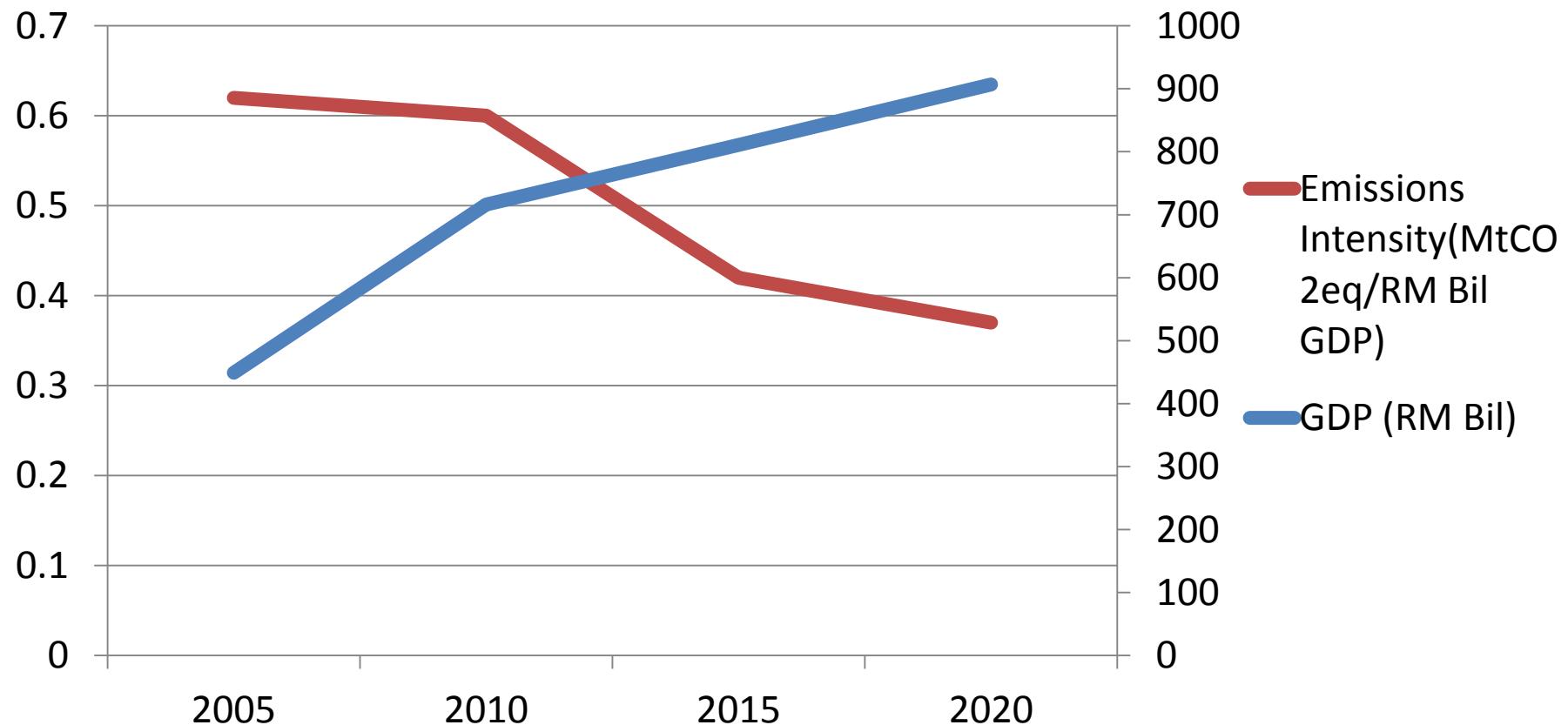
The mapping study was conducted to estimate and identify green jobs in Malaysia and potential challenges to developing a greener economy with green jobs and decent work.

EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD)

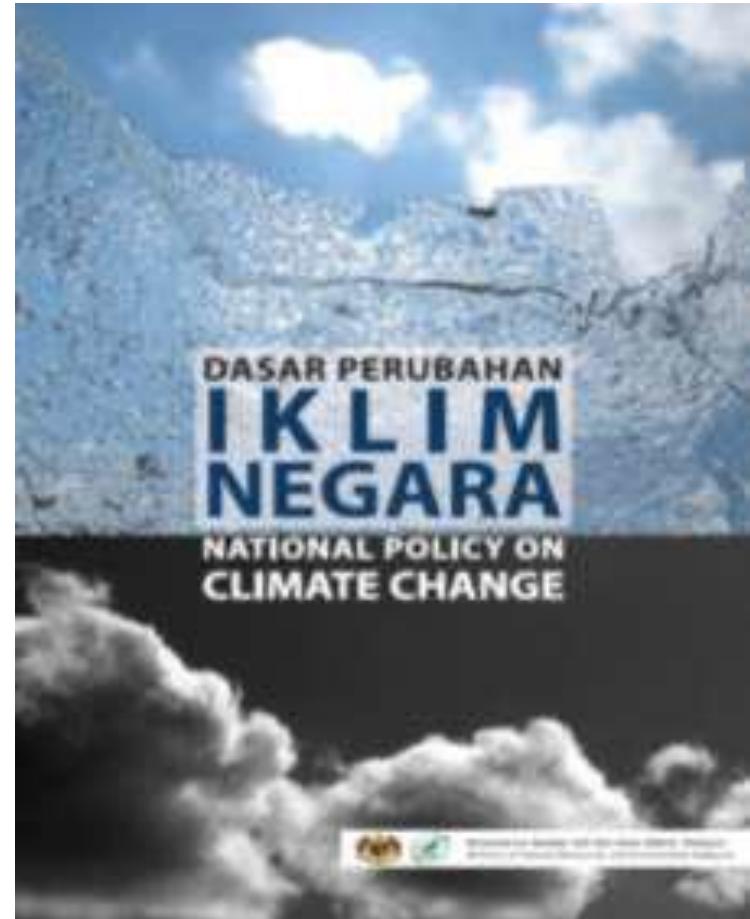
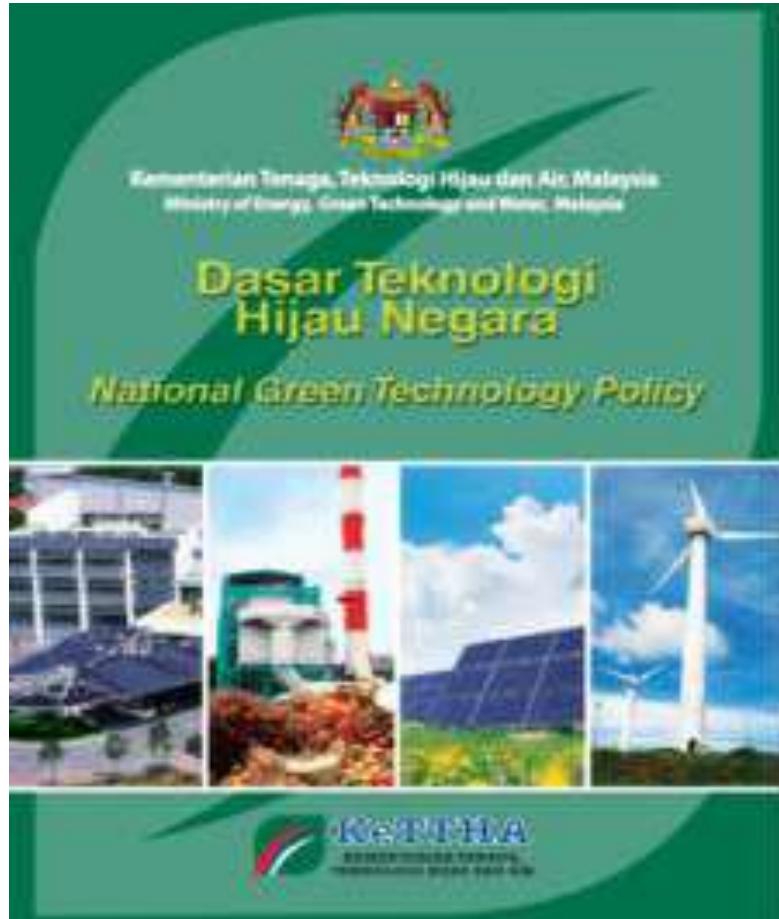
- is based on the principles and values that underlie sustainable development;
- deals with the well-being of all four dimensions of sustainability – environment, society, culture and economy;
- uses a variety of pedagogical techniques that promote participatory learning and higher-order thinking skills;
- promotes lifelong learning;
- is locally relevant and culturally appropriate;
- is based on local needs, perceptions and conditions, but acknowledges that fulfilling local needs often has international effects and consequences;
- engages formal, non-formal and informal education;
- accommodates the evolving nature of the concept of sustainability;
- addresses content, taking into account context, global issues and local priorities;
- builds civil capacity for community-based decision-making, social tolerance, environmental stewardship, an adaptable workforce, and a good quality of life;
- is interdisciplinary. No single discipline can claim ESD for itself; all disciplines can contribute to ESD.

MALAYSIA's GDP VS EMISSIONS INTENSITY

When we must start to achieve both targets?

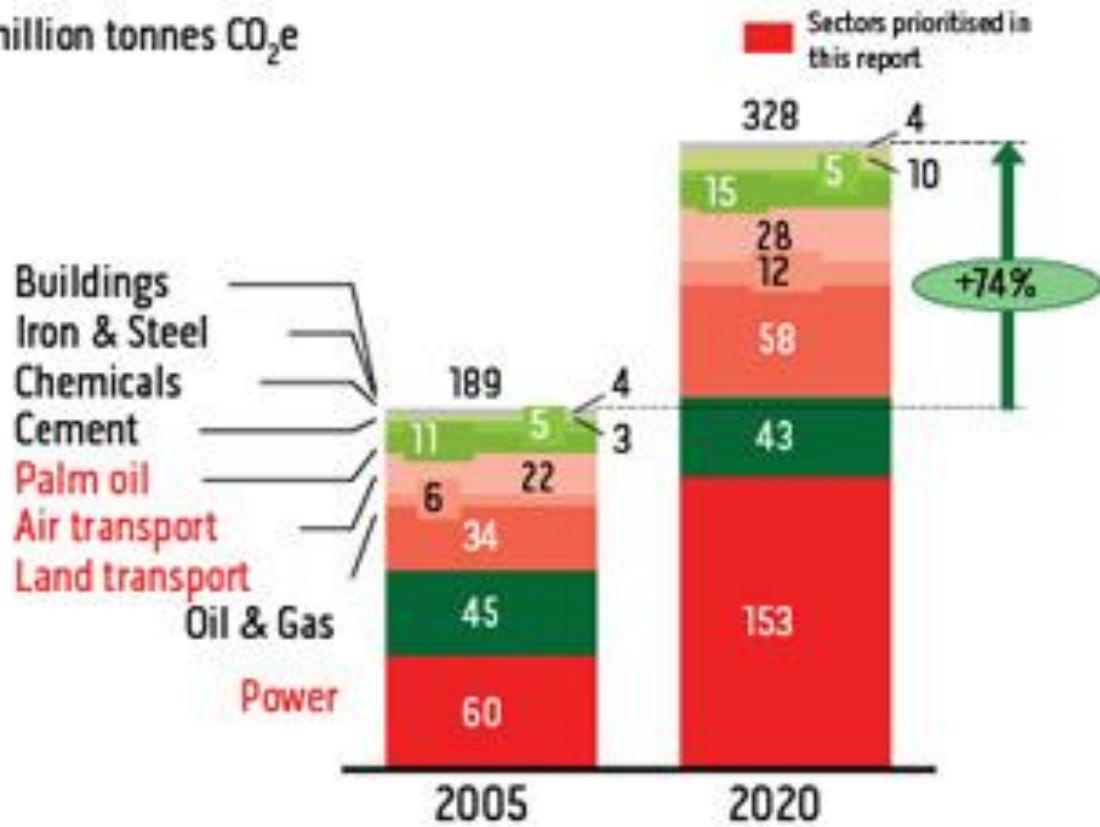


DASAR TEKNOLOGI HIJAU & PERUBAHAN IKLIM NEGARA



Growth in absolute emissions by 2020¹

million tonnes CO₂e



JANGKAAN
JUMLAH JITU
PERLEPASAN
GAS RUMAH
HIJAU
MALAYSIA
PADA TAHUN
2020

¹ Khazanah Team analysis; International Energy Agency 2009 World Energy Outlook; Kementerian Tenaga, Air dan Komunikasi (Ministry of Energy, Water and Communications) 2006 National Energy Balance report; McKinsey Global GHG Abatement Cost Curve v2.0

SOURCE: Global Insight; EPU briefing; Khazanah Team analysis

DEFINISI DAN KRITERIA TEKNOLOGI HIJAU MALAYSIA

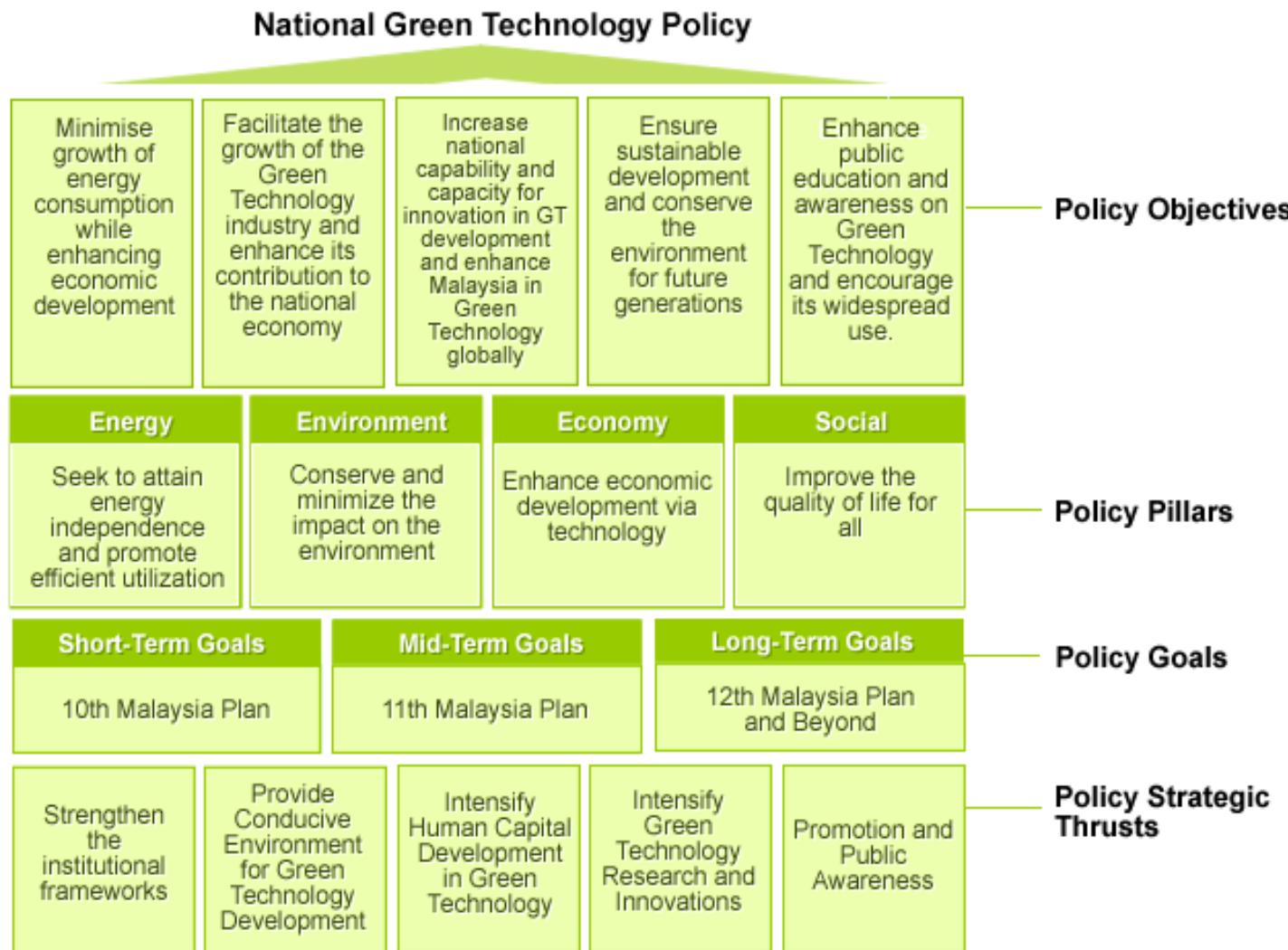
Definisi Teknologi Hijau

Sebarang pembuatan atau penggunaan produk, alatan atau sistem yang apabila digunakan boleh memulihara sumber dan alam sekitar , seterusnya meminima dan mengurangkan kesan-kesan negatif terhadap aktiviti manusia.

Kriteria Am Teknologi Hijau :

- Meminimakan degradasi terhadap alam sekitar;
- Kurang pelepasan atau tiada langsung pelepasan Gas Rumah Kaca (GHG);
- Selamat untuk digunakan ,memberi kesan yang sihat dan menambahbaik alam sekeliling untuk semua hidupan;
- Memulihara tenaga dan sumber semula jadi; dan
- Menggalakkan penggunaan tenaga boleh diperbaharui.

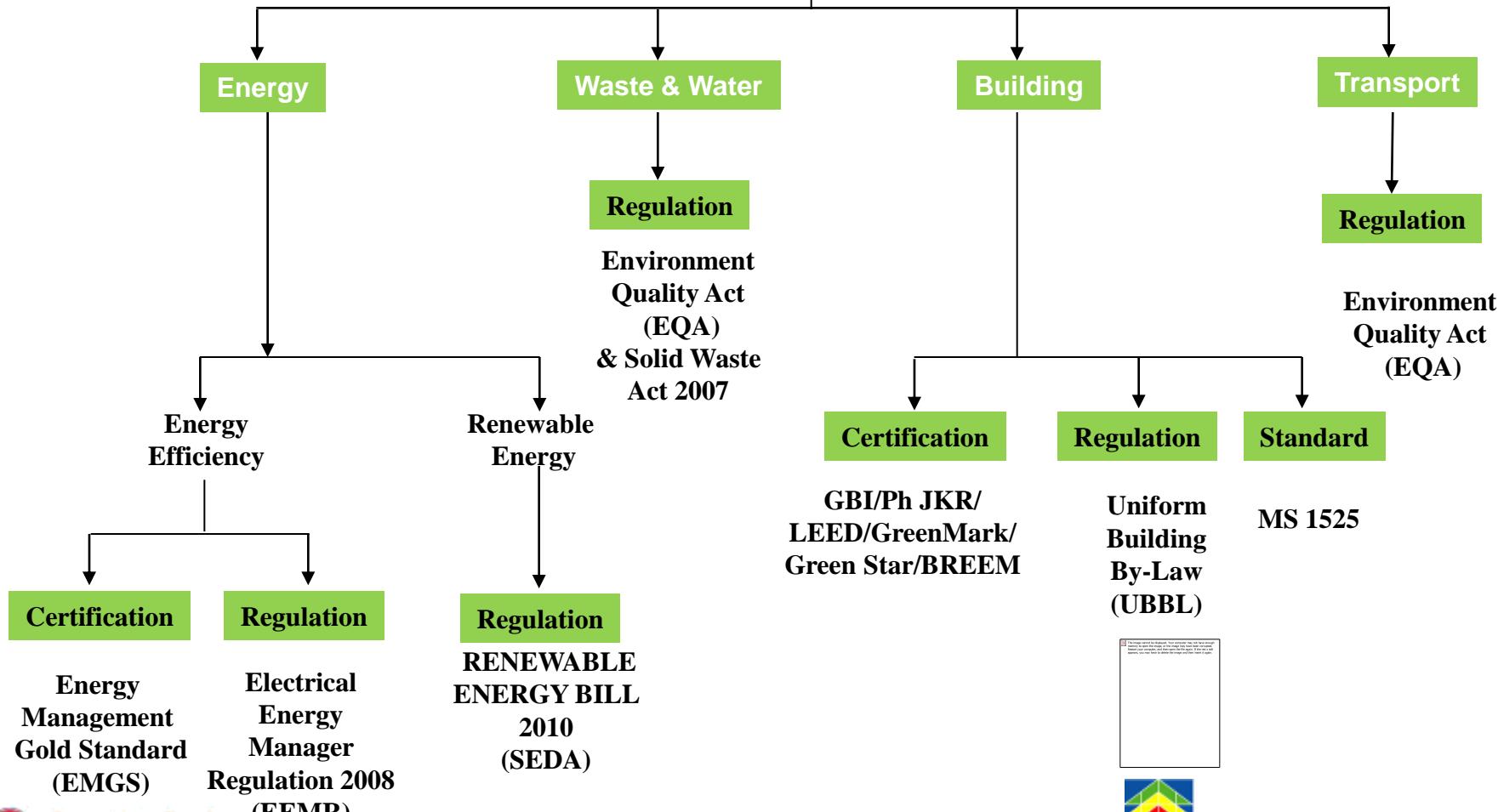
POLISI TEKNOLOGI HIJAU NEGARA



PROGRAM-PROGRAM HIJAU KEBANGSAAN

(Pensijilan, Peraturan & Standard)

GREEN PROGRAM



INSENTIF CEKAP TENAGA, TENAGA BOLEH DIPERBAHARUI & BANGUNAN HIJAU

- Syarikat EE mendapat status ‘pioneer’, 100% dikecualikan cukai untuk 10 tahun
- Kecualian cukai import & jualan untuk barang EE yang tiada didalam negara, cukai jualan barang dalam negara
- Kecualian cukai syarikat untuk perbelanjaan EE 100% bagi tempoh 5 tahun
- Kecualian 100% kos pensijilan GBI
- Kecualian cukai stem bagi perjanjian jual beli
- Green Technology Financial Scheme (bayaran 2% bunga oleh Kerajaan & 60% jaminan Kerajaan)
- Tarif jualan tenaga boleh diperbaharui (SEDA)



Ministry of Finance



Royal Malaysian Mint



LHDN
MALAYSIA



ISBN 978-983-43893-3-8



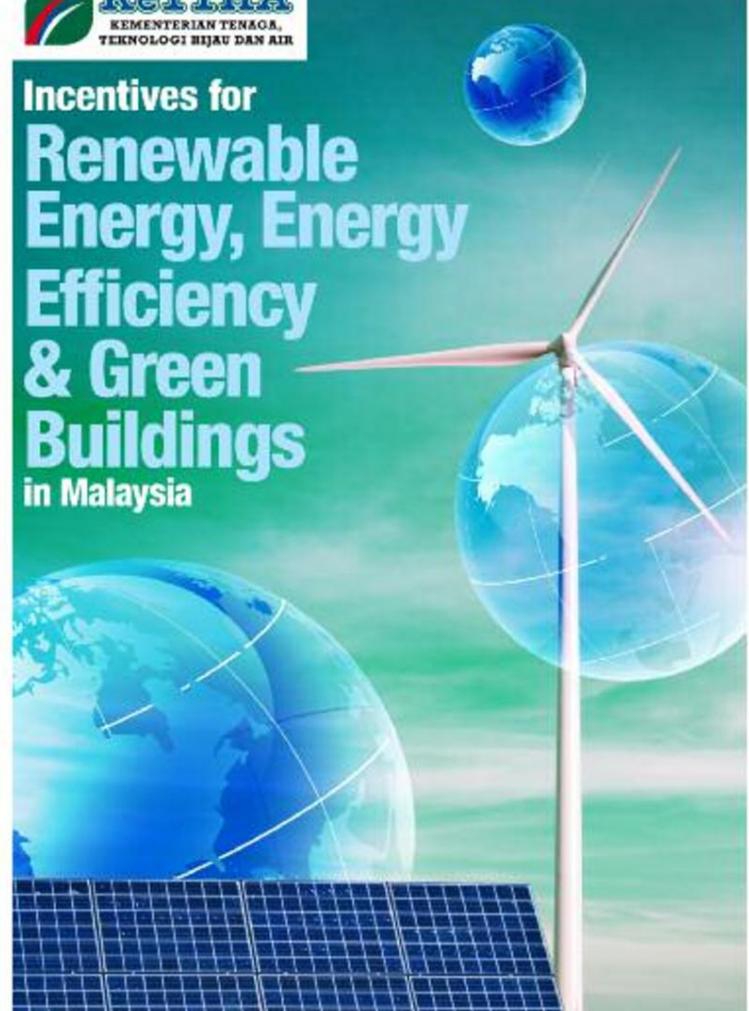
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MBIPV Project

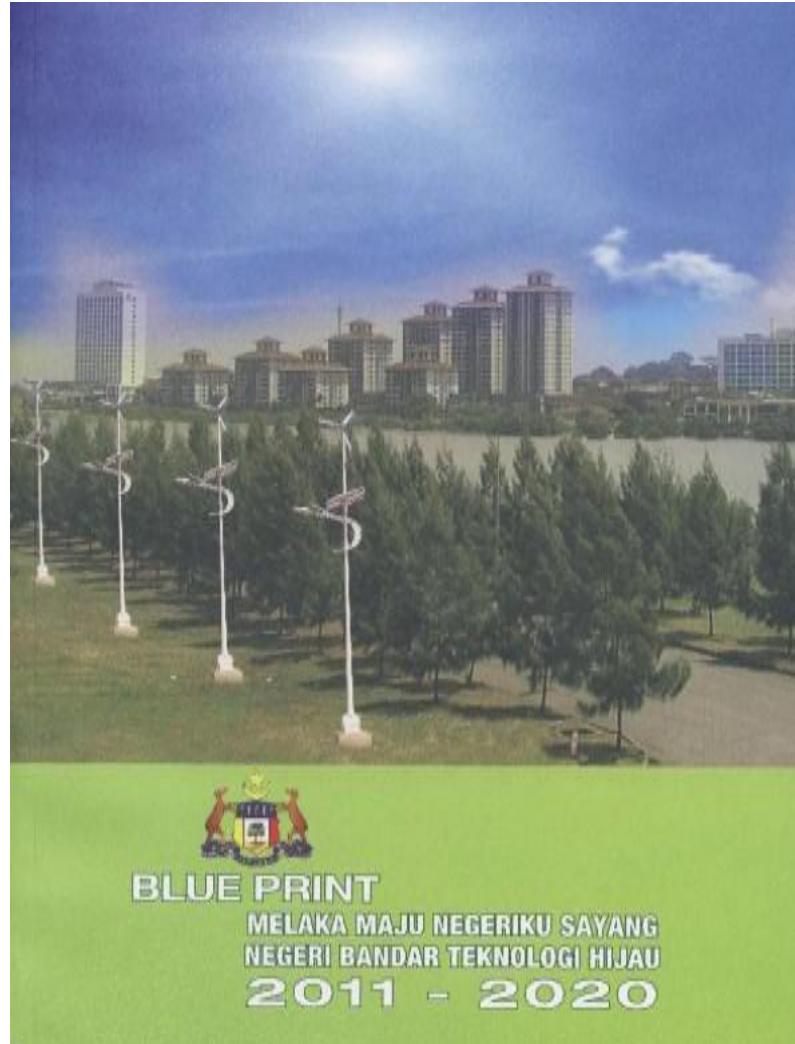
Email: infopv@mbipv.net.my
Website: www.mbitpv.net.my

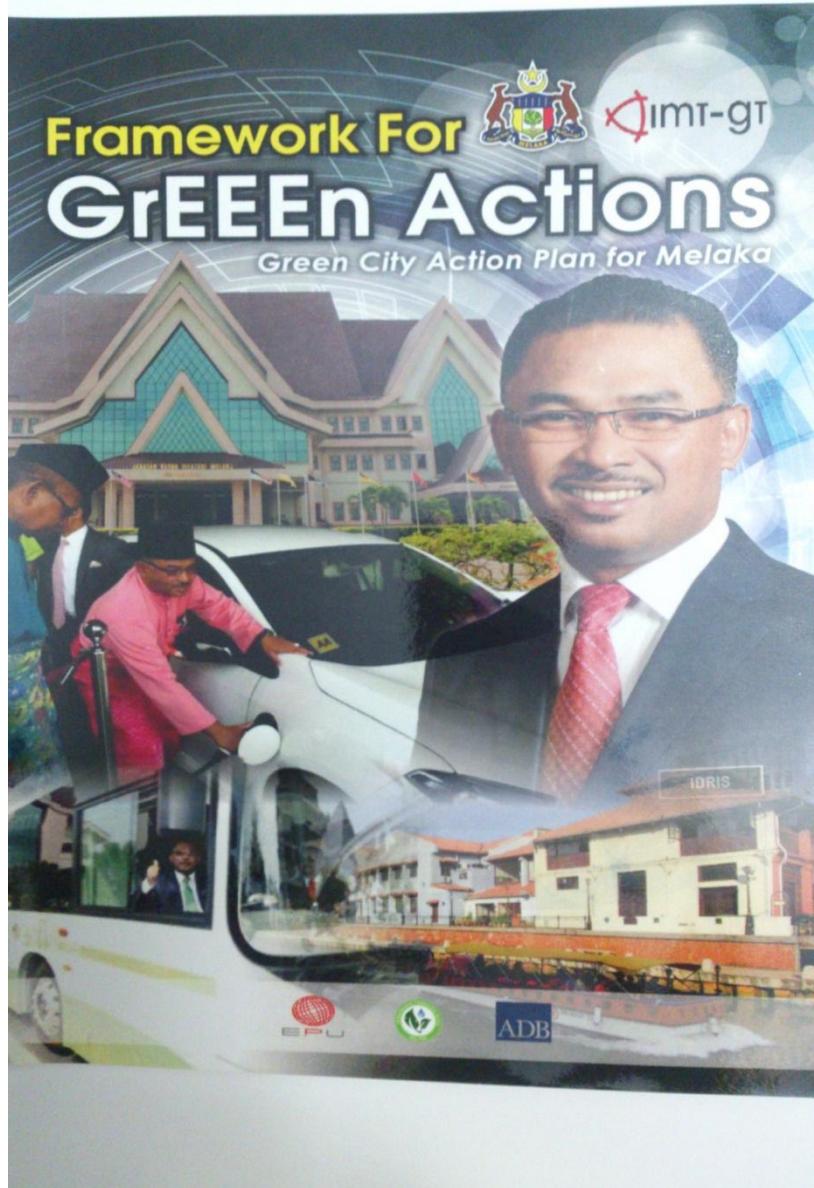


Incentives for
**Renewable
Energy, Energy
Efficiency
& Green
Buildings**
in Malaysia



BLUEPRINT MELAKA NEGERI BANDAR TEKNOLOGI HIJAU 2020





RANGKA KERJA PELAN TINDAKAN BANDAR HIJAU NEGERI MELAKA YANG MERANGKUMI UN – URBAN ENVIRONMENTAL ACCORDS INDICATORS

UNITED NATIONS-URBAN ENVIRONMENTAL ACCORDS

- Adalah garis panduan untuk membina bandar yang berekologi mapan serta ekonomi yang dinamik untuk penduduk bandar masa hadapan
- UEA menyenaraikan 21 tindakan didalam bidang tenaga, pengurangan sisa, rekabentuk bandaraya, bandaraya semulajadi, pengangkutan, alam sekitar dan air yang perlu dilakukan untuk mencapai persekitaran mapan
- Bandar yang terlibat akan mengadakan polisi dan program untuk mengatasi masalah-masalah bandaran
- Peruntukan ini adalah tanpa ikatan undang-undang dan kewangan
- Methodologi yang digunakan adalah fleksibel. Bandar yang terlibat bebas untuk memilih dan mengutamakan tindakan, menyediakan penanda aras dan menilai pencapaian
- Bandar yang terlibat diberi masa 7 tahun untuk memilih dan melaksanakan sekurang-kurangnya 8 dari 21 tindakan yang disarankan. Disarankan setiap tahun bandar terlibat berjaya menyiapkan 3 tindakan dan pada tahun ke-7 mereka akan mencapai 4 bintang;

19-21 Actions completed = 4 Star City

15-18 Actions completed = 3 Star City

12-17 Actions completed = 2 Star City

8-11 Actions completed = 1 Star City

URBAN ENVIRONMENTAL ACCORDS CITIES

Europe-29

Aarhus (Denmark)
Arnhem (TheNetherlands)
Assisi (Italy)
Athens (Greece)
Chalon-sur-Saone(France)
Copenhagen(Denmark)
Istanbul (Turkey)
Ivano-Frankivsk(Ukraine)
Izmir (Turkey)
Jerusalem (Israel)
Kiev (Ukraine)
Lakatameia (Cyprus)
Larnaca (Cyprus)
Lausanne (Switzerland)
Limassol (Cyprus)
London (UnitedKingdom)
Lyon (France)
Moscow (Russia)
Pafos (Cyprus)
Sibiu (Romania)
Sinaia (Romania)
Stockholm (Sweden)
Strovolos (Cyprus)
Stuttgart (Germany)
Venice (Italy)
Vienna (Austria)
Vitoria-Gasteiz (Spain)
Zurich (Switzerland)

Asia-24

Ahmedabad (India)
Calicut (India)
Changchun (China)
Delhi (India)
Dhaka (Bangladesh)
Gampaha (Sri Lanka)
Gwangju (Korea)
Hiroshima (Japan)
Hyderabad (India)
Iloilo City (Philippines)
Jakarta (Indonesia)
Kabul (Afghanistan)
Kurunegala (Sri Lanka)
Matale (Sri Lanka)
Melbourne (Australia)
Muntinglupa
(Philippines)
Phnom Penh
(Cambodia)
Seogwipo (Korea)
Shenyang (China)
Surabaya (Indonesia)
Taguig (Philippines)
Tainan City
Taipei
Melaka (Malaysia)

North America-26

Austin (USA)
Berkeley (USA)
Burien (USA)
Capitola (USA)
Chicago (USA)
Denver (USA)
Emeryville (USA)
Inglewood (USA)
Las Vegas (USA)
Montreal (Canada)
Moro Bay (USA)
Mount Vernon (USA)
New Paltz (USA)
Novato (USA)
Oakland (USA)
Portland (USA)
Rochester (USA)
Sacramento (USA)
Salt Lake City (USA)
San Francisco (USA)
San Jose (USA)
San Miguel de Allende(Mexico)
Santa Monica (USA)
Seattle (USA)
Syracuse (USA)
Vancouver B.C.(Canada)

Central and South America- 11

Bahia de Caraquez
Canton Sucre
(Ecuador)
Belo Horizonte (Brazil)
Bogota (Columbia)
Cali (Columbia)
Curitiba (Brazil)
Lima (Peru)
Limon (Costa Rica)
Lurin (Peru)
Medellin (Columbia)
Panama City (Panama)
Rio de Janeiro (Brazil)
Africa-5
Bamemda (Cameroon)
Cape Town (South
Africa)
Kampala (Uganda)
Maputo (Mozambique)
Nairobi (Kenya)

RINGKASAN INDIKATOR UN-UEA

SUSTAINABILITY THEME AREA	UN-UEA ACTION	NO. OF INDICATORS	NO. OF INDICATORS/AREA
1. ENERGY	UEA 1—Renewable Energy	9	31
	UEA 2—Energy Efficiency	14	
	UEA 3—Climate Change	8	
2. WASTE REDUCTION	UEA 4—Zero Waste	8	16
	UEA 5—Manufacturer Waste	2	
	UEA 6—Recycling	6	
3. URBAN DESIGN	UEA 7—Green Building	5	17
	UEA 8—Urban Planning	6	
	UEA 9—Environmental Jobs	6	
4. URBAN NATURE	UEA 10—Green Space Access	9	18
	UEA 11—Tree Canopy	5	
	UEA 12—Habitat Protection	4	
5. TRANSPORTATION	UEA 13—Public Transportation	8	19
	UEA 14—Clean Vehicles	5	
	UEA 15—Traffic Congestion	6	
6. ENVIRONMENTAL HEALTH	UEA 16—Toxins Reduction	6	21
	UEA 17—Organic Foods	11	
	UEA 18—Air Quality	4	
7. WATER	UEA 19—Potable Water Conservation	6	32
	UEA 20—Water Source Protection	16	
	UEA 21—Wastewater Reduction	10	
TOTAL UN-UEA INDICATORS		154	154

INISIATIF BANDAR HIJAU WILAYAH PEMBANGUNAN INDONESIA – MALAYSIA – THAILAND (IMT-GT)



EPU
ECONOMIC PLANNING UNIT
PRIME MINISTER'S DEPARTMENT, MALAYSIA



- Melaka telah dipilih sebagai projek perintis bandar hijau untuk Medan, Songkhla dan 29 bandar lain didalam wilayah pembangunan IMT-GT
- Program utama:
 - Green City Action Plan (GCAP)
 - ICLEI's Carbon Footprint
 - Audit tenaga bagi 9 bangunan kerajaan
 - Pemasangan EMS

PERINGKAT-PERINGKAT KELESTARIAN



AMALAN
LESTARI
INDIVIDU



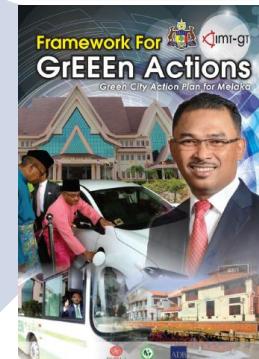
ORGANISASI
LESTARI



KOMUNITI
LESTARI

NEGERI
LESTARI

NEGARA
LESTARI



UNESCO-TVET-POLITEKNIK

UNESCO-UNEVOC telah menekankan Technical Vocational Education and Training (TVET) untuk kelestarian pembangunan melalui pelbagai program, penerbitan dan juga deklarasi seperti United Nations Decade of Education for Sustainable Development (DESD).

The UNESCO-UNEVOC telah mengadakan program-program bagi meningkatkan keupayaan TVET dan ESD di negara-negara Commonwealth termasuk memperdanakan usaha untuk;

- i. melestarikan pasaran buruh melalui TVET;
- ii. meningkatkan kefahaman ESD dan penglibatan pemegang taruh TVET; dan
- iii. menyelaraskan pengintegrasian ESD dalam TVET melalui jaringan UNEVOC.

Sebagai pemegang taruh TVET di Malaysia, politeknik adalah institusi yang terlibat secara langsung untuk mendokong serta melaksanakan inisiatif TVET-ESD dan juga seiring dengan aspirasi Negara.

GREEN TVET

Dalam konteks Pendidikan Teknik dan Vokasional (TVET), Profesor Shymal Majumbar Pengarah UNESCO-UNEVOC International Centre di Bonn, Germany telah mencadangkan satu kerangka bagi mengorientasi semula institusi TVET ke arah institusi TVET yang hijau (Greening TVET: Connecting the Dots in TVET for Sustainable Development)(Majumdar 2006).

Kerangka tersebut mencadangkan LIMA (5) dimensi yang perlu diberi penekanan ke arah Greening TVET iaitu;

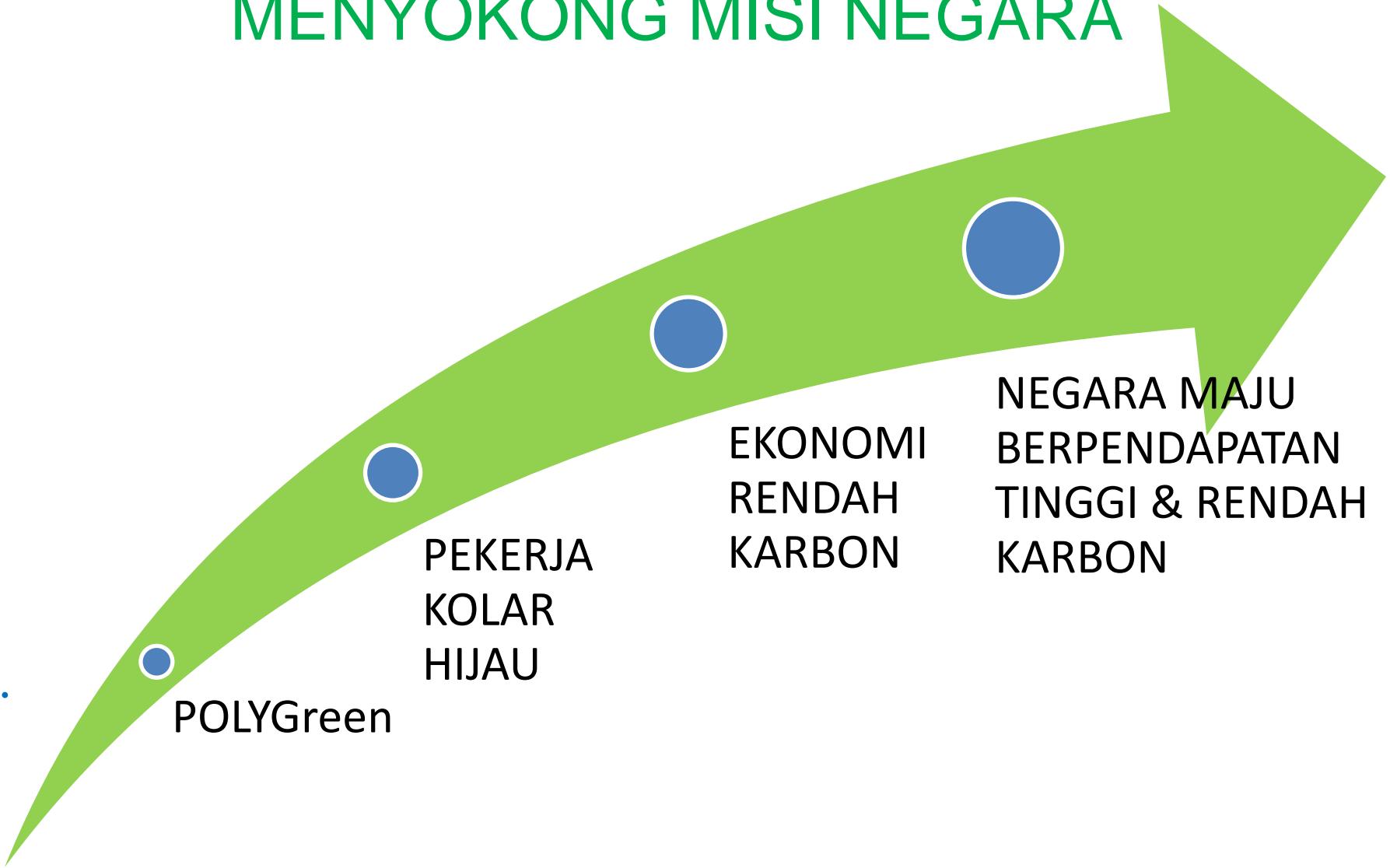
- i) Kampus Hijau (Green Campus)
- ii) Program Teknologi Hijau (Green Technology Programme)
- iii) Komuniti Hijau (Green Community)
- iv) Penyelidikan Hijau (Green Research) dan
- v) Budaya Hijau (Green Culture)

MENGAPA PERLU BLUEPRINT POLYGREEN?

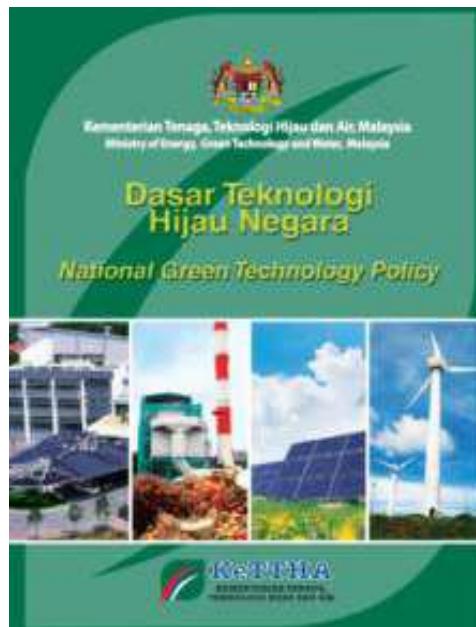
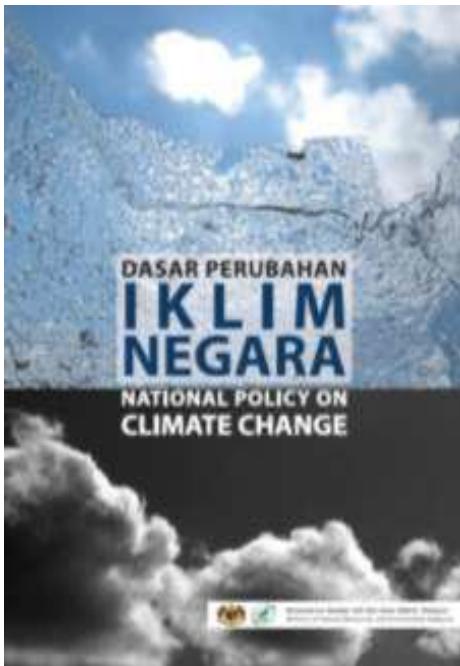
Blueprint POLYGreen ini dihasilkan berdasarkan rasional dan keperluan berikut;

1. Menyediakan satu rujukan dan panduan kepada semua politeknik KPM dalam halalju strategik pengurusan mapan.
2. Memastikan bahawa aspek pembangunan dan pengurusan amalan teknologi hijau sejajar dengan pengurusan strategik politeknik.
3. Memantapkan dan menambahbaik halalju pengurusan strategik politeknik ke arah mencapai pengiktirafan politeknik mapan.

KEPENTINGAN POLYGreen DALAM MENYOKONG MISI NEGARA



ASAS RUJUKAN & PANDUAN BLUEPRINT POLYGreen



LEED 2009 FOR
EXISTING
BUILDINGS
OPERATIONS AND
MAINTENANCE

For Public Use and Display
LEED 2009 for Existing Buildings:
Operations & Maintenance Rating System
USGBC Member Approved November 2008



SUSUNAN GERAK KERJA AMALAN HIJAU



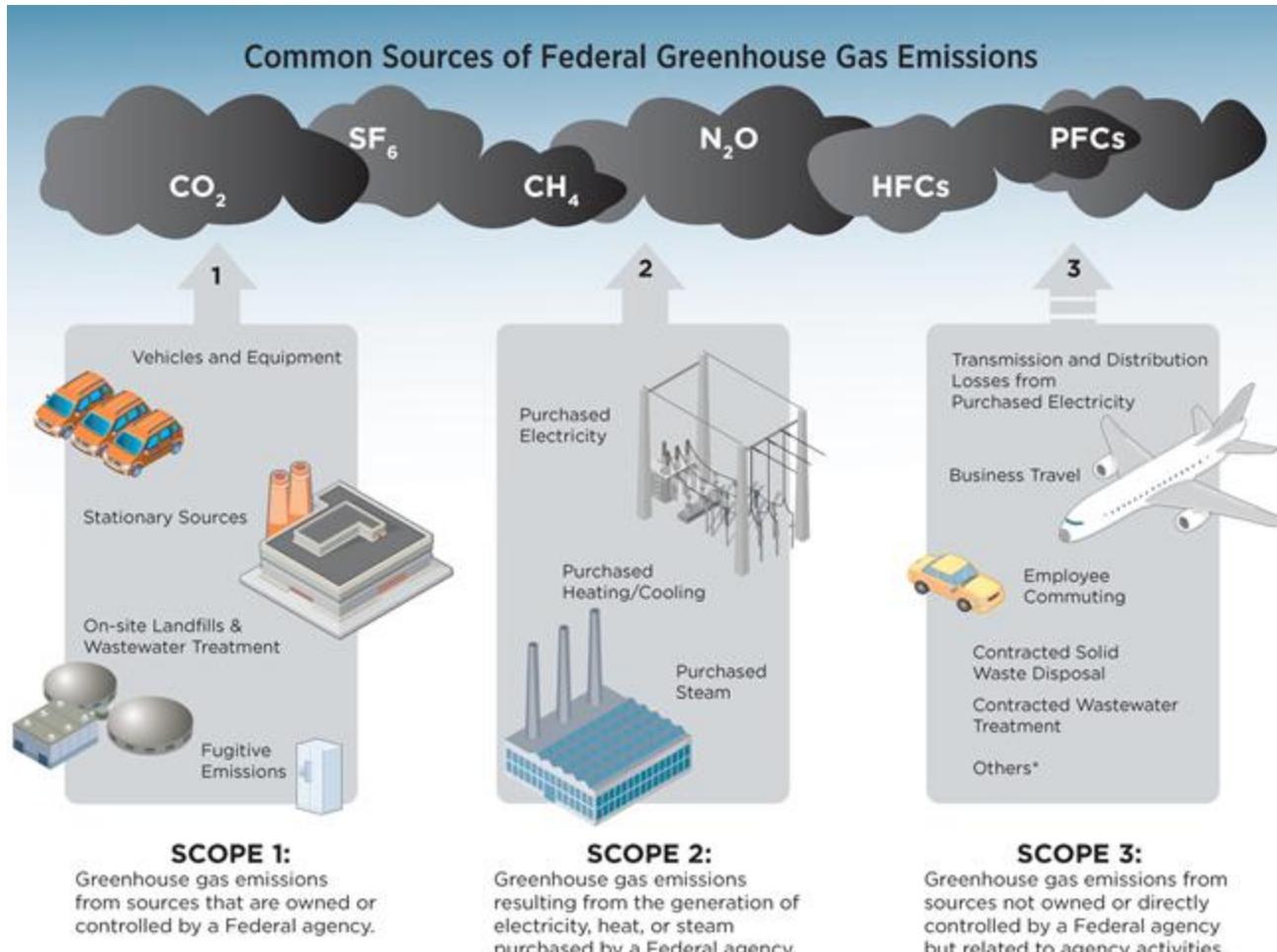
MENGAPA PERLU JAWATANKUASA HIJAU?



**Green
Committee**

- Menetapkan sasaran dan halatuju
- Menetapkan ‘baseline’
- Menetapkan inisiatif yang akan dijalankan
- Mengadakan pengukuran/analisa pencapaian atau halangan
- Menetapkan sasaran baru

ASAS UTAMA PENGUKURAN PENCAPAIAN ADALAH PENYEDIAAN BASELINE / CARBON FOOTPRINT



*Additional, significant Scope 3 emission sources exist beyond the examples provided.

RUJUKAN EMISSION FACTORS (EF) BAGI TUJUAN PENYEDIAAN CARBON FOOTPRINT

Type	Emission Factors (EF)	Source
<u>Electricity</u>	0.747 kg CO2 eq/kWh (Peninsular) 0.841 kg CO2 eq/kWh (Sarawak) 0.531 kg CO2 eq/kWh (Sabah)	Malaysia Grid Connected Electricity Baseline (2011), MGTC March 2013
<u>Fuel</u>	2.33070 kg CO2 eq/litres	DEFRA GHG Conversion Factors 2009
Petrol	2.66940 kg CO2 eq/litres	
Diesel	2.73356 kg CO2 eq/kg	
Compressed Natural Gas	2.54420 kg CO2 eq/litres	
Kerosene	0.20417 kg CO2 eq/kWh	
Natural Gas		
<u>Transportation</u>		
Medium petrol car	0.21493 kg CO2 eq/km	DEFRA GHG Conversion Factors 2009
Medium diesel car	0.18939 kg CO2 eq/km	Note: km=kilometres
Light Rail Train	0.06113 kg CO2 eq/pkm	
Bus	0.10351 kg CO2 eq/pkm	pkm= passenger kilometres
NGV Taxi	0.18620 kg CO2 eq/km	
Petrol Taxi	0.21280 kg CO2 eq/km	
Motorcycle	0.10569 kg CO2 eq/km	
Ferry	0.11609 kg CO2 eq/km	
Petrol based vehicle	0.21280 kg CO2 eq/km	
Diesel vehicle	0.18757 kg CO2 eq/km	
Domestic plane	0.17283 kg CO2 eq/pkm	
Short haul plane	0.09924 kg CO2 eq/pkm	
Long haul plane	0.11331 kg CO2 eq/pkm	

PERKADARAN UNTUK GHG DIBAWAH PROTOKOL KYOTO

Greenhouse gas	Pre-industrial concentrations*	2008 concentrations	Human source	GWP 100 years
Carbon dioxide (CO ₂)	278 ppm	365 ppm	Fossil fuel combustion, land use changes, cement production	1
Methane (CH ₄)	700 ppb	1745 ppb	Fossil fuels; rice paddies; waste dumps; livestock	25
Nitrous oxide (N ₂ O)	270 ppb	314 ppb	Fertiliser; industrial processes; fossil fuel combustion	298
Hydrofluorocarbons (e.g. HFC-23)	0	14 ppt	Liquid coolants	14,800**
Perfluorocarbons (e.g. CF ₄)	0	80 ppt	Refrigerant; electronics industry and aluminium industry	6,500
Sulphur hexafluoride (SF ₆)	0	4.2 ppt	Insulator in electronics and magnesium industry	22,800

* ppm, parts per million by volume; ppb, parts per billion by volume; ppt, parts per trillion by volume.

** This figure was changed in 2007 from 11,700 to 14,800.²⁵

CONTOH LOGO BARANG/BANGUNAN HIJAU BAGI TUJUAN PEROLEHAN HIJAU AWAM



LAYARI LAMAN SESAWANG DIREKTORI HIJAU UNTUK MENDAPATKAN / MENYENARAIKAN BARANGAN / PERKHIDMATAN MyHijau LABEL

GREEN DIRECTORY.MY

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MATLAMAT BLUEPRINT POLYGreen POLITEKNIK MALAYSIA

Blueprint POLYGreen disediakan dengan hasrat untuk menjadikan politeknik sebagai sebuah insitusi mapan disamping meneruskan kesinambungan misi menjadi salah sebuah organisasi yang unggul dan cemerlang di Malaysia.

Blueprint POLYGreen ini dihasilkan berdasarkan rasional dan keperluan berikut:

- 1. Menyediakan satu rujukan dan panduan kepada semua politeknik KPM dalam halaju strategik pengurusan mapan.*
- 2. Memastikan bahawa aspek pembangunan dan pengurusan amalan teknologi hijau sejajar dengan pengurusan strategik politeknik.*
- 3. Memantapkan dan menambahbaik halaju pengurusan strategik politeknik ke arah mencapai pengiktirafan politeknik mapan.*

BIDANG TUMPUAN & PELAN TINDAKAN DIDALAM BLUEPRINT POLYGreen

BIL	BIDANG TUMPUAN	JUMLAH PELAN TINDAKAN
1.	PERUBAHAN PENGURUSAN	9
2.	PERUBAHAN IKLIM	4
3.	PENGURUSAN ALAM SEKITAR	4
4.	PENGURUSAN TENAGA	11
5.	PENGURUSAN SISA	6
6.	PENGURUSAN AIR	4
7.	PENGANGKUTAN	6
8.	KUALITI UDARA	3
9.	KEPELBAGAIAN BIO	5
10.	PEROLEHAN HIJAU	5
	JUMLAH KESELURUHAN PELAN TINDAKAN	57

*Terima kasih
kerana perhatian anda*

Sesi soal jawab