S2A: Planning and Implementations by Local Governments

Junichi FUJINO NIES/IGES

Japan Pavilion Side Event 8th Nov 2016, Marrakesh Morocco







19:27pm Dec 11th 2015 in Le Bourget, Paris 3:27am Dec 12th 2015 in Tokyo, Japan

Paris Agreement to me

2 degree/1.5 degree
-> zero/minus emissions by 2100

INDCs -> NDCs + 5yr interval CCAP submission and review process

Role of Non-State Actors
(Business + Local Governments)

What happens to national government/local government?

NDCs

+

Local Government Action Plans

How Japan respond to CC

1988 Toronto Conference: 20% GHG emission reductions by 2005 in Developed Countries

-> 1990 "Action Program to Arrest Global Warming" / stabilize per capita GHG emission by 2000

1992 Rio Summit, 1995 COP1/Berlin Mandate, 1997 COP3/Kyoto Protocol: -6% for Japan

-> 1998 "Outline for Promotion Effects to Prevent Global Warming" and "Act on Promotion of Global Warming Countermeasures"

Article 20-2 (National Government Action Plan)
Article 21 (Action plans of local governments)

Act on Promotion of Global Warming Countermeasures (1998) Article 20-2 (National Government Action Plan)

- (1) The national government shall implement a plan (referred to hereinafter in this article as the "National Government Action Plan") for measures to reduce greenhouse gas emissions and to maintain and improve greenhouse gas absorption with regard to its own administration and undertakings, in line with the Kyoto Protocol Target Achievement Plan.
- (2) The National Government Action Plan shall prescribe the following matters.
- (i) Plan period
- (ii) Goals of the National Government Action Plan
- (iii) Content of measures to be implemented
- (iv) Other matters needed for implementation of the National Government Action Plan

Act on Promotion of Global Warming Countermeasures (1998) Article 21 (Action plans of local governments)

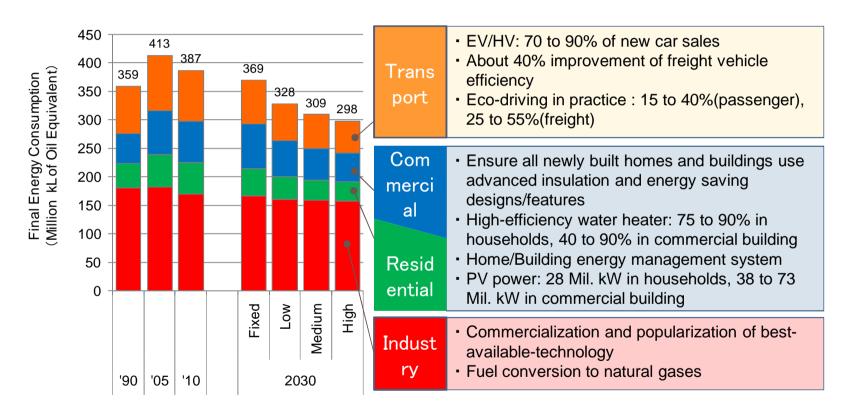
- (1) Prefectural and municipal governments shall formulate plans (referred to hereinafter in this article as "action plans of local governments") for measures to reduce greenhouse gas emissions and to maintain and improve greenhouse gas absorption with regard to their own administration and undertakings, in line with the Kyoto Protocol Target Achievement Plan.
- (2) The action plans of local governments shall prescribe the following matters.
- (i) Plan period
- (ii) Goals of the action plans of local governments
- (iii) Content of measures to be implemented
- (iv) Other matters needed for implementation of the action plans of local governments

Act on Promotion of Global Warming Countermeasures (1998) Article 21 (Action plans of local governments)

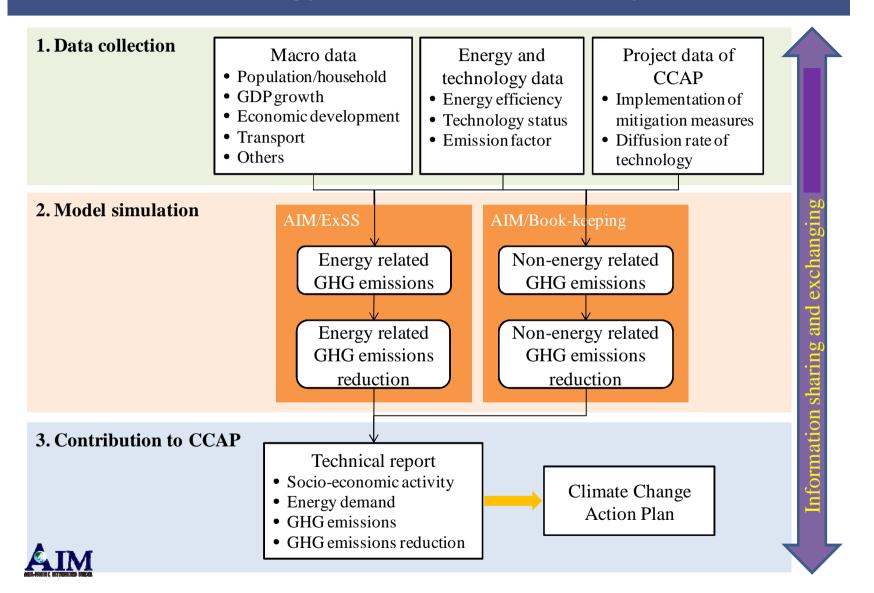
- (3) Upon formulating or changing action plans of local governments, the respective prefectural and municipal governments shall announce those plans without delay.
- (4) Once each year, the respective prefectural and municipal governments shall announce the situation of implementation of measures based on the action plans of local governments, including total greenhouse gas emissions.

Analysis by AIM/Enduse in Japan

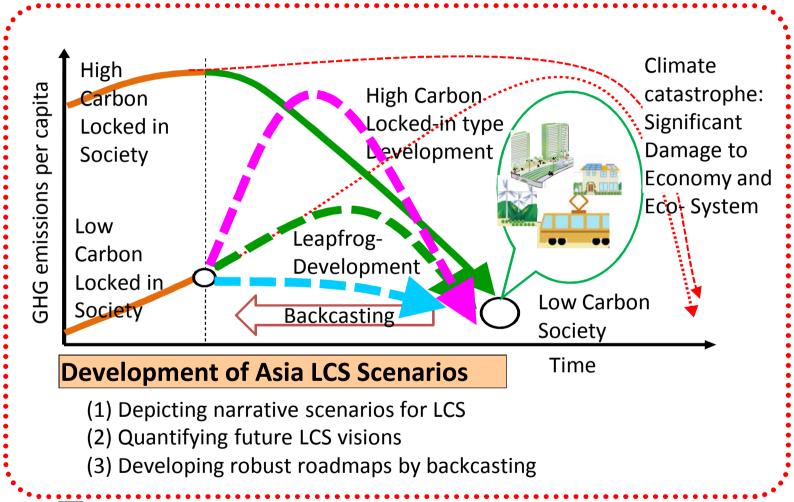
Final energy consumption in 2030 (low growth case)



Methodology of LCS scenario development



How to reach to Low Carbon Society in Asia?





Policy Packages for Asia LCS

LCS Scenarios and Plans in Asian Countries and cities





Know-How Transfer from Japan to Malaysia

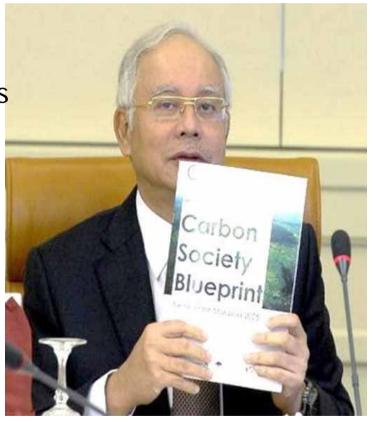
"Development of Low Carbon Society Scenarios for Asian Regions" In the case of "Iskandar Malaysia"

Japanese experience on Low Carbon Scenarios & Roadmaps

Malaysian challenge on Implementation of Low Carbon Visions



Premier of Malaysia provided permission in the 13th IRDA Steering Committee to start the Iskandar Low Carbon Society planning (December 11th, 2012)

















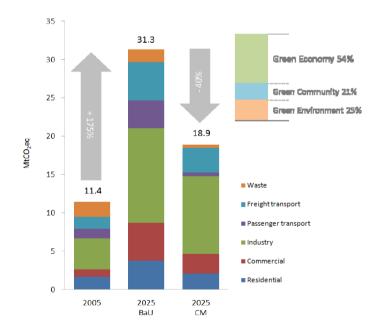






LCS scenarios for policy development in IM The Low Carbon Society Blueprint for Iskandar Malaysia 2025

- ✓ Document that presents comprehensive climate change mitigation policies and detailed strategies to guide development of Iskandar Malaysia
- ✓ Stress on the holistic and integrated approach to decouple economy and environment development Comprise of two principal components:
 - I) Narrative on growth scenarios, policies, measures and programs to achieve a minimum targeted 40% reduction in carbon emission by 2025 based on the 2005 level and;
 - II) **scenario-based modelling** and projection of carbon emission reductions achievable.



GHG reductions by Actions

GITO T Cadetions	<i>y</i> , (cc.c.)	
Mitigation Options	ktCO ₂ Reduction	%
Green Economy	6,937	54%
Action 1 Integrated Green Transportation	1,916	15%
Action 2 Green Industry	1,094	9%
Action 3 Low Carbon Urban Governance**	-	-
Action 4 Green Building and Construction	1,203	9%
Action 5 Green Energy System and Renewable Energy	2,725	21%
Green Community	2,727	21%
Action 6 Low Carbon Lifestyle	2,727	21%
Action 7 Community Engagement and Consensus Building**	-	-
Green Environment	3,094	25%
Action 8 Walkable, Safe and Livable City Design	263	2%
Action 9 Smart Urban Growth Action 10 Green and Blue	1,214	10%
Infrastructure and Rural Resources	392	3%
Action 11 Sustainable Waste Management	1,224	10%
Action 12 Clean Air Environment**	-	-
Total	12,467**	100%

Low Carbon Society for Iskandar Malaysia Publications

2013

2012 2013

Carbon Society Blueprint

Low Carbon Society Blueprint for Iskandar Malaysia 2025- Full Report

OCTH - S # W & AIM

A Roadmap towards Low Carbon Iskandar Malaysia 2025

A TO AIM

2013



Iskandar Malaysia: Action for a Low Carbon Future 2014



Low Carbon Society Brochures for 5 Municipalities within IM



Low

Carbon Society

Blueprin

OCH -- A S U C AM

Low Carbon Society

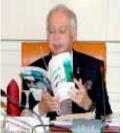
Blueprint for Iskandar

Malaysia 2025-

Summary for

Policymakers

COP 18, Doha



MOA, 2012

11th December 2012 The PM endorses the launching of LCSBPIM at COP 18 during MoA



MOA, 2013

1st January 2013 IRDA newly set Environment Division to fulfill LCS Blueprint



COP 19, Warsaw



COP 20, Lima

6th November 2013 The PM launched Actions for a Low Carbon Future during MoA

Know-How Transfer from Japan-Malaysia to Vietnam



Training program for Da Nang and Hai Phong cities on 8th & 9th Dec 2015 in Kyoto University

Capacity Building Seminar on Low Carbon Planning in Hai Phong on 28th April 2016





Officer from DONRE, Hai Phong City



Prof. Ho Chin Shiong UTM

roject for Development of Low Carbon Society Scenarios for Asian Regions

Capacity-building Seminar on Low Carbon Planning Hai Phong on 28 April 2016

Best practices for low carbon planning in Malaysia

Pursuing Green growth for sustainability and Resilience in Malaysia – Low carbon Society for urban areas

Ho Chin Siong , Chau Loon Wai and Teh Bor Tsong (UTM)
Faculty of Built environment/ UTM Low Carbon Asia Centre

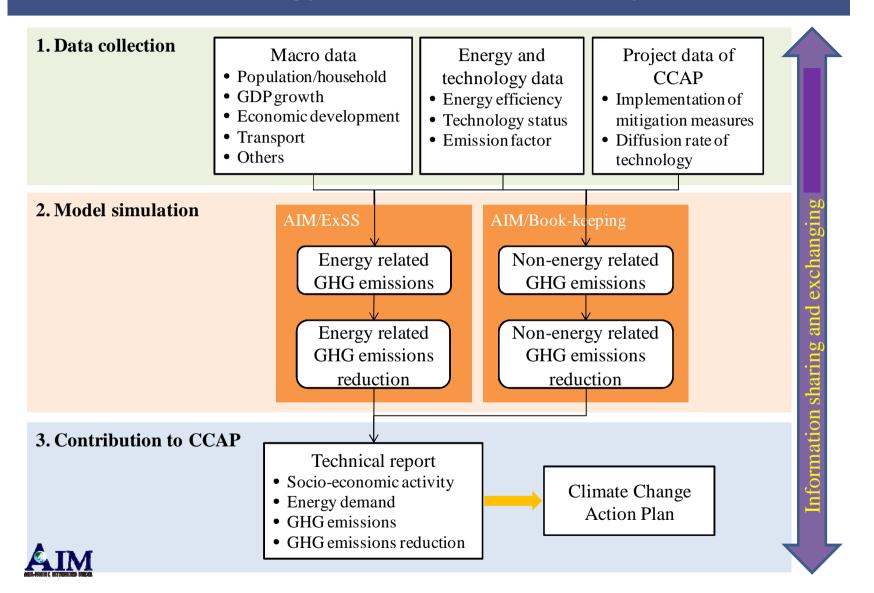
Dr. Luong Quong Huy Director, MONRE







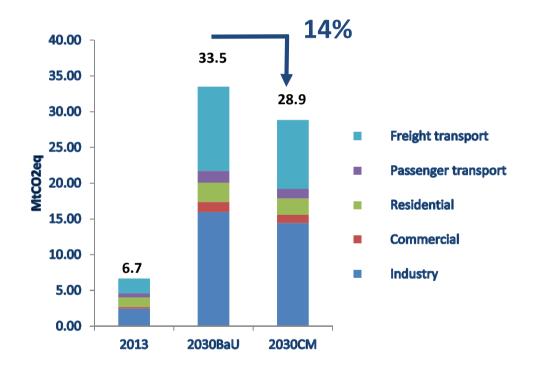
Methodology of LCS scenario development



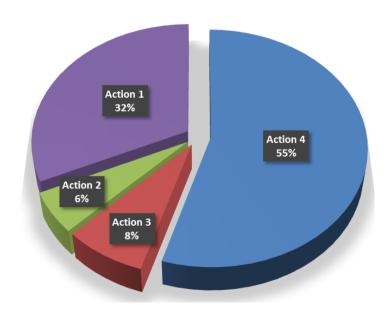
Socioeconomic indicator

	Unit	2013	2030	2030/2013
Population	persons	1,925,217	3,000,000	1.56
No. of households	households	553,406	1,000,000	1.81
GDP per capita	mil. Dongs	55	193	3.51
GDP	bil. Dongs	105,651	577,829	5.47
Outputs	bil. Dongs	282,310	1,595,478	5.65
Final consumption	bil. Dongs	67,644	369,309	5.46
Gross fixed capital formation	bil. Dongs	38,607	210,777	5.46
Export	bil. Dongs	111,247	607,360	5.46
Import	bil. Dongs	111,847	609,616	5.45

GHG emission and reduction



	Industry	Commercial	Residential	Passenger Transport	Freight Transport	Total (ktCO2eq)
Action 1. Green Industry Promotion of energy efficient equipment and fuel shift	1,477					1,477
Action 2. Green Building Diffusion of low-energy building (EMS, Insulation, Fuel shift)		199	63			262
Action 3. Energy Efficiency Promotion of energy efficient device/appliance		130	233			363
Action 4. Clean Transport Energy efficient vehicle and modal shift				284	2,257	2,541
Total (ktCO2eq)	1,477	329	296	284	2,257	4,643



Action		Project	Sector	Emission reduction (ktCO ₂ eq)
1 Green Industry	1-01	Energy savings in factory	Industry	601.9
	1-02	Installation high energy efficiency facilities (such as compressors and motors)	Industry	93.4
	1-03	Regional energy supply system	Industry	514.8
	1-04	Improvement of kiln and furnace technology	Industry	266.6
		Total		1,476.8
2 Green Building	2-01	Installation of insulated glasses to commetcial buildings	Commercial	19.5
	2-02	Installation of insulated glasses to households	Residential	35.5
	2-03	Introduction of incentive to low energy buildings	Commercial	3.5
	2-04	Introduction of insulating material to houses	Residential	13.4
	2-05	Energy efficiency technology applied to buildings	Commercial	9.7
	2-06	Introduction of solar water heater to commercial buildings	Commercial	44.5
	2-07	Introduction of solar water heater to households	Residential	102.4
	2-08	Introduction of photovoltaic power generation to commercial buildings	Commercial	29.2
	2-09	Introduction of photovoltaic power generation to households	Residential	4.2
		Total		262.0
Energy Efficiency	3-01	Energy savings in commercial facilities	Commercial	35.4
	3-02	Coversion of street lights to LED lighting	Commercial	3.2
	3-03	High efficiency lighting in commercial buildings	Commercial	43.0
	3-04	High efficiency lighting in households	Residential	36.4
	3-05	High efficiency air conditioners (such as air conditioners with inverter controllers) in commercial buildings	Commercial	22.7
	3-06	High efficiency air conditioners (such as air conditioners with inverter controllers) in commercial households	Residential	48.8
	3-07	Promotion of energy-efficient appliances (refrigerator and other appliances)	Residential	172.2
	3-08	Promotion of energy-efficient appliances (cooking appliances)	Residential	1.1
		Total		362.8
Clean Transport	4-01	Promotion of eco-driving with digital tachographs	Transport	169.7
	4-02	Smart trafic management	Transport	5.4
	4-03	Expansion of frequencies and routes of bus transportation	Transport	7.6
	4-04	Development of Bus Rapid Transit (BRT)	Transport	3.8
	4-05	Introduction of EV buses	Transport	7.8
	4-06	Introduction of electric motorbikes	Transport	39.9
	4-07	Promotion of energy-efficient vehicles (cars for passenger)	Transport	160.2
	4-08	Promotion of energy-efficient vehicles (motorbikes)	Transport	87.0
	4-09	Promotion of energy-efficient vehicles (trucks)	Transport	2,060.1
		Total		2,541.3
Total				4,642.9

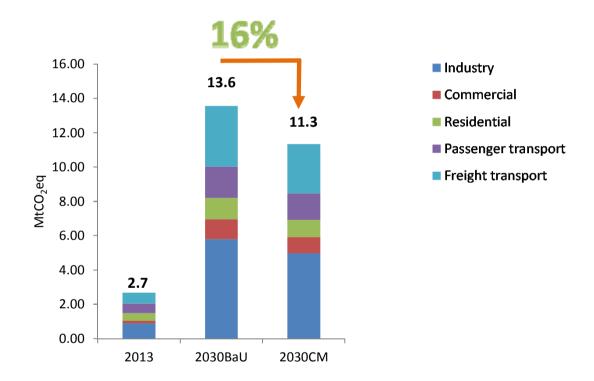




Socioeconomic indicator

	Unit	2013	2030	2030/2013
Population	persons	992,849	2,533,190	2.55
No. of households	household	288,620	844,397	2.93
GDP per capita	mil. Dongs	52	117	2.26
GDP	bil. Dongs	51,624	297,542	5.76
Agriculture		529	2,620	4.95
Industry		17,831	100,813	5.65
Commercial		33,264	194,109	5.84
Outputs	bil. Dongs	124,446	715,160	5.75
Agriculture		821	4,066	4.95
Industry		55,592	314,093	5.65
Commercial		68,033	397,001	5.84
Final consumption	bil. Dongs	39,294	222,536	5.66
Gross fixed capital formation	bil. Dongs	25,895	146,657	5.66
Export	bil. Dongs	47,943	271,520	5.66
Import	bil. Dongs	61,508	343,171	5.58
Passenger transport demand	mil.per.km	8,642	26,770	3.10
Freight transport demand	mil.ton.km	2,563	14,201	5.54

GHG emission and reduction



5 actions towards LCC in Da Nang

Climate change actions	Industry	Commercial	Residential	Passenger Transport	Freight Transport	Total (ktCO₂eq)
Action 1. Smart Industry Promotion of energy efficient equipment and fuel shift	829					829
Action 2. Smart Building Diffusion of low-energy building (EMS, Insulation, Fuel shift)		55	51			106
Action 3. Energy Efficiency Promotion of energy efficient device/appliance		118	180			298
Action 4. Smart Transport Energy efficient vehicle and modal shift				301	653	954
Action 5. Green Energy deployment of renewable electricity		34	5			39
Total (ktCO ₂ eq)	829	207	235	301	653	2,226

Action		Project	Sector	Emission reduction (ktCO2eq)
1 Smart Industry	1-01	ESCO (Energy Saving COmpany) project for industries	Industry	225.8
	1-02	Installation high energy efficiency facilities (such as compressors and motors)	Industry	204.3
	1-03	Regional energy supply system	Industry	127.1
	1-04	Improvement of kiln and furnace technology	Industry	272.0
		Total		829.3
2 Smart Building	2-01	Installation of insulated glasses to commercial buildings	Commercial	6.6
	2-02	Installation of insulated glasses to households	Residential	7.0
	2-03	Introduction of incentive to low energy buildings	Commercial	2.1
	2-04	Introduction of insulating material to houses	Residential	28.6
	2-05	Energy efficiency technology applied to buildings	Commercial	5.7
	2-06	Introduction of solar water heater to commercial buildings	Commercial	18.9
	2-07	Introduction of solar water heater to households	Residential	36.8
		Total		105.7
3 Energy Efficience	cy 3-01	ESCO (Energy Saving COmpany) project for commercial buildings	Commercial	33.1
	3-02	High efficiency lighting in public lighting	Commercial	4.3
	3-03	High efficiency lighting in commercial buildings	Commercial	50.5
	3-04	High efficiency lighting in households	Residential	36.1
	3-05	High efficiency air conditioners in commercial buildings	Commercial	37.1
	3-06	High efficiency air conditioners in households	Residential	37.2
	3-07	Promotion of energy-efficient appliances	Residential	99.7
		Total		298.1
4 Smart Transpor	rt 4-01	Promotion of eco-driving with digital tachographs	Transport	46.6
	4-02	Wide-range traffic control	Transport	4.9
	4-03	Expansion of frequencies and routes of bus transportation	Transport	10.5
	4-04	Development of Bus Rapid Transit (BRT)	Transport	5.2
	4-05	Shift to CNG bus	Transport	11.9
	4-06	Introduction of electric motorbikes	Transport	62.6
	4-07	Promotion of energy-efficient vehicles (cars for passenger)	Transport	102.5
	4-08	Promotion of energy-efficient vehicles (motorbikes)	Transport	143.5
	4-09	Promotion of energy-efficient vehicles (trucks)	Transport	566.2
		Total		954.0
5 Green Energy	5-01	Introduction of photovoltaic power generation to commercial buildings	Commercial	32.4
	5-02	Introduction of photovoltaic power generation to households	Residential	4.6
	5-03	Introduction of small-scale hydropower generation (at water distribution stations)	Commercial	1.6
		Total		38.7

From Planning to Implementations

LCS planning and implementation in cities

- AIM supports to develop LCS planning using our quantitative GHG mitigation simulation methodology first.
- Then Putrajaya and Iskandar Malaysia are trying to design administrative implementation program to realize green cities in their jurisdictions.

LCS Planning

through quantitative approach

- GHG Emission & Reduction
- LCS Policies & Actions

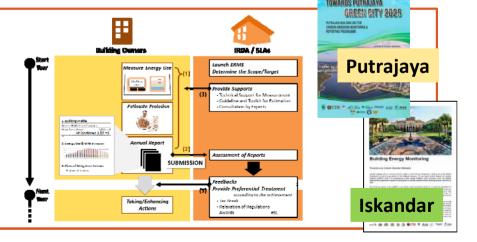


Next Stage

Implementation

through practical program design

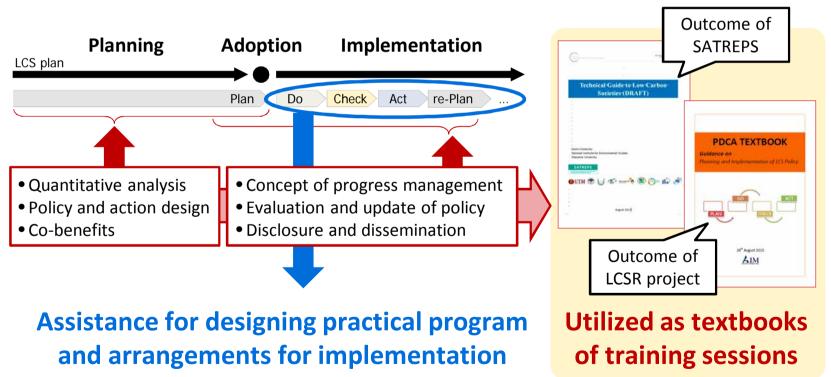
- Monitoring
- Evaluation & Modification of the Policy





PDCA process of LCS policy

- AIM team is making documents which explains PDCA process of LCS policy. Expected user is policy makers and researchers in Asian region.
- Those documents include processes of monitoring, evaluating and reviewing of LCS policy as well as methodology for planning.





Best Practice in Tokyo

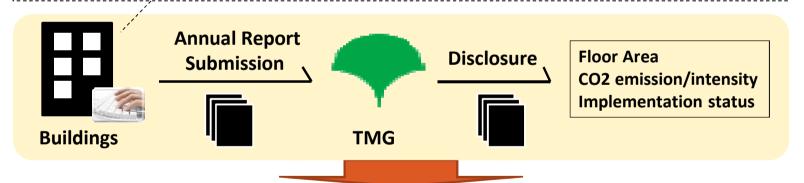
- Tokyo Metropolitan Government (TMG) has operated Carbon Reduction Reporting Program for mid-small scale buildings, which aims to enhance mitigation actions.
- The program asks buildings to monitor and report their CO2 emission as well as mitigation actions taken by owners and/or tenants.

1. Energy Consumption and CO2 Emission in Previous FY

- Calculate CO2 emissions from previous FY's fuel, energy, electricity, water and sewerage use

2. Mitigation Actions Taken in Previous FY

- Choose measures taken from 255 option menu which has been categorized by TMG



Continuous Efforts on the Global Warming Measures

- Realize continuous understanding/management of energy consumption
- Continuous efforts and improvement on the global warming measures

LCS implementation: Transfer Knowledge from Tokyo to Malaysia

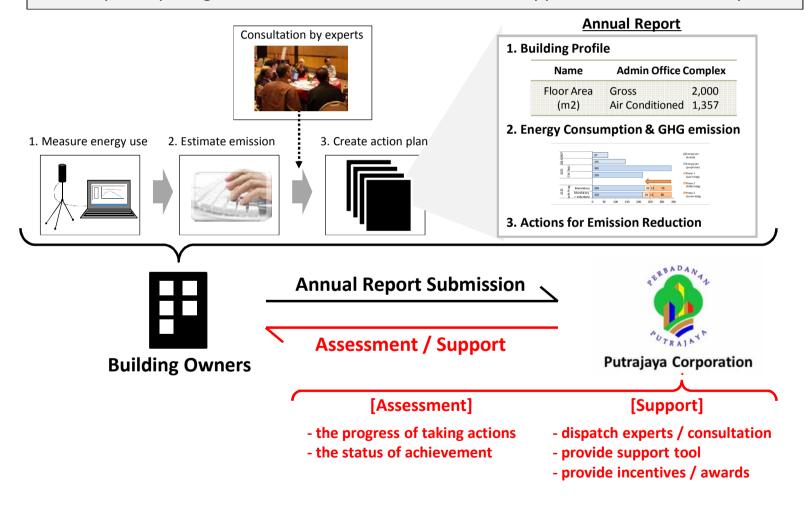
- Collaborative team comprised by UTM (University Technology Malaysia)/TMG (Tokyo Metropolitan Government)/AIM transfers the building monitoring and reporting program which initiated by TMG.
- We works together with Putrajaya Corporation (PJC) and Iskandar Region Development Authority (IRDA).
- Trainings, workshops and intensive discussions many times among both cities' staffs, TMG's staffs and experts have been conducted so far.



Proposed Scheme (1/2)

Putrajaya

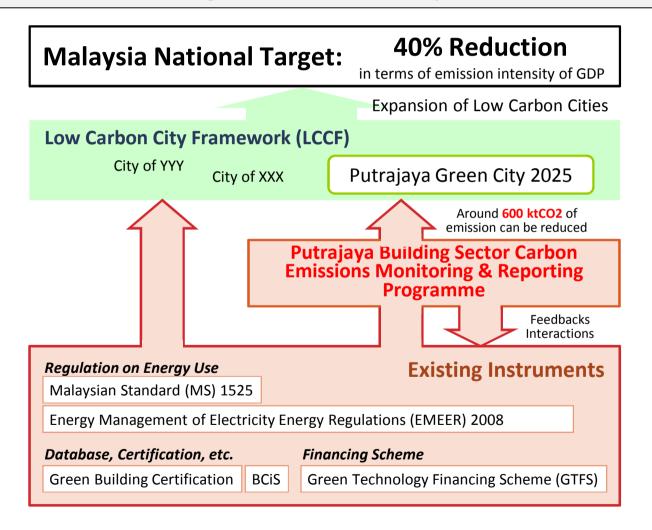
- Buildings are required to submit report including energy consumption, GHG emission and action plan for reducing their emission.
- The participating entities can receive feedbacks and support from the authority.



Proposed Scheme (2/2)

Putrajaya

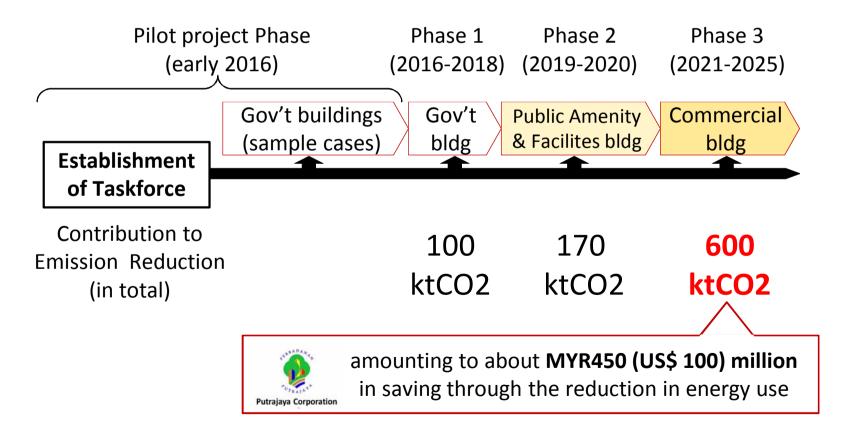
• The proposed scheme is an additional instrument to enhance the function of existing instruments for enhancing low carbon cities in Malaysia.



Expected Impacts of the Programme

Putrajaya

- In order to introduce the programme smoothly, the target buildings shall be expanded gradually.
- Expected impacts are estimated according to Putrajaya Green City 2025.
 (abt 600 ktCO2 emission reduction at maximum; amounting to abt MYR 450 (US\$ 100) million in saving through the reduction in energy use.)



City Networking



Speakers:

City of Firenze, **Italy**City of Vancouver, **Canada**City of Vitry-le-François, **France**City of Bristol, **United Kingdom**100RC, GEF, ICLEI,

City of Frankfurt am Main, **Germany**City of Higashimatsushima, **Japan**City of Kitakyushu, **Japan**City of Toyama, **Japan**

Promotion Committee for the "Future City" Initiative Co-chairs:

Mr. Masashi Mori Mayor, Toyama City, Japan Prof. Hironori Hamanaka Chair, Board of Directors, IGES

The Role of Cities -

Key Messages from G7 Toyama Environment Ministers' Meeting Parallel Session

Wednesday 13 July, ISAP2016, Pacifico Yokohama



Main messages from Co-Chairs' summary

- Recognizing, supporting and showcasing the advanced efforts by leading cities making the transition to sustainable societies
- Promoting networks of leading cities and encouraging successive cities to be involved
- Mainstreaming the role of cities

Co-Chair's summary will be shared at any other appropriate opportunities, such as the 2nd United Nations Environment Assembly on May 23-27, 2016 in Nairobi, HABITAT III on 17-20 October 2016 in Quito and its preparatory processes.



MOU Signing Ceremony at Toyama City Hall (from left to right: Dr. Fujino and Prof. Hamanaka, IGES, Mayor Mori, Toyama City; Ms. Yee, Dr. Runzo-Inada and Mr. Horng Dar Lim, 100RC)

May 15th 2016, Toyama



Towards a S

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Announcement

IGES and Rockefeller Foundation Sign Memorandum of Understanding on the Sidelines of the G7 Environment Ministers' Meeting in Toyama, Japan

31 May 2016

The honourable Mayor of Toyama City, Masashi Mori, hosted a signing ceremony at City Hall to formalise a collaboration agreement between the Institute for Global Environmental Strategies (IGES) and 100 Resilient Cities –

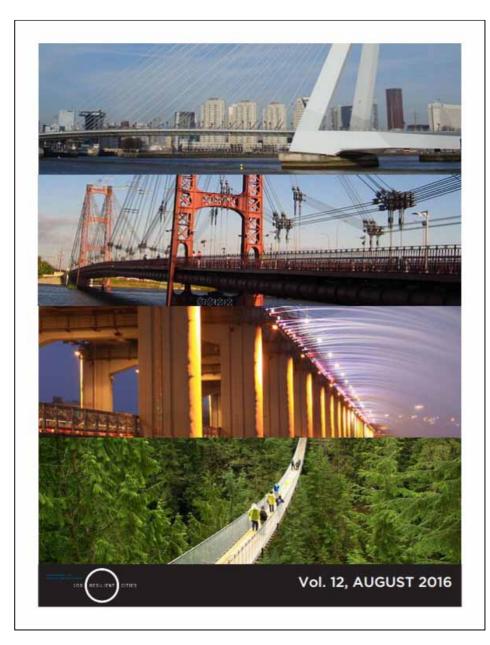


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Rotterdam

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Semarang

Melbourne

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On the cover, from top: Erasmus Brug, Rotterdam (F.Eveleens/Wikimedia Commons); Puente Colgante, Santa Fe (Giulianaesmeralda, Wikimedia Commons); Jamsu Bridge, Seoul (Photo and Share CC/Flickr); Capilano Bridge, Vancouver (David J Laporte/Flickr).

Institutionalization and Implementation

Semarang

Kick-Off Workshop for Co-Benefit Study in Transportation Sector



The Kick-Off Workshop for the Co-Benefit Study in the Transportation Sector for Semarang was held on July 28th, 2016 at the Grand Edge Hotel. The meeting was the initial workshop for the strategy implementation phase of Semarang's resilience-building program. It was attended by 29 participants from local governments, academia, non-governmental organizations (NGOs), the Institute for Global Environmental Strategies (IGES)-Japan, and the Asian Institute of Technology (AIT)- Thailand, as well as community members. The workshop was designed to enhance communication and cooperation with local stakeholders as part of the preparations for the implementation of Semarang's Resilience Strategy.

Semarang released its Resilience Strategy on May 23rd, 2016. Integrated mobility is one of the six strategic pillars underpinning Semarang's strategy. To implement the integrated mobility pillar, Semarang is seeking to make public transportation facilities more compatible with the needs of disabled people as well as environmentally sustainable. The Ministry of the Environment, Japan (MOEJ) is funding a study as the first step towards achieving this goal. (Continues on next page)

Below: Dr. Junichi Fujino, IGES Japan





A4. "Better City-to-City Cooperation" session at 7th High Level Seminar on **Environmentally Sustainable Cities** 4th March, 2016 in Hanoi



8th seminar Will be held in Thailand, **March 2017**



urban sustainability centre stage in 2016.

7/12-13 cifico Yokohama

City Champions: Leveling and Scaling-up Transformative Sustainability

Translating Knowledge into Actions towards 2030 and beyond

A0868

International Forum for Sustainable Asia and the Pacific

Innovations

ISAP2017 will be held in

The operationalisation of Sustainable Deve Yokohama, July 2017 (Dec 2015) and the formulation of a New U

High rates of urbanisation as well as financial stresses and human resource constraints are amongst the major challenges cities in the Asia-Pacific region face. On the other hand, the decentralisation of government functions is empowering a new generation of city leaders to access creative finance, emulate good practices and achieve leapfrog development by means of low-carbon technology. The Parallel Session seeks to:

- 1. Showcase and inspire cities to develop new / adopt existing solutions to key sustainability challenges through the introduction of good practices from leading cities.
- 2. Illustrate how intercity learning approaches can be leveled and scaled up, by showcasing a successful partnership.

3. Highlight how new training programmes to globally disseminate leading urban initiatives can connect





















Moderator IGES Urban WB Tokyo Bangkok Yokohama FutureCity





Low Carbon Asia Research Network





Toshihiko MASUI Japan



Junichi FUJINO Japan

Mikiko **KAIMUMA** Japan



Tae yong JUNG ROK



Ucok Wrsiagian Indonesia



Retno Gumilang Dewi Indonesia



Damasa Macandog **Philippines**



Priyadarshi **SHUKLA** India



Jiang Kejun China



Bundit LIMMEECHOKCHAI Thailand



Srintonthep Towprayoon Thailand



Rizaldi BOER Indonesia



Ho Chin SIONG Malaysia



Hak Mao Cambidia



Nguyen Tung Lam Vietnam

































Identify

Reduction

Necessary

Actions

Potential and

GHG

City
Diagnosis
by Q and L
using
CASBEE

Soal 1. No Poverty Indicator1-2, indicator2-2, ...

Goal 2. Zero Hunger Indicator3-1, Indicator3-2, ...

Goal 3. Good Health... Indicator3-1, Indicator3-2, ...

Tokyo(Japan)

JANSEESSMENT RESULT

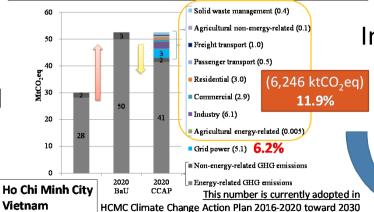
Tokyo(Japan)

JANSEESSMENT RES

CASBEE indicators (based on SDGs and ISO 37120 indicators)

HCMC LCS Scenario towards 2020

 By the 2020 CCAP scenario, the GHG emission reduction is 19.1% of total emission of Business as Usual (2020BaU) (including 6.2% reduction is expected from the mitigation of grid power)



Transfer
Implementation
Know-how
To Asia

LCS implementation: Transfer Knowledge from Tokyo to Malaysia

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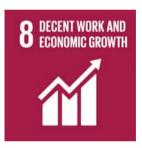
































Create applicable show-case and scale up!

Like star wars, explore more masters and train LCS/SDGs knights!

