# Our collaboration for Climate Change Action Plan (CCAP) Development and Implementations

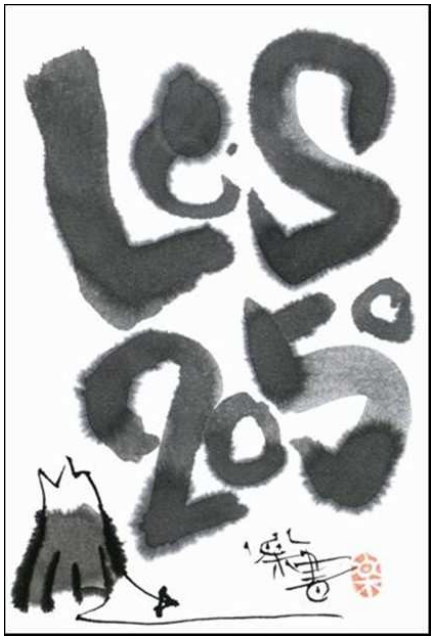
**Junichi FUJINO**

**NIES/IGES**

COP22 Official Side Event

9th Nov 2016, Marrakesh

Morocco



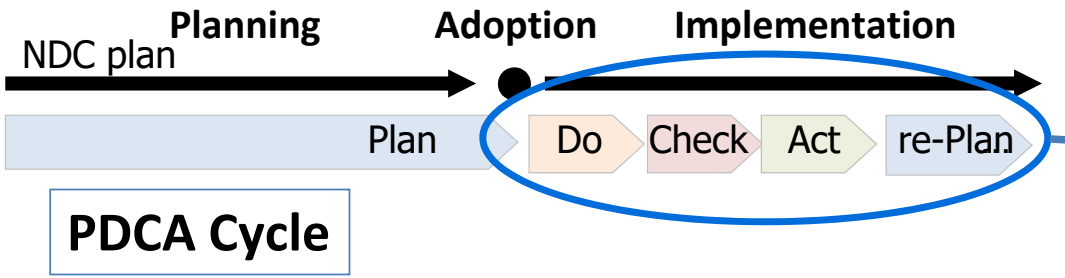
# How to promote NDCs? ; MOEJ Initiatives

**Plan**
1. Asia-Pacific Integrated Model (AIM) for promoting Law Carbon Society (LCS)

**Do**
2. City to City Collaboration JCM Feasibility Studies
3. Multilateral Cooperation for Environmentally Sustainable Cities (ESC)

**Check**
4. Transfer the know-how of the Carbon Reduction Reporting Program by Tokyo Metropolitan Government (TMG)

**Action**
- Act (Re-plan and next action)



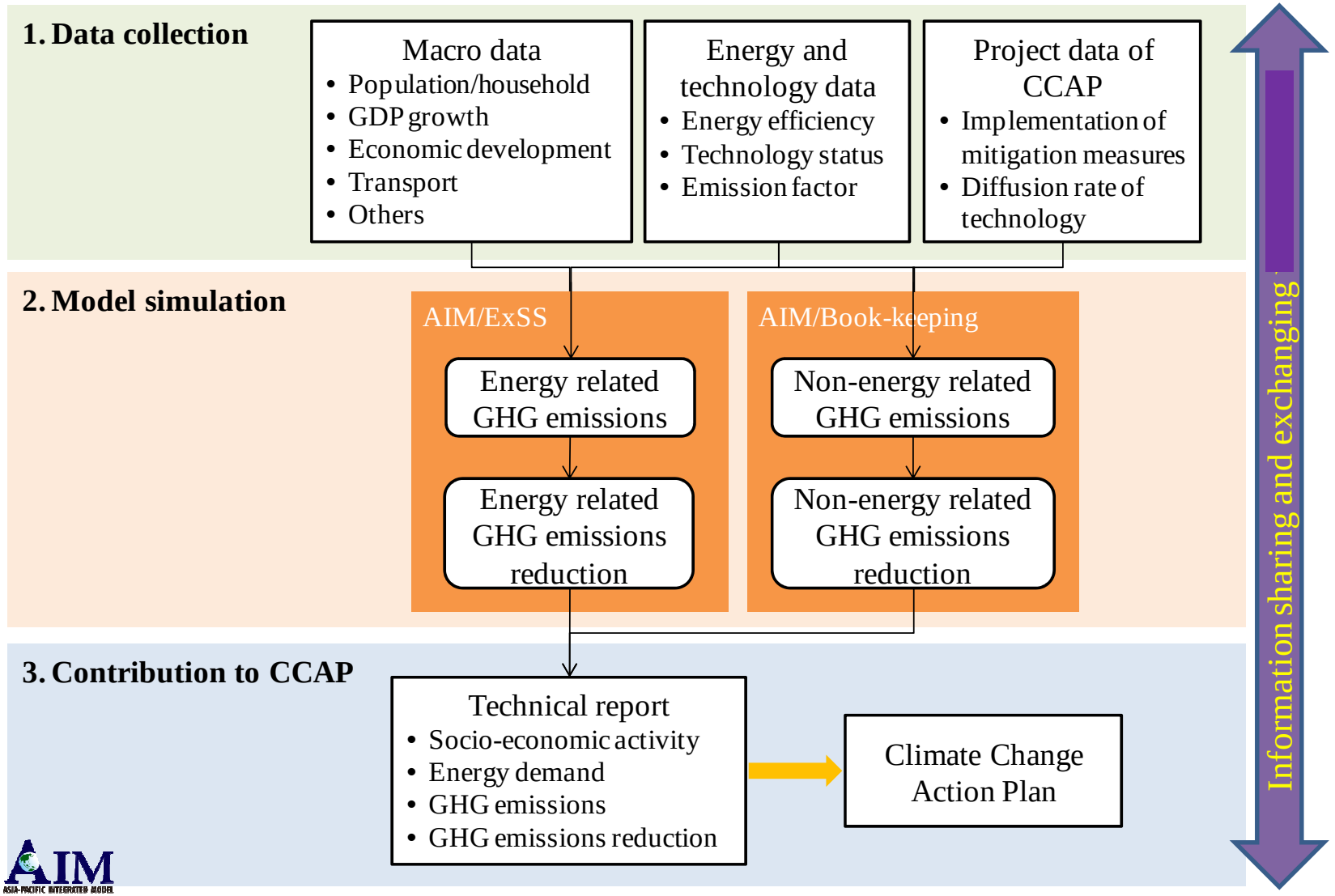

**Assistance for putting policy into practical program and arrangements for implementation**

# LCS Scenarios and Plans in Asian Countries and cities

* AIM (Asia Pacific Integrated Model) project starts since 1989.
* Estimate GHG baseline emission and Support setting reduction target at national-level and city-level


AIM
ASIA-PACIFIC INTEGRATED MODEL

# Methodology of LCS scenario development



# New Initiative for COP22

# HAI PHONG LOW CARBON CITY

Based on the following strategies and plans: National Green Growth Strategy (1393/QD-TTg) approved by the Prime Minister in September 2012, Green Growth Action Plan (403/QD-TTg) approved by the Prime Minister in March 2014, and the Green Port City strategy (72-KL/TW) of the Communist Party Politburo, Hai Phong formulated the Green Growth Strategy Action Plan of the City of Hai Phong (1463/QD-UBND) in July 2014. With the target of the Intended Nationally Determined Contributions (INDCs) to the United Nations Framework Convention on Climate Change UNFCCC, which aims to reduce 8-25% of total emissions in 2030 compared to Business as Usual (BaU), major cities in Vietnam are required to develop Climate Change Action Plans (CCAP). The CCAP is necessary and should be integrated with the middle- and long-term master plan of socio-economic devel-

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

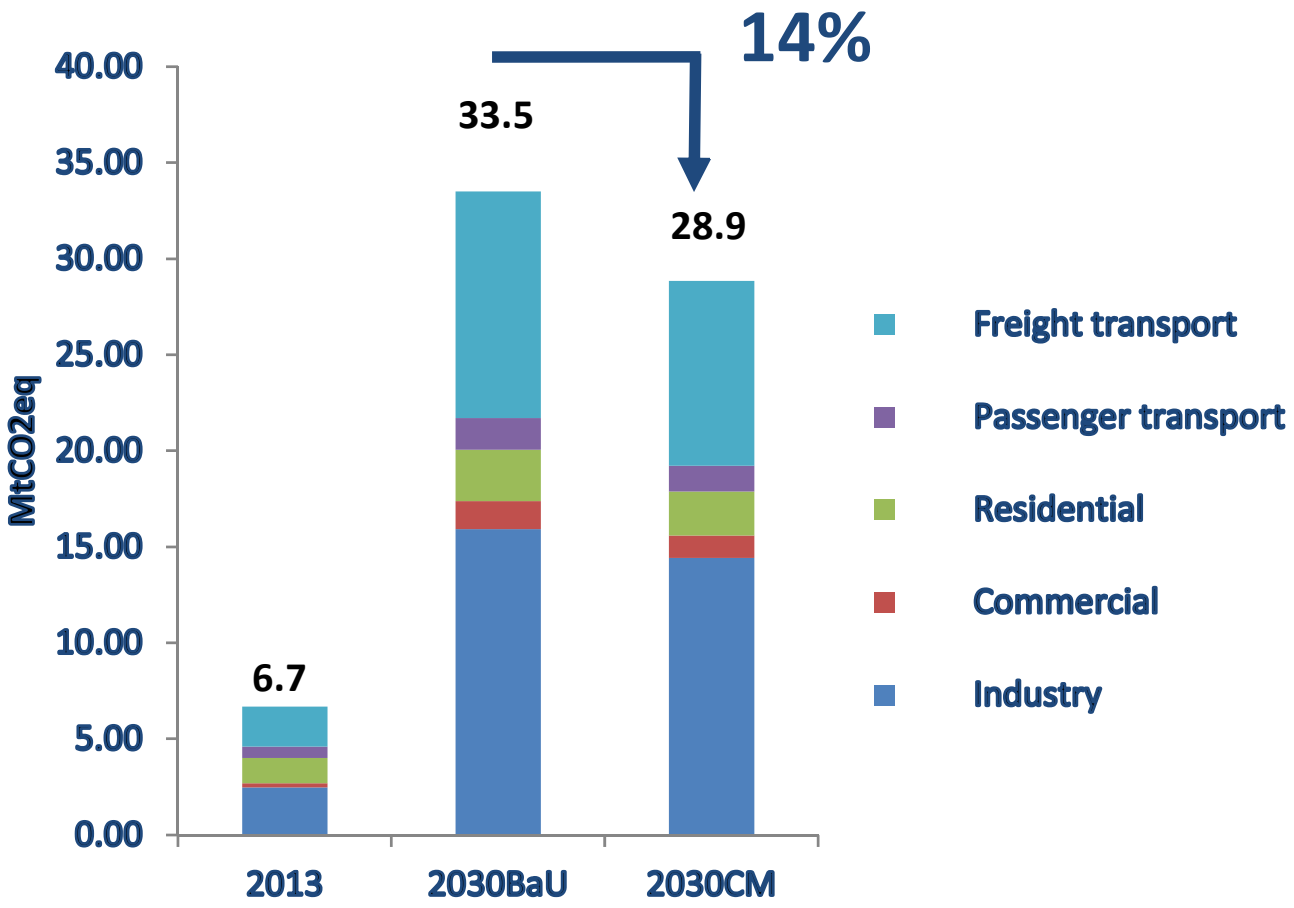

Officer from DONRE,
Hai Phong City


Prof. Ho Chin Shiong
UTM

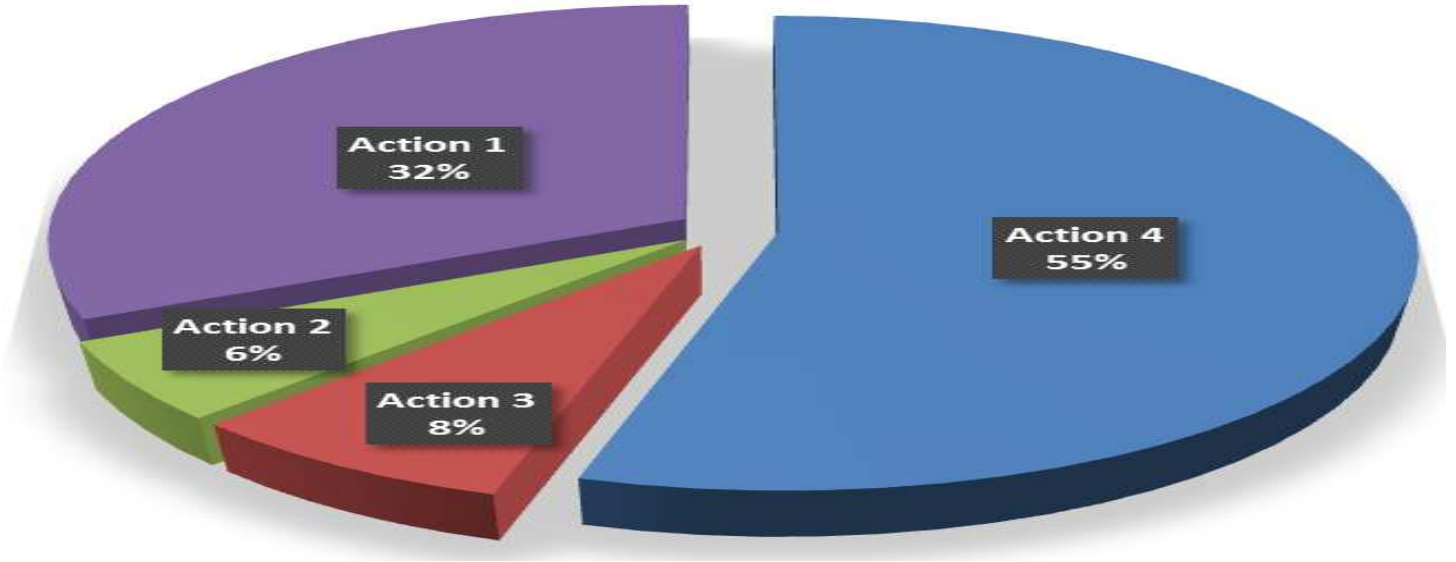

Dr. Luong Quong Huy
Director, MONRE


# Low Carbon Society Scenario Workshop in Hai Phong on 13th Sep 2016

# GHG emission and reduction potential in Hai Phong



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



# New Initiative for COP22

## A STUDY ON

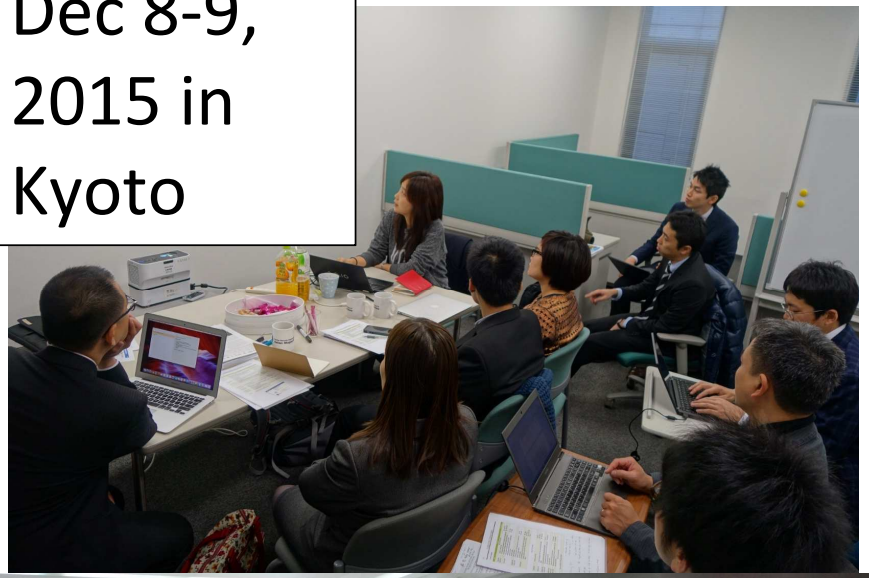
# DA NANG LOW CARBON CITY

Recently, major cities in Vietnam are required to localized the initiatives of the Intended Nationally Determined Contributions (INDCs) to the United Nations Framework Convention on Climate Change (UNFCCC). The aim of INDC is to reduce 8-25% of total emissions in 2030 compared to Business as Usual (BaU). In line with the target, the Vietnam Green Growth Strategy (Decision 1393/QD-TTG) aims to ensure efficient and sustainable economic growth in Vietnam while making significant contributions towards implementing the national climate change strategy. Moreover, the National Target Program for

emission in energy-related categories such as Residential, Commercial, Transportation, and Industry. They are 2030BaU (Business as Usual) and 2030CM (CounterMeasures). The 2030BaU scenario, where countermeasures for GHG emission reduction are not introduced, reflects the situation in which both, the levels of commitments to climate-friendly-energy production and technological breakthroughs are relatively low. Specially, countermeasures are assumed the same level as in 2013. On the other hand, the 2030CM scenario, which additional low carbon countermeasures are introduced in order to assess the reduction

Feb 29, 2016 in Da Nang

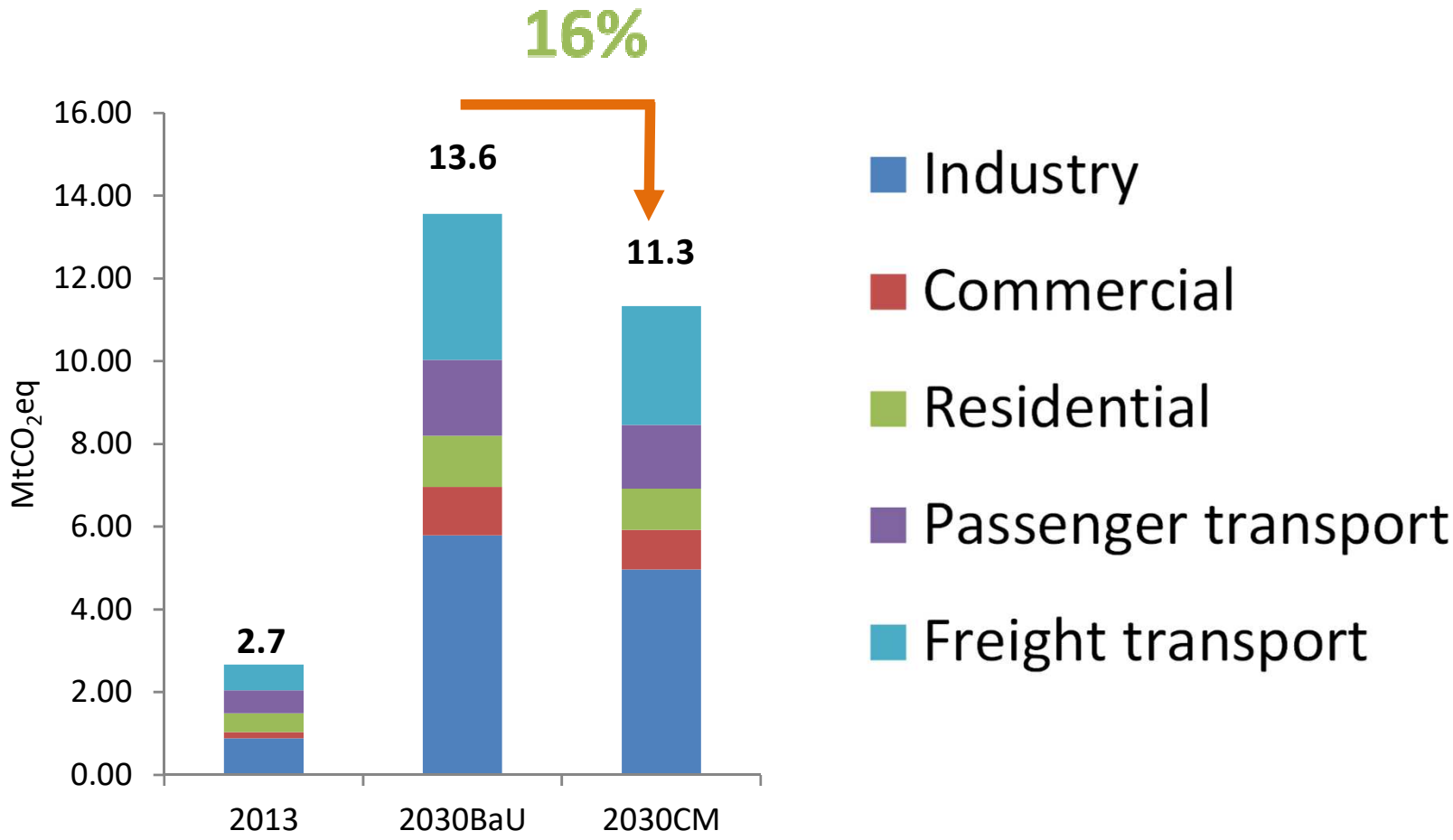

Dec 8-9, 2015 in Kyoto




Sep 14, 2016 in Da Nang

Oct 21, 2016 in Da Nang

# GHG emission and reduction potential in Da Nang towards 2030



# 5 CC actions towards LCC in Da Nang

| Climate change actions | Industry | Commercial | Residential | Passenger Transport | Freight Transport | Total ($ktCO_2eq$) |
|---|---|---|---|---|---|---|
| Action 1. Smart Industry<br>Promotion of energy efficient equipment and fuel shift | 829 | | | | | 829 |
| Action 2. Smart Building<br>Diffusion of low-energy building (EMS, Insulation, Fuel shift) | | 55 | 51 | | | 106 |
| Action 3. Energy Efficiency<br>Promotion of energy efficient device/appliance | | 118 | 180 | | | 298 |
| Action 4. Smart Transport<br>Energy efficient vehicle and modal shift | | | | 301 | 653 | 954 |
| Action 5. Green Energy<br>deployment of renewable electricity | | 34 | 5 | | | 39 |
| Total ($ktCO_2eq$) | 829 | 207 | 235 | 301 | 653 | 2,226 |

# HAI PHONG LOW CARBON CITY

Based on the following strategies and plans: National Green Growth Strategy (1393/QD-TTg) approved by the Prime Minister in September 2012, Green Growth Action Plan (403/QD-TTg) approved by the Prime Minister in March 2014, and the Green Port City strategy (72-KL/TW) of the Communist Party Politburo, Hai Phong formulated the Green Growth Strategy Action Plan of the City of Hai Phong (1463/QD-UBND) in July 2014. With the target of the Intended Nationally Determined Contributions (INDCs) to the United Nations Framework Convention on Climate Change UNFCCC, which aims to reduce 8-25% of total emissions in 2030 compared to Business as Usual (BaU), major cities in Vietnam are required to develop Climate Change Action Plans (CCAP). The CCAP is necessary and should be integrated with the middle- and long-term master plan of socio-economic development, specific sectoral development plans.

This study is one of the results of the research collaboration between Asian-Pacific Integrated Model (AIM) team in Japan including Ritsumeikan University, Kyoto University, E-konzal, National Institute for Environmental Studies (NIES), Mizuho Information and Research Institute (MHIR), Institute for Global Environmental Strategy (IGES), and Institute of Strategy and Policy on natural resources & environment (ISPONRE), Department of Natural Resources and Environment of Hai Phong. We expect this brochure is useful for researchers and policy-makers who are interested in developing or updating their own CCAP.

We developed two scenarios with the projection of energy consumption and $CO_2$ emission in energy-related categories such as Residential, Commercial, Transportation, and Industry. They are 2030BaU (Business as Usual) and 2030CM (CounterMeasures). The 2030BaU scenario, where countermeasures for GHG emission reduction are not introduced, reflects the situation in which both, the levels of commitments to climate-friendly-energy production and technological breakthroughs are relatively low. Specially, countermeasures are assumed the same level as in 2013. On the other hand, the 2030CM scenario, which additional low carbon countermeasures are introduced in order to assess the reduction effects of GHG emissions. The socioeconomic assumptions about population, industrial structure, and economic growth are common to both scenarios. Information from many domestic sources is used to calibrate the parameters for base year 2013. In target year 2030, Extended Snapshot Tool (ExSS) is applied for the projection of future energy consumption and $CO_2$ emission in energy-related categories.

Hai Phong is expected under the rapid growth of driving forces such as population, transport demand, and especially industrial activities; the total GHG emissions increases 4.01 times, from 6,675 $ktCO_2eq$ in 2013 to 33,494 $ktCO_2eq$. The total GHG emissions reduction is 14%, accounting for $ktCO_2eq$, Hai Phong can reduce such emissions reductions by implementing 30 projects grouped in four actions (Green Industry, Green Building, Energy Efficiency and Clean Transport). Since the national reduction target has been shown in the Green Growth strategy (10-20% reduction in 2030CM) and in the Vietnam's INDC (8-25%), Hai Phong is expected to achieve such target by 2030 (14% reduction by 2030CM compared to 2030BaU)

Table 1 GHG emissions by sectors ($ktCO_2eq$) in Hai Phong city

| | 2013 | 2030 | | 2030 | |
|---|---|---|---|---|---|
| | | BaU | CM | BaU/2013 | CM/BaU |
| **GHG emissions** | $ktCO_2eq$ | | | | |
| Agricultural energy-related | 2 | | | | |
| Industry | 2,483 | | | | |
| Commercial | 221 | | | | |
| Residential | 1,291 | | | | |
| Passenger transport | 604 | | | | |
| Freight transport | 2,075 | | | | |
| **Total GHG emissions** | **6,675** | | | | |
| **GHG emissions per GDP ($tCO_2eq$/bil.Dongs)** | 63 | | | | |
| **GHG emissions per capita ($tCO_2eq$/person)** | 3.5 | 11.2 | 9.6 | 3.22 | 0.86 |



## A STUDY ON

# DA NANG LOW CARBON CITY

Recently, major cities in Vietnam are required to localized the initiatives of the Intended Nationally Determined Contributions (INDCs) to the United Nations Framework Convention on Climate Change (UNFCCC). The aim of INDC is to reduce 8-25% of total emissions in 2030 compared to Business as Usual (BaU). In line with the target, the Vietnam Green Growth Strategy (Decision 1393/QD-TTG) aims to ensure efficient and sustainable economic growth in Vietnam while making significant contributions towards implementing the national climate change strategy. Moreover, the National Target Program for Climate Change Response (Decision 158/QD-TTG) requires local governments to develop Climate Change Action Plans (CCAP). The CCAP is necessary and should be integrated with the middle- and long-term master plan of socio-economic development, specific sectoral development plans (such as transportation, industry, power, agriculture, etc.) as well as water and waste management.

This study is one of the results of the research collaboration between Asian-Pacific Integrated Model (AIM) team in Japan including Kyoto University, E-konzal, National Institute for Environmental Studies (NIES), Mizuho Information and Research Institute (MHIR), Institute for Global Environmental Strategy (IGES), and Institute of Strategy and Policy on natural resources & environment (ISPONRE), Da Nang Climate Change Coordination Office (CCCO) in Vietnam. We expect this brochure is useful for researchers and policy-makers who are interested in developing the CCAP and can support the vision of building green growth for Da Nang city.

Two scenarios are developed for the socio-economic vision of Da Nang by 2030, with the projection of energy consumption and $CO_2$ emission in energy-related categories such as Residential, Commercial, Transportation, and Industry. They are 2030BaU (Business as Usual) and 2030CM (CounterMeasures). The 2030BaU scenario, where countermeasures for GHG emission reduction are not introduced, reflects the situation in which both, the levels of commitments to climate-friendly-energy production and technological breakthroughs are relatively low. Specially, countermeasures are assumed the same level as in 2013. On the other hand, the 2030CM scenario, which additional low carbon countermeasures are introduced in order to assess the reduction effects of GHG emissions. The socioeconomic assumptions about population, industrial structure, and economic growth are common to both scenarios. Information from many domestic sources is used to calibrate the parameters for base year 2013. In target year 2030, Extended Snapshot Tool (ExSS) is applied for the projection of future energy consumption and $CO_2$ emission in energy-related categories.

In 2030BaU, Da Nang is expected under the rapid growth of driving forces such as population, transport demand, and industrial activities; the total GHG emissions increases 4.01 times, from 2,665 $ktCO_2eq$ in 2013 to 13,563 $ktCO_2eq$.

In 2030CM, the total GHG emissions reduction is 16%, accounting for 2,226 $ktCO_2eq$. Da Nang can reduce such emissions reductions by implementing 30 projects grouped in five actions.

By implementing five climate change actions, namely; Smart Building, Smart Industry, Energy Efficiency, Smart Transport and Green Energy, Da Nang can reduce 16% total GHG emissions in 2030CM (between the 10-20% national reduction target as declared in the Green Growth strategy and within 8-25% mentioned in the Vietnam's INDC).

Table 1 GHG emissions by sectors ($ktCO_2eq$) in Da Nang city

| | 2013 | | 2030 | | | | 2030 | |
|---|---|---|---|---|---|---|---|---|
| | | | BaU | | CM | | BaU/2013 | CM/BaU |
| **GHG emissions** | $ktCO_2eq$ | % | $ktCO_2eq$ | % | $ktCO_2eq$ | % | | |
| Agricultural energy-related | 2 | 0.1 | 12 | 0.1 | 12 | 0.1 | 5.67 | 1.00 |
| | | | | 42.6 | 4,950 | 43.7 | 6.56 | 0.86 |
| | | | | 8.6 | 961 | 8.5 | 7.73 | 0.82 |
| | | | | 9.1 | 1,000 | 8.8 | 2.69 | 0.81 |
| | | | | 13.5 | 1,537 | 13.6 | 3.37 | 0.84 |
| | | | | 26.0 | 2,878 | 25.4 | 5.64 | 0.82 |
| | | | | **100.0** | **11,338** | **100.0** | **5.09** | **0.84** |
| | | | | | 38.1 | | 0.88 | 0.84 |
| | | | | | 4.5 | | 1.99 | 0.84 |

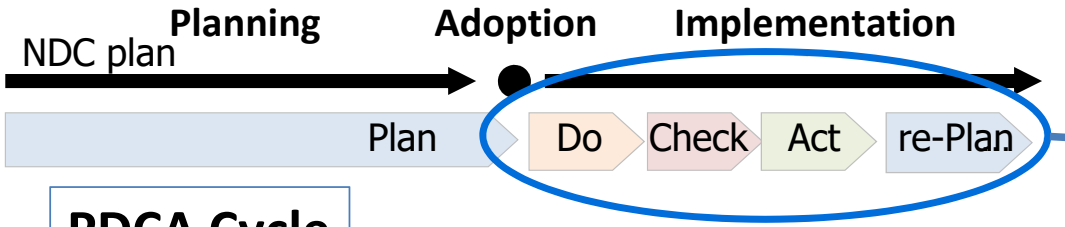
# How to promote NDCs? ; MOEJ Initiatives

**Plan** 1. Asia-Pacific Integrated Model (AIM) for promoting Law Carbon Society (LCS)

**Do** 2. City to City Collaboration JCM Feasibility Studies
3. Multilateral Cooperation for Environmentally Sustainable Cities (ESC)

**Check** 4. Transfer the know-how of the Carbon Reduction Reporting Program by Tokyo Metropolitan Government (TMG)

**Action** - Act (Re-plan and next action)




**PDCA Cycle**

**Assistance for putting policy into practical program and arrangements for implementation**

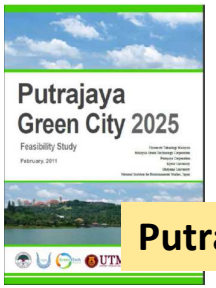
# LCS planning and implementation in cities

- 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.

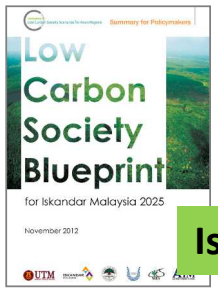
## LCS Planning

through quantitative approach

- GHG Emission & Reduction
- LCS Policies & Actions




Putrajaya



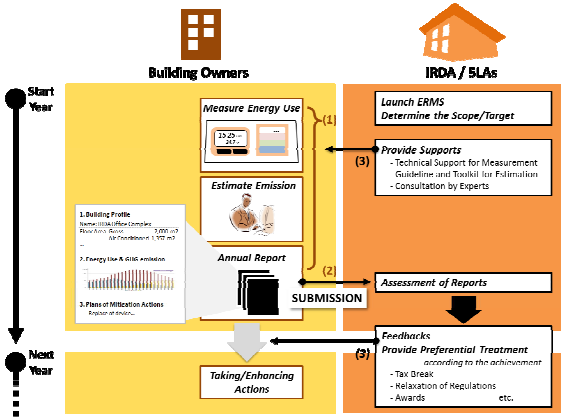

Iskandar

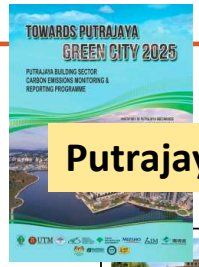
Next Stage

## Implementation

through **practical program design**

- Monitoring
- Evaluation & Modification of the Policy




Putrajaya


Iskandar

AIM
ASIA-PACIFIC INTEGRATED MODEL

# Transfer Reporting Program

Tokyo => Putrajaya

AIM team is trying to transfer an advanced scheme of emissions reduction which has been implemented by Tokyo Metropolitan Government (TMG). Especially, TMG has massive experiences on emission reduction from buildings.

We work together with Putrajaya Corporation (PJC) and Iskandar Region Develop-ment Authority (IRDA) to introduce a reporting program in these cities.

**Ex) Activity in City of Putrajaya**

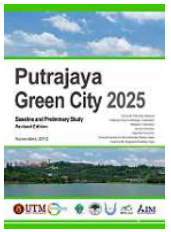
## Tokyo's Experience:

- TMG created and have operated **"Carbon Reporting Program for Medium and Small Sized Facilities"**.
- Collect reports from buildings about their emissions and energy usage
- Provide building owners with advices about energy saving measures

**TMG succeeded in reducing its emissions!!**

## City of Putrajaya

- Putrajaya launched its LCS plan **"Putrajaya Green City 2025"**.




- PJC published their proposal of a new scheme of energy consumption and emission reduction in buildings at COP20.
- Task force was established to consider a new reporting program targeted building sector and begun investigation.

# Best Practice in Tokyo

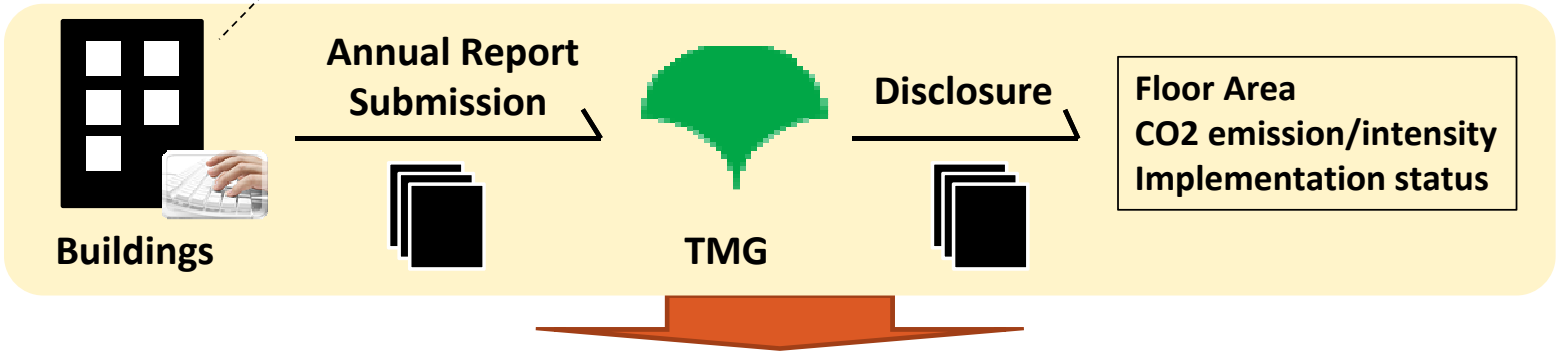
- Tokyo Metropolitan Government (TMG) has operated Carbon Reduction Reporting Program for mid-small scale buildings, which aims to enhance mitigation actions.
- The program asks buildings to monitor and report their CO2 emission as well as mitigation actions taken by owners and/or tenants.

**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

**CO2 Emission Reduction (10% reduction has achieved)**

# LCS implementation:
# Transfer Knowledge from Tokyo to Malaysia

## 2015


Training in TMG


Training in TMG


Site Visit in Putrajaya building

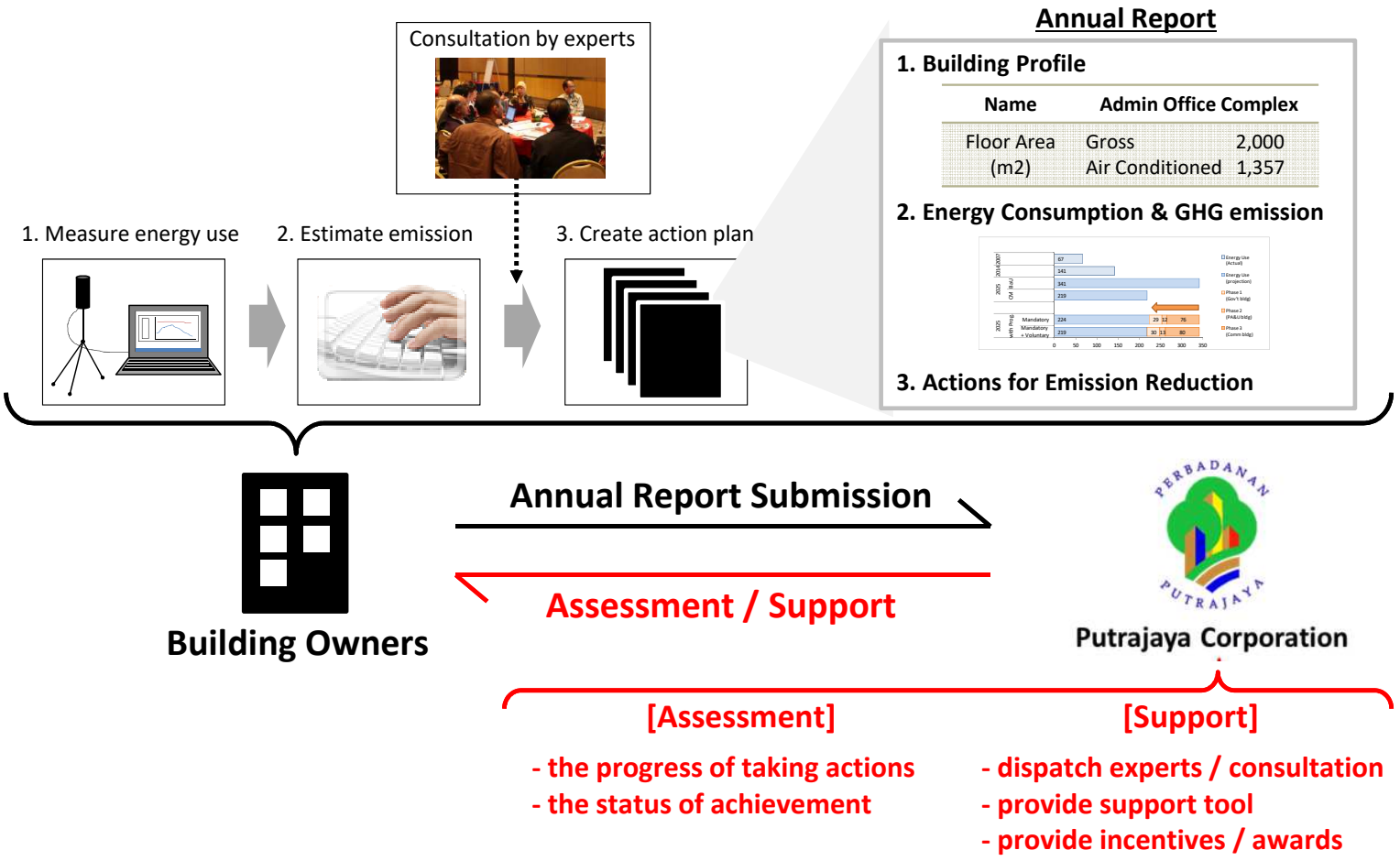

Workshop in Iskandar Malaysia


Discussion in PJC

## 2016

# Proposed Scheme in Putrajaya and Iskandar Malaysia

- 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.



# How to promote NDCs? ; MOEJ Initiatives

**Plan**

1. Asia-Pacific Integrated Model (AIM) for promoting Law Carbon Society (LCS)

**Do**

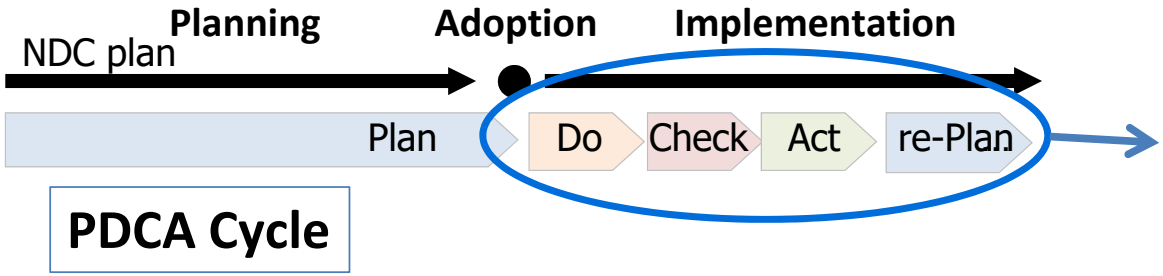
2. City to City Collaboration JCM Feasibility Studies
3. Multilateral Cooperation for Environmentally Sustainable Cities (ESC)

**Check**

4. Transfer the know-how of the Carbon Reduction Reporting Program by Tokyo Metropolitan Government (TMG)

**Action**

- Act (Re-plan and next action)




**Assistance for putting policy into practical program and arrangements for implementation**

**Create applicable show-cases and scale up!**

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