

*Date: 2<sup>nd</sup> November, 2017*  
*The 6<sup>th</sup> Annual Meeting of the Low Carbon Asia Research Network (LoCARNet)*  
*Venue: Bangkok, Thailand, 1-3 November 2017*

# Procedure of low-carbon policy formulation in the case of Hai Phong city

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*Ritsumeikan University*

**Nguyen Thai Hoa**  
**Koji Shimada**

*E-konzal*

**Yuki Ochi**

*MIZUHO*

**Kazuya Fujiwara**

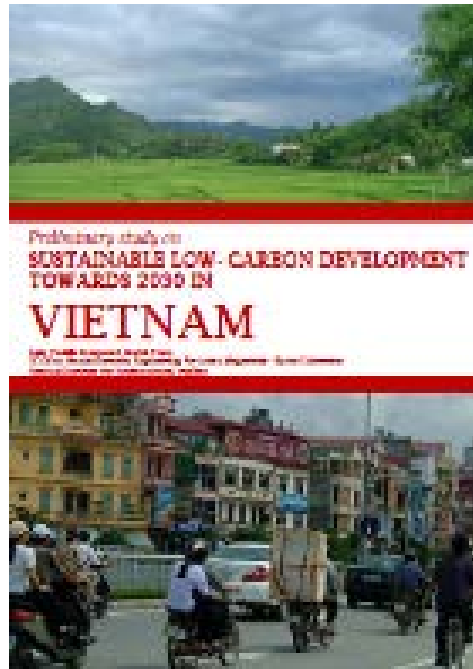
*IGES/NIES*

**Junichi Fujino**

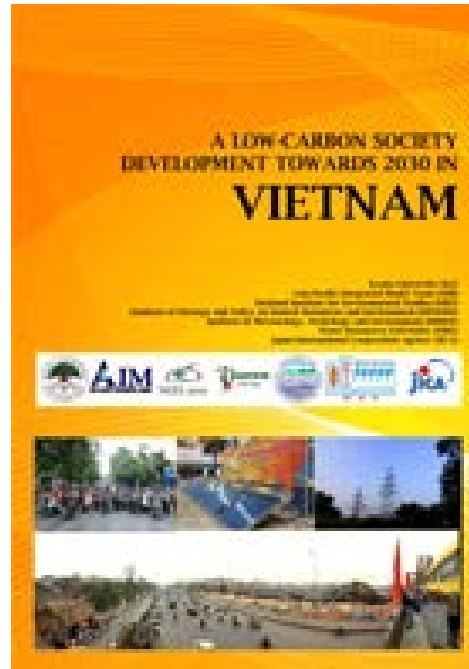
**R** RITSUMEIKAN  
UNIVERSITY

# Our Research for Vietnam (national level)

## 2011: preliminary result



## 2012: report cover energy sectors



## 2014: report cover all sectors



# LOW CARBON SOCIETY SCENARIOS VIETNAM 2030

"Consider low carbon economy and green growth as principles in achieving sustainable development. Greenhouse Gases (GHG) emission reduction to become a mandatory index in social and economic development" is one of the main objectives of the "National Climate Change Strategy" which was approved by the Government of Vietnam in December 2011. In addition, a concrete target to reduce GHG emission by 30% in the Energy sector in 2030 compared to business as usual were set in the "Vietnam Green Growth Strategy" (Decision No. 1393/QĐ-TTg (8/25/2012)). In order to contribute implementing these policies and envision a sustainable low carbon society with a long term perspective as well as introduce the measures to realize it, we developed "Low Carbon Society (LCS) scenarios Vietnam 2030". This research has been conducted in a collaboration between the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE) from Vietnam, and Kyoto University (KU), National Institute for Environmental Studies (NIES), Institute for Global Environmental Strategies (IGES), E-KONZAL, and Mizuno Information and Research Institute (MIRIS) from Japan.

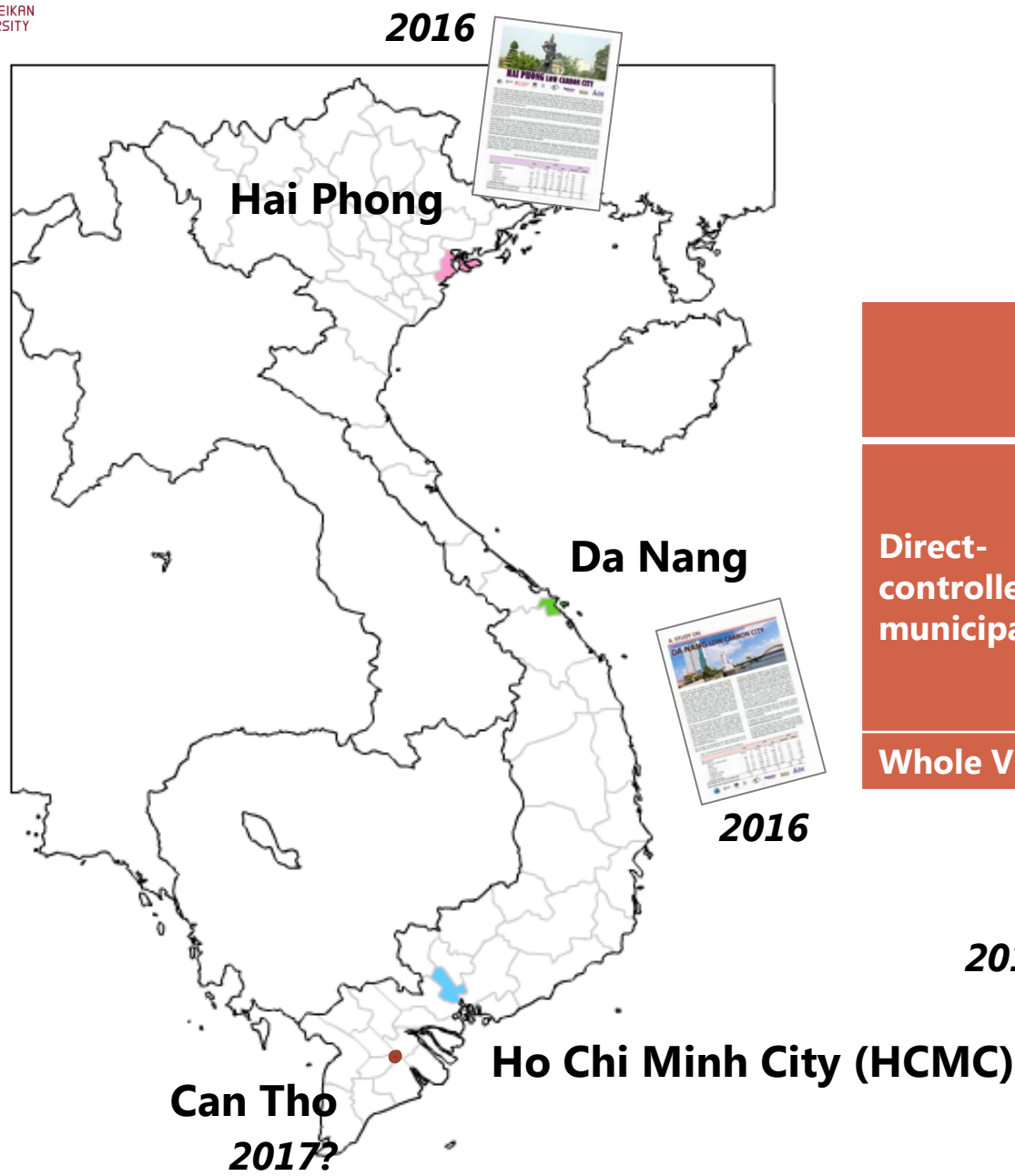
Table. Projection of GHG emissions and their reduction in 2030						
	2005	2030BaU	2030CM	Reduction ratio* (this study)	National target in 2030 (The Vietnam Green Growth Strategy Decision 1393/QĐ-TTg)	
Population	1000 pers.	82,392	109,250	109,250		
GDP	BILLION \$	53	256	256		
GHG emission	MTCO <sub>2</sub> eq	173.8	686.5	429.7	37%	Reduce GHG emission intensity by 1-2%/year 30%
Energy		81.0	521.9	342.4	30%	
AFOLU		69.8	78.8	37.1	53%	-
Waste		23.0	85.8	50.2	42%	-

(\*) Reduction ratio = (2030BaU-2030CM)/2030BaU

The above table shows projected GHG emissions by emission sectors: energy demand sectors, Agriculture, Forestry and Other Land Use (AFOLU) and waste sector, in 2030BaU (Business as Usual) scenario, total GHG emission increased up to 686.5 MTCO<sub>2</sub>eq, about 4 times increase from 2005. In 2030CM (CounterMeasures) scenario, emission is reduced by 37% from 2030BaU, reached a number of 429.7 MTCO<sub>2</sub>eq. The official target of 30% reduction of GHG intensity in the energy sector in 2030 is achieved in 2030CM scenario. The results of the modelling also show the GHG emission reduction in AFOLU and waste sectors are 53% and 42%, respectively.

Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE), Vietnam  
Kyoto University (KU), Japan  
National Institute for Environmental Studies (NIES), Japan  
Institute for Global Environmental Strategies (IGES), Japan  
Asia-Pacific Integrated Modelling team (AIM)  
MIZUNO Information and Research Institute (MIRIS), Japan  
E-KONZAL, Japan

# Our Research for Cities in Vietnam



		Population 2015 (thous.)
Direct- controlled municipality	HCMC	8,146
	Hanoi	7,216
	Hai Phong	1,963
	Can Tho	1,248
	Da Nang	1,028
Whole Vietnam		91,713

**2015**



# Collaborative activities with ISPONRE (MONRE)

**2010**



**5<sup>th</sup> Oct 2010, ISPONRE, Hanoi**



**2011**



**18<sup>th</sup> April 2011, Hanoi, Vietnam**



**2012**



**31<sup>st</sup> May 2012, Hanoi, Vietnam**



**2013**

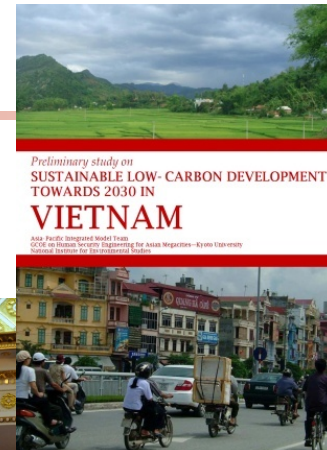


**25<sup>th</sup> April 2013, Vinh Phuc, Vietnam**





# HANOI, APRIL 2011



WORKSHOP



TRAINING  
WORKSHOP





# HANOI, MAY 2012

## LOW-CARBON SOCIETY DEVELOPMENT TOWARDS 2030 IN VIETNAM

Kyoto University 2011  
Asia-Pacific Transport Impact Study (AP-ITS)  
National Institute for Environmental Studies (NIES)  
Institute of Strategy and Policy on Natural Resources and Environment (ISP/NRE)  
Institute of Strategy, Technology, and Environment (ISTE)



### WORKSHOP



### TRAINING WORKSHOP



# Steps to develop LCS city scenario with stakeholders

## 1. Start of the collaboration

- 1.1 Formulation of the region's top initiative
- 1.2 Resource allocation

- **Kick-off meeting** in the city
- **Team formulation** (as Hai phong case, DONRE as a coordinator)
- **Training workshop**

## 2. Framework Setting

- 2.1 Background research (Existing policies, plans, and studies)
- 2.2 Framework setting

- **Follow-up meeting**
- **Data collection** in Hai phong supported by DONRE
- **Capacity building workshop**

## 3. Data Preparation

- 3.1 Collection of statistical data and future plan
- 3.2 Estimation of necessary data in base year
- 3.3 Assumption of future change of the society

- **Work and face-to-face discussion with local experts** in different sectors in the city on data preparation, estimation and analyse

## 4. Design of LCS projects and Projection of Future Scenario

- 4.1 Projection of BaU scenario by quantification tools
- 4.2 List-up of LCS projects
- 4.3 Calculation of emission reduction by project
- 4.4 Projection of LCS policy scenario by quantification tools
- 4.5 Adjustment of project-based emission reduction

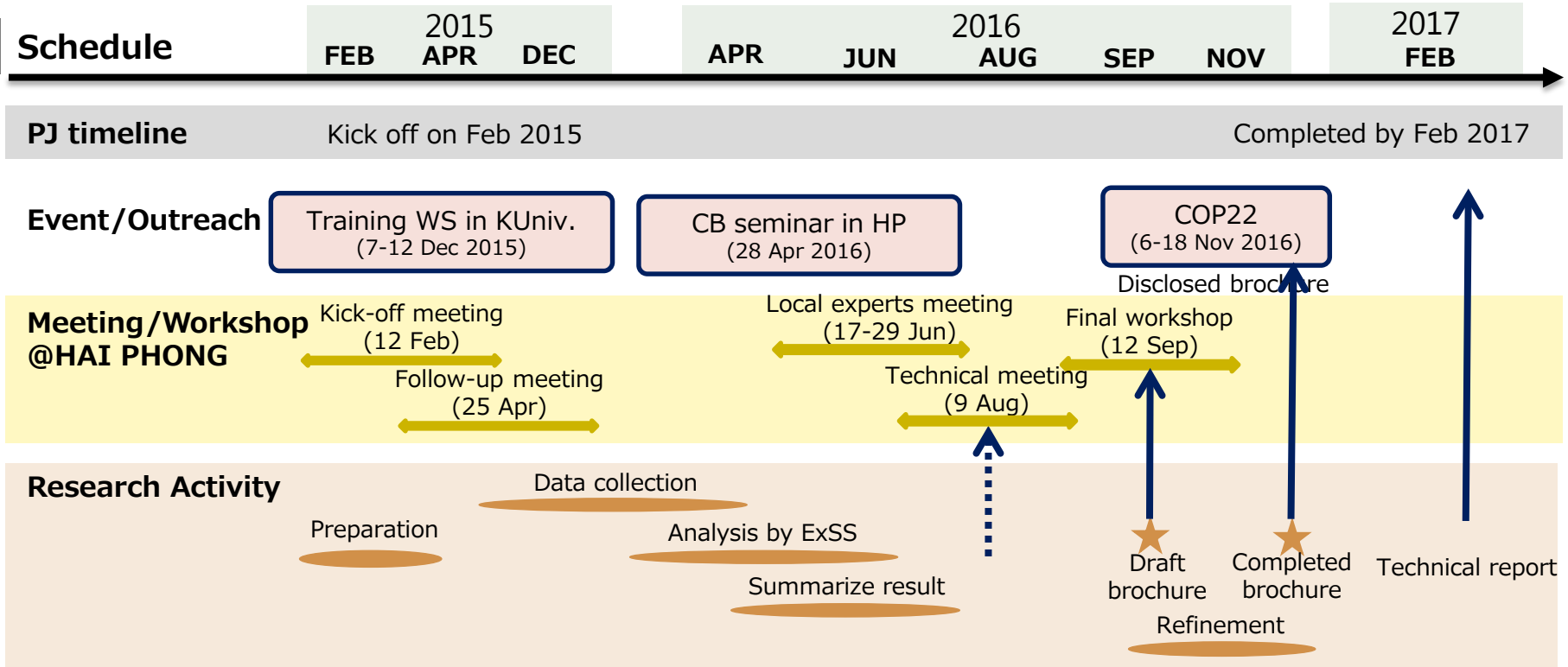
- **Technical meeting** in the city to present the first output of modelling
- **Local experts will comment, advise** on the scenario

## 5. Bridging the Output to Real World

- 5.1 Formulation of Actions and projects for implementation
- 5.2 Reporting the result to policy makers

- **Final workshop** in the city with participations from national level, international experts, business side and universities
- **Launch brochure**, technical report

# Timeline of collaborative study with Hai Phong city





**12 Feb 2015:**

## ■ Kick-off meeting in Hai Phong

- Collaboration study on LCS between Japan and ISPONRE
- International collaboration on LCS study between Japan and other Asian countries
- Propose a LCC study in Haiphong and implementation plan
- Expectation from Haiphong
- Pay a courtesy visit to Haiphong People committee/DONRE-Haiphong

## ■ Participants

- Japan: NIES (Dr. Fujino), Kyoto University (Dr. Hoa)
- Vietnam:
  - Hanoi: ISPONRE (Dr. Lam)
  - Haiphong: Vice Director of DONRE, Foreign Affairs Dept



## 25 Apr 2015:

### ■ Follow-up meeting in Hai Phong

- Haiphong city (DONRE) received letter of request on research collaboration by ISPONRE
- DONRE had the meetings to call regarding representative of departments of Haiphong city
- Ready for starting the research with below expected schedule

Activity	Time horizon
Start research	Apr, 2015
Collect data and Information	Apr-Jun, 2015
First trial of GHG emissions projection (BaU)	May-Jun, 2015
Preliminary discussion with HP side on BaU projection and collect mitigation options	Jun, 2015
Fix the scenarios (BaU and CM)	Jul-Aug, 2015
Discussion with HP side on BaU and CM scenarios	Aug, 2015
Finalize the report and make brochure	Sep-Oct, 2015

### ■ Participants

- Mr. Ka (Director of DONRE) and DONRE's staff
- ISPONRE
- AIM team (Kyoto University, NIES)

*However:*

Hai Phong changed its Mayor

→ the study was pending for almost a year

## 8-9 Dec 2015:

- Intensive training section for Hai Phong (+ Da Nang) and ISPONRE' representatives in Kyoto University
  - To introduce/understand the approach, and explain about the “Quantification tool for LCS development”, assumption/input data and how to estimate the future projections for a low carbon city
  - To discuss about how to manage the Climate Change Action Plan after the stage of planning
  - To share the current activities and the next step schedule for both AIM team and Hai Phong city
  - Experience sharing from HCMC study
- Trainees: ISPONRE, Hai Phong (Ms. Huong – Head of CC, Islands and Sea Division)
- Trainers: KU, NIES, Mizuho, E-konzal





## 28 Apr 2016:

- Capacity-building Seminar on Low Carbon Planning in Hai Phong
  - GHG emission reductions in Vietnam: from Policies to Actions by MONRE
  - Sharing experiences from Malaysia by Prof. Ho
  - Importance of consensus building and low carbon education for the development of low carbon actions
  - Co-benefit with Air Pollution Policies and Solid Waste Management
  
- Participants
  - Related Departments/Organizations in Hai Phong city
  - NIES, Okayama University, Kyoto University, Univesiti Teknologi Malaysia, MONRE,

# Capacity-building Seminar in Hai phong

Hai phong, April 2016



# 2016 activities (con't)

**17-29 Jun 2016:**

- Meetings with local experts in Hai Phong
  - Purpose: Discuss with city's experts in different fields → collecting, estimating, analyzing data for modelling

Name	Organization	Position
Nguyen Van Can	Department of Natural Resources and Environment	Manager of Islands and Seas Branch (Chi cục trưởng Chi cục Biển và Hải đảo)
Nguyen Thi Minh Chau	Department of Natural Resources and Environment	Deputy Manager of Environmental Protection Branch (Phó Chi cục trưởng Chi cục Bảo vệ môi trường)
Dam Van Quynh	Department of Natural Resources and Environment	Deputy Director of Environmental Monitoring Center (Phó Giám đốc Trung tâm quan trắc môi trường)
<b>Vu Thi Thu Huong</b>	Department of Natural Resources and Environment	Head of Division Meteorology and Climate Change, Islands and Seas Branch. (Trưởng phòng Khí tượng thủy văn và BDKH, Chi cục Biển và Hải đảo)
Nguyen Ngoc Hoa	Department of Transport	Deputy Head of Division Transportation (Phó Trưởng phòng Vận tải)
Vu Hoang Phuong	Department of Transport	Official of Division Transportation (Chuyên viên Phòng Vận tải)
Bui Ngoc Tan	Department of Construction	Official of Division Infrastructure (Chuyên viên Phòng Hạ tầng).
Nguyen Huu Hoa	Department of Industry and Trade	Deputy Head of Division Environmental Safety Technical (Phó Trưởng phòng Kỹ thuật an toàn môi trường)
Luu Quang Dai	Department of Industry and Trade	Official of Division Environmental Safety Technical (Chuyên viên Phòng Kỹ thuật an toàn môi trường).
Vu Van Tang	Department of Industry and Trade	Head of Division Energy (Trưởng phòng Năng lượng)
<b>Nguyen Tung Lam</b>	Institute of Strategy and Policy on Natural Resources and Environment	Director of CENTIC-ISPONRE



# Taskforce meeting with Hai phong city

# Hai phong, June 2016



# 2016 activities (con't)

**9 Aug 2016:**

■ Technical meeting:

- Discussion with city's experts on the first result of modeling.
- Propose low-carbon programs for Hai phong
- Reduction target

■ Participants

- All related Dept. as shown in list in previous slide
- Two JICA experts in Hanoi





# 2016 activities (con't)

**12 Sep 2016:**

■ **Final Workshop:**

- Disclose the final result of modeling where showing the proposal of low-carbon program for Hai Phong's LCC up to 2030
- Organizer: Hai Phong People Committee
- Participants: related Dept./Org. in Hai Phong, business/enterprise sectors, National Assembly, MONRE, JICA experts in Vietnam, Universities and other stakeholders





# Launching brochure at COP22, Marrakesh



## HAI PHONG LOW CARBON CITY



R RITSUMEIKAN  
UNIVERSITY



MIZUHO

IGES

AIM  
ASIAN-PACIFIC INTEGRATED MODEL

Based on the following strategies and plans: National Green Growth Strategy (1393/QĐ-TTg) approved by the Prime Minister in September 2012, Green Growth Action Plan (403/QĐ-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/QĐ-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, Ministry of Natural Resources and Environment of Vietnam.

## COP22 official side event “Promoting Low Carbon Asia for the Paris Agreement: Cases of National and Local Experience on NDC activities and market mechanisms” on 9<sup>th</sup> Nov, 2016 in Marrakesh



## Technical report of Low Carbon City Development in Hai Phong

25<sup>th</sup> January 2017



### Team information

HAIPHONG DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENT (DONRE)

Pham Quoc Ka

Nguyen Van Can

Vu Thi Thu Huong

INSTITUTE OF STRATEGY AND POLICY ON NATURAL RESOURCES & ENVIRONMENT (ISPONRE)

NGUYEN Tung Lam

RITSUMEIKAN UNIVERSITY (RU)

NGUYEN Thai Hoa\*

Koji SHIMADA

KYOTO UNIVERSITY (KU)

Yuzuru MATSUOKA

E-KONZAL

Yuki OCHI

Tomoki EHARA

INSTITUTE FOR GLOBAL ENVIRONMENTAL STRATEGIES (IGES)

Junichi FUJINO

NATIONAL INSTITUTE FOR ENVIRONMENTAL STUDIES, JAPAN (NIES)

Toshihiko MASUI

MIZUHO INFORMATION AND RESEARCH INSTITUTE (MHIR)

Kazuya FUJIWARA

Contact address:

Vu Thi Thu Huong: [vuhtthucdonre@gmail.com](mailto:vuhtthucdonre@gmail.com)

NGUYEN Thai Hoa: [envi.jp@gmail.com](mailto:envi.jp@gmail.com)

Yuki OCHI: [ochi@konzal@gmail.com](mailto:ochi@konzal@gmail.com)



## Objective

- To design and support the Low carbon city for Hai Phong by 2030.
- To quantify the GHG emissions reduction potential of each project in low-carbon scenarios by using AIM's methodology.

GHG emissions reduction follows the national target in  
**Decision 1393/Q-TTg (25/09/2012) “Green growth strategy in Vietnam”**

“...Reduce the GHG emissions from energy-related activities  
10 – 20% of BaU case” ...

and

Vietnam's INDCs submitted to UNFCCC

“... reduce the GHG emissions by 8-25% compared to BaU” ...

# Framework of Scenario and Research

	Hai Phong
<b>Base year</b>	2013
<b>Target year</b>	2030
<b>Sectors</b>	<ul style="list-style-type: none"> <li>Fuel combustion <ul style="list-style-type: none"> <li>Industry</li> <li>Commercial</li> <li>Residential</li> <li>Transport</li> </ul> </li> </ul>
<b>Target GHGs</b>	<ul style="list-style-type: none"> <li>CO<sub>2</sub></li> </ul>
<b>Counterpart</b>	DONRE Department of Natural Resource and Environment

## National background

Sep, 2015

### **“Intended Nationally Determined Contribution of Viet Nam”**

- The GHG reduction pathway in the 2021-2030 period.  
With domestic resources GHG emissions will be reduced by **8% by 2030** compared to the BAU. The above-mentioned contribution could be increased up to **25% with international support**.

Resolution no 24. Communist Party (2012)

Decision no. 1474/QD-TTg (Oct. 5, 2012)

### **“Publishing National Climate Change Action Plan (CCAP) for the Period 2012-2020”**

Decision no. 1393/QD-TTg (Sep. 25, 2012)

### **“Approval of National Green Growth Strategy for Vietnam”**

- The period 2011-2020: Reduce the intensity of GHG emissions by 8-10% as compared to the 2010 level; **reduce energy consumption per unit of GDP by 1-1.5% per year. Reduce GHG emissions from energy activities by 10% to 20% compared to BaU**  
- Orientation towards 2030: Reduce annual GHG emissions by at least 1.5-2%; **reduce GHG in energy activities by 20 to 30% compared to BaU**

## Haiphong

Conclusion no. 72-KL/TW (**May 15, 2013**)

### **“Development of Haiphong to be a green port city ”**

No.65/QD-UBND dated on 08/01/2014 issued the **“Climate Change Action Plan”**.

Decision no. 1463/QD-UBND (Jul, 2014)

### **“Haiphong Green growth Strategy Action Plan”**

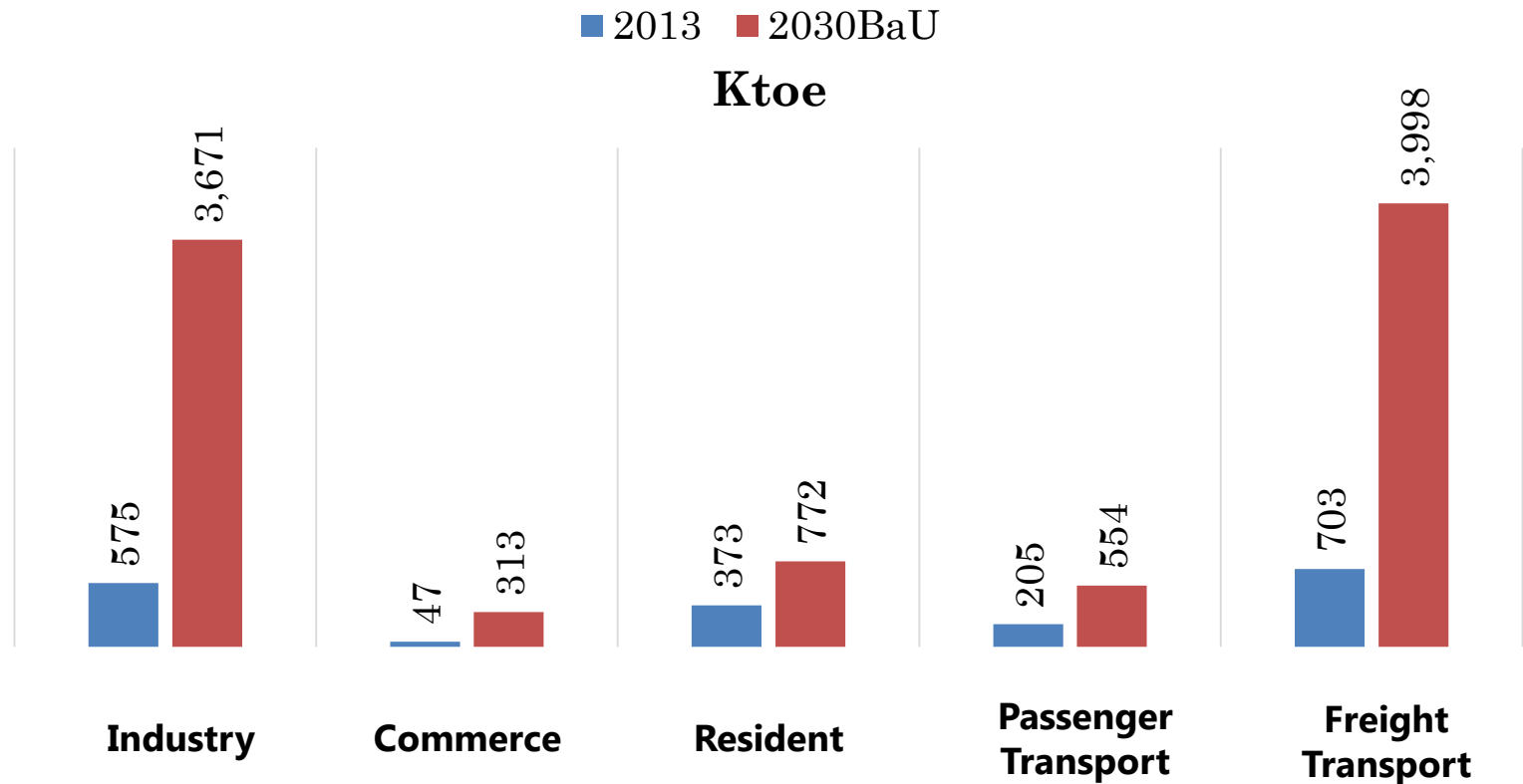
No.2842/QD-UBND dated on 17/12/2014 established **“Steering Committee of Action Plan Responding to Climate Change in Haiphong”**.

# Result: Vision of social economic 2030

	Unit	2013	2030	2030/2013
Population	person	1,925,217	3,000,000	1.56
No. of households	household	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
Passenger transport demand	mil.per.km	10,236	22,490	2.20
Freight transport demand	mil.ton.km	8,470	48,158	5.69

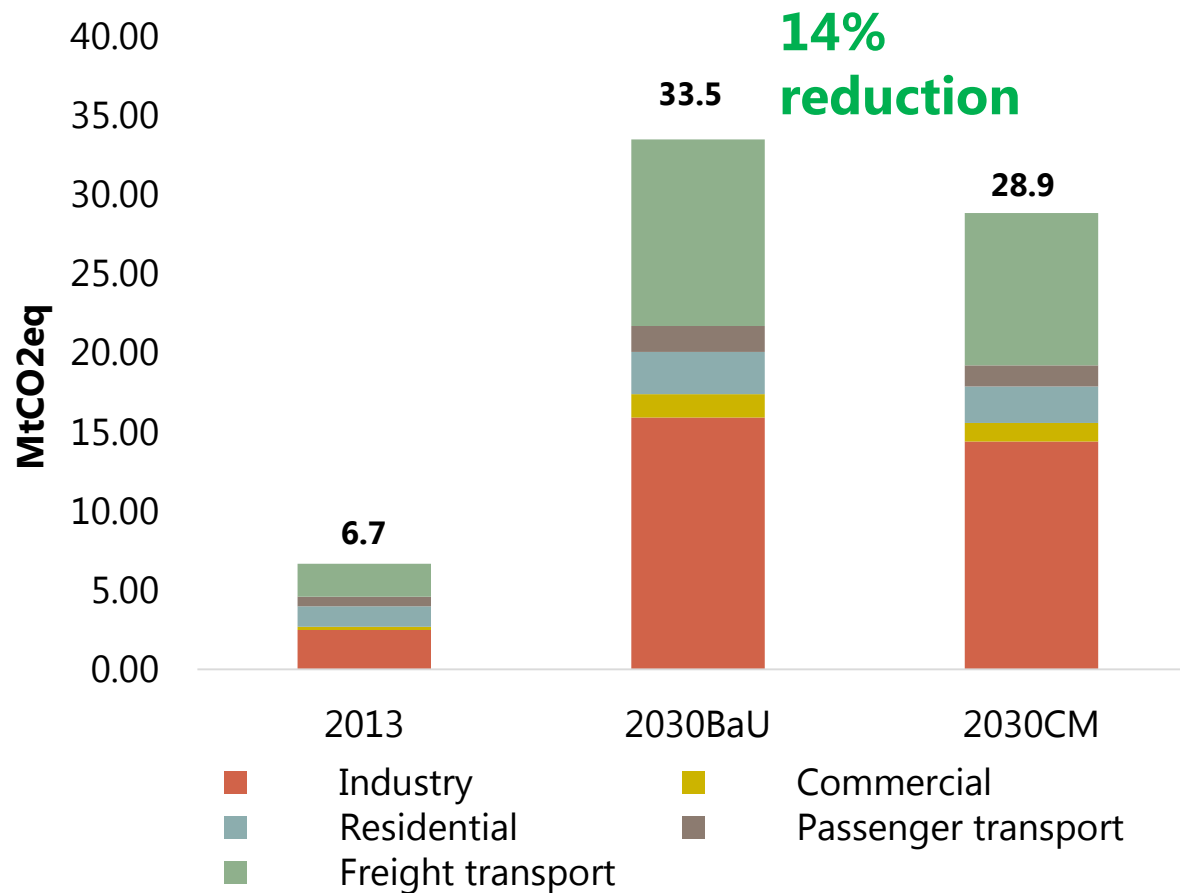


# Result: Final Energy demand 2030



2013: **1903** Ktoe  
2030BaU: **9307** Ktoe

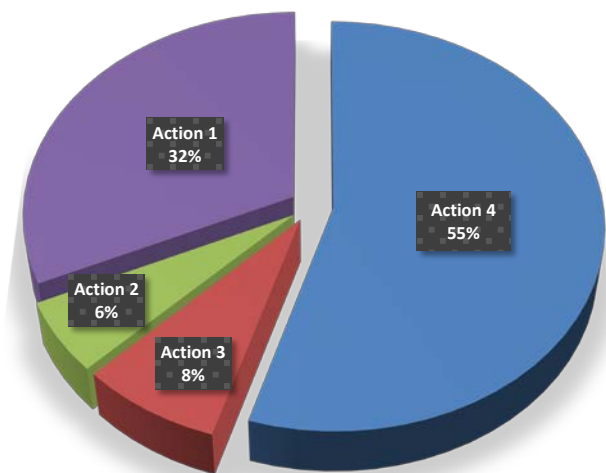
# Hai Phong: GHG Emissions



→ Achieve: 10-20% in National Strategy on green growth and 8-25% in Vietnam NDC

# Result: Climate change actions

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



# Result: Low-carbon programs

Action	Project	Sector	Emission reduction (ktCO <sub>2</sub> eq)
<b>1 Green Industry</b>	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
<b>Total</b>			<b>1,476.8</b>
<b>2 Green Building</b>	2-01 Installation of insulated glasses to commercial 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
<b>Total</b>			<b>262.0</b>
<b>3 Energy Efficiency</b>	3-01 Energy savings in commercial facilities	Commercial	35.4
	3-02 Conversion 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
<b>Total</b>			<b>362.8</b>
<b>4 Clean Transport</b>	4-01 Promotion of eco-driving with digital tachographs	Transport	169.7
	4-02 Smart traffic 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
<b>Total</b>			<b>2,541.3</b>
<b>Total</b>			<b>4,642.9</b>



# Benefit of low-carbon development

- The final output is GHG emission in Hai Phong City. Additionally, the intermediate outputs will provide the socio-economic visions for Hai Phong in future.
- From the policy perspective, the distributional impact of various policies will be found which can enhance the understanding of the equity impact of those policies. → This is expected to solve the conflicts or dilemmas between policy targets in Hai Phong city such as: growth of industries and reducing energy demand, agriculture and forest conservation, food production and biofuel production, waste and resources.
- Policy makers in Hai Phong can refer this result to develop city's Climate Change Action Plan

## **High level workshop (tentative schedule in December 2017)**

- To approval final low-carbon scenario of energy related sectors
- To extend study to non-energy sector (Waste sector)

**Thank you for your kind attention.**

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