

Low-Carbon Model Town (LCMT) Concept

August 7, 2017

**Agency for Natural Resources and Energy
METI, Japan**

LCMT Project was initiated in 2011 in response to Declaration at the 9th APEC Energy Ministers Meeting held in Fukui, Japan in 2010.

Background of the LCMT Project:

- **Rapid urbanization and increase in energy consumption in the APEC Region**
- **Necessity of low-carbon measures in city planning to boost energy efficiency and fossil energy use**

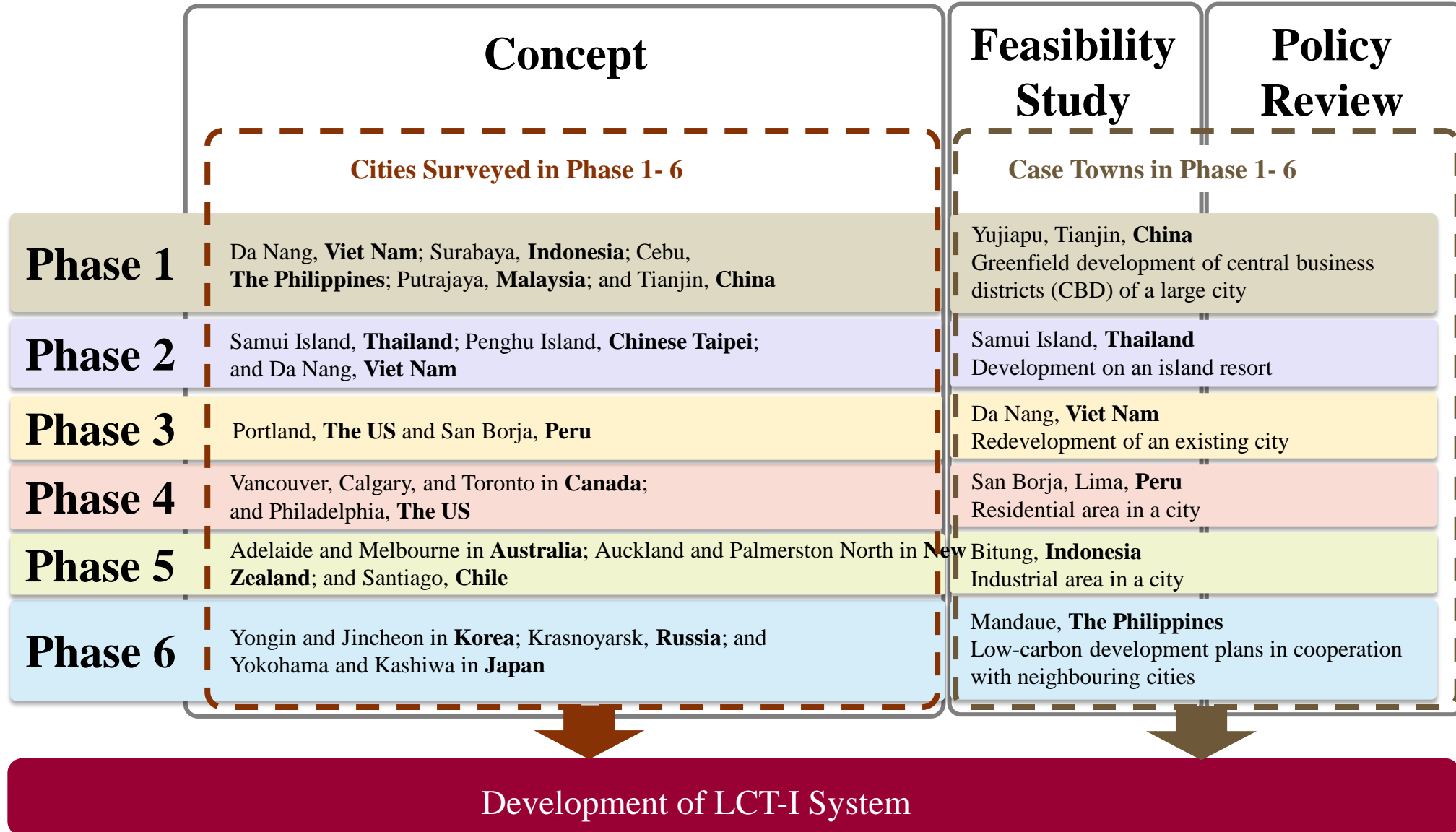
1. Development and refinement of the “Concept of the Low-Carbon Town in the APEC Region (Concept)”

- **The Concept shows a basic idea/principle of a low-carbon town and provide guidance.**
- **The APEC Low-Carbon Town Indicator (LCT-I) System has been developed based on the Concept.**

2. Feasibility Study for a Case Town

3. Policy Review for a Case Town

Preliminary Research



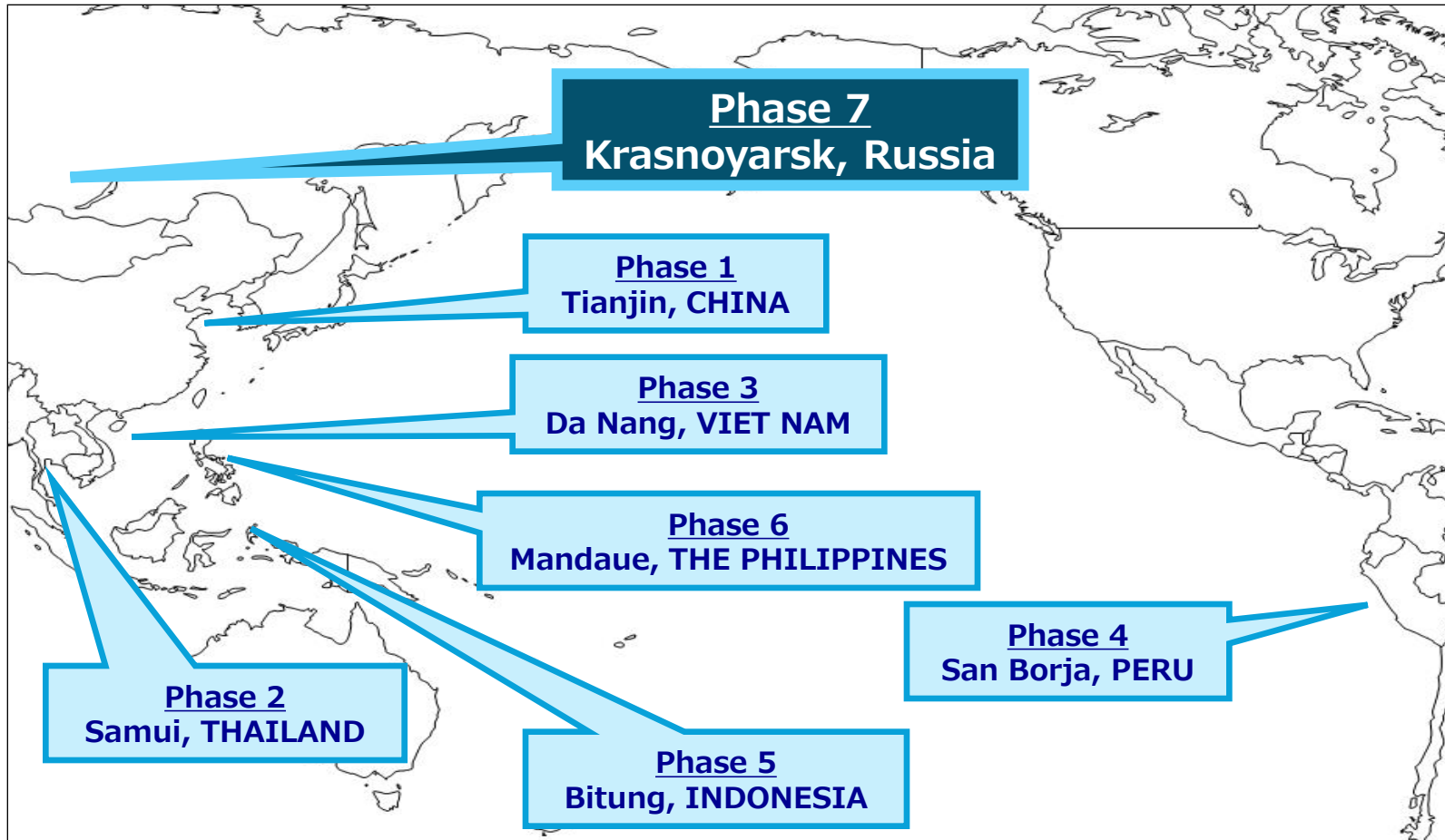
Case Towns of Feasibility Study and Policy Review

1. Feasibility Study (F/S)

- Develop low-carbon strategies for selected towns

2. Policy Review

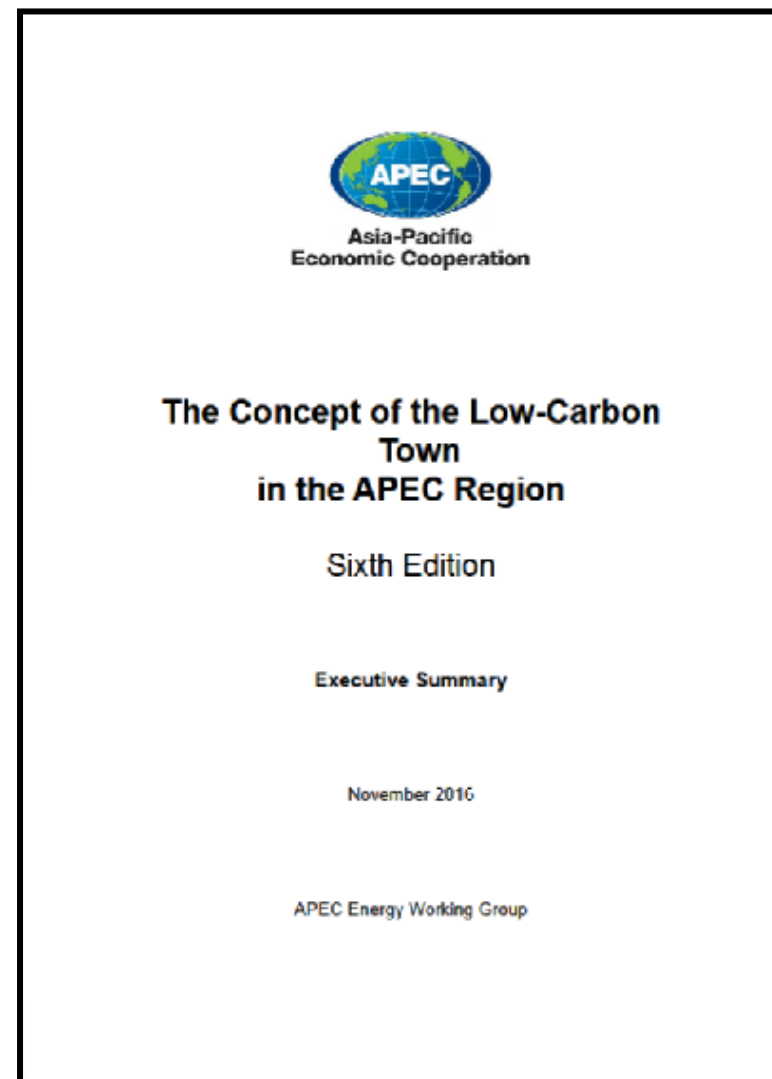
- Policy review to realize low-carbon town development conducted by experts



Achievements of LCMT Project (1)

Develop “Concept” report

- Basic idea/principles
- Effective approach
- Guidance for towns/cities



All the documents produced in the LCMT Projects are available here:

<http://aperc.ieej.or.jp/publications/reports/lcmt.html>

Develop “LCT-Indicator (LCT-I)”

- A set of self-assessment tool
 - ❑ Simple and easy to understand
 - ❑ For central/local government officials' use
 - ❑ More than 30 items in 5 categories

Assessment Framework of LCT-I System

	Tier 1	Tier 2 (No. of Tier 3 indicators)
Directly Related	Demand	1. Town Structure (3) 2. Buildings (4) 3. Transportation (6)
	Supply	4. Area Energy System (1) 5. Untapped Energy (1) 6. Renewable Energy (1) 7. Multi Energy System (1)
	Demand & Supply	8. Energy Management System (3)
Indirectly Related	Environment & Resources	9. Greenery (2) 10. Water Management (3) 11. Waste Management (2) 12. Pollution (3)
	Governance	13. Policy Framework (4) 14. Education & Management (2)

Sample of Qualitative Indicator

8. Energy Management

8.1. Energy Management of Buildings/Area

8.1.1. Energy Management of Buildings/Area

★★★★★	
★	There are no plans for introduction in place. However, a system for introduction has been established.
★★	There are no plans for introduction in place. However, a system for introduction has been established and prospects for their introduction are clear.
★★★	There are plans for introduction in place.
★★★★	There are introduction plans which have been implemented.
★★★★★	There are introduction plans which have been implemented. In addition, a subsidy system, etc. for expansion of implementation has been established.

Assess the presence or absence of EMS introduction plans.

EMS refers to systems or technologies that enable energy conservation through visualising energy consumption, controlling and monitoring of building and equipment operations, as well as optimising the use of renewable energy.

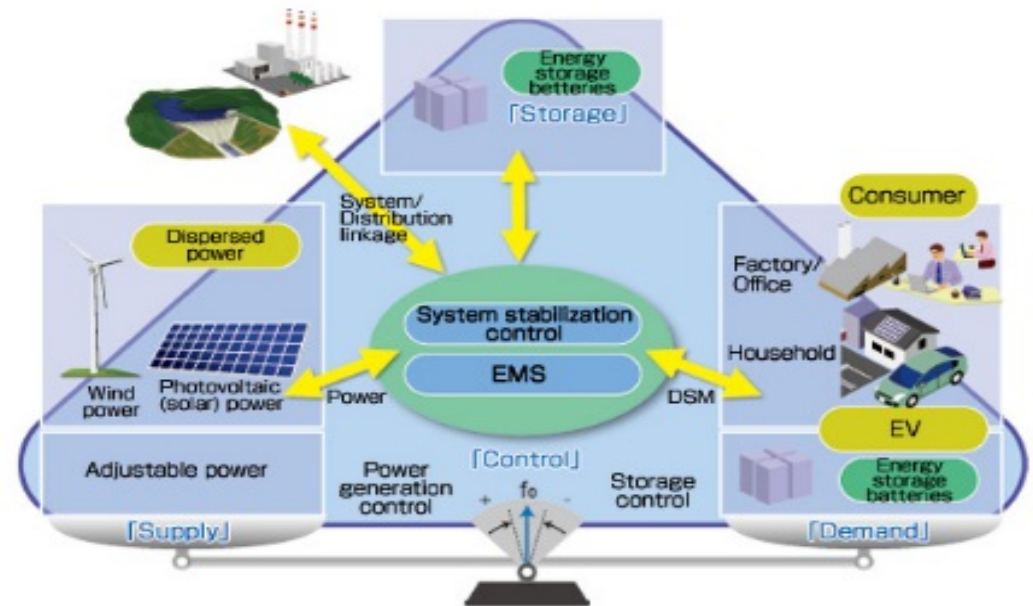
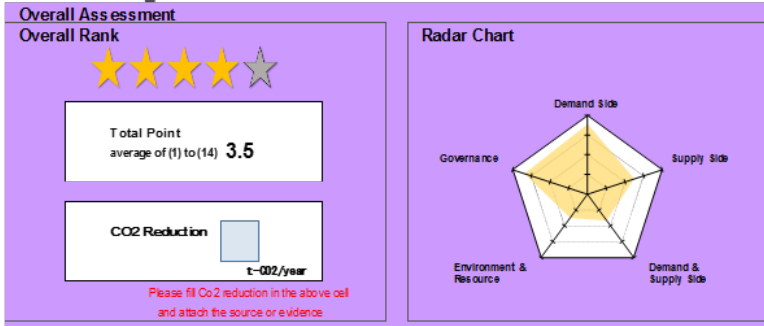


Image of Evaluation Results

Output Sheet 1



Individual Assessment

Category	★	★★	★★★	★★★★	★★★★★
Demand Side	★	★★	★★★	★★★★	★★★★★
1. Town Structure	★	★★	★★★	★★★★	★★★★★
2. Buildings	★	★★	★★★	★★★★	★★★★★
3. Transportation	★	★★	★★★	★★★★	★★★★★
Total(average)	★	★★	★★★	★★★★	★★★★★
Supply Side	★	★★	★★★	★★★★	★★★★★
4. Area Energy	★	★★	★★★	★★★★	★★★★★
5. Untapped Energy	★	★★	★★★	★★★★	★★★★★
6. Renewable	★	★★	★★★	★★★★	★★★★★
7. Multi Energy	★	★★	★★★	★★★★	★★★★★
Total(average)	★	★★	★★★	★★★★	★★★★★
Demand & Supply	★	★★	★★★	★★★★	★★★★★
8. Energy	★	★★	★★★	★★★★	★★★★★
Total(average)	★	★★	★★★	★★★★	★★★★★
Environment &	★	★★	★★★	★★★★	★★★★★
9. Greenery	★	★★	★★★	★★★★	★★★★★
10. Water Management	★	★★	★★★	★★★★	★★★★★
11. Waste Management	★	★★	★★★	★★★★	★★★★★
12. Pollution	★	★★	★★★	★★★★	★★★★★
Total(average)	★	★★	★★★	★★★★	★★★★★
Governance	★	★★	★★★	★★★★	★★★★★
13. Policy Frame Work	★	★★	★★★	★★★★	★★★★★
14. Education & Management	★	★★	★★★	★★★★	★★★★★
Total(average)	★	★★	★★★	★★★★	★★★★★

Output Sheet 2

Yujiapu Central Business District		★★★	3.5
evaluation sheet		★★★	3.5
Demand Side		★★★★	4.6
1. Town Structure			
1.1. Adjacent Workplace and Residence	-		
1. Residential Use and Non-residential Use	★★★★		5.0
1.2. Land Use	-	★★★★	
1. Efficient Land Use	★★★★		5.0
1.3. TOD (Transit Oriented Development)	-		
1. City Development Centered on Public Transportation	★★★★		5.0
2. Buildings			
2.1. Energy Saving Construction	-		
1. Thermal Insulation Performance	★★★★	★★★★	5.0
2. Energy Saving Equipment Performance	★★★★	★★★★	5.0
3. Natural Energy	★★★★	★★★★	4.5
2.2. Green Construction	-		
1. Green Construction Guidelines	★★★★		4.5
3. Transportation			
3.1. Promotion of Public Transportation	-		
1. Easy-to-Use Public Transportation	★★★★		5.0
2. Comprehensive Transportation Measures	★★★★		5.0
3.2. Improvement in Traffic Flow	-		
1. TDM(Transportation Demand Management)	★★★★	★★★★	5.0
2. Transportation Infrastructure Planning	★★★★		5.0
3.3. Introduction of Low Carbon Vehicles	-		
1. Introduction of Low Carbon Vehicles	★★★★		5.0
3.4. Promotion of Efficient Use	-		
1. Support for eco-driving	-		0
Supply Side		★★★	3.5
4. Area Energy System			
4.1. Area Energy	-	★★★★	
1. Introduction of Area Energy	★★★★		5.0
5. Untapped Energy			
5.1. Untapped Energy	-	★★★	
1. Introduction of Renewable Energy	★★★		3.0
6. Renewable Energy			
6.1. Renewable Energy	-	★★★	
1. Introduction of Renewable Energy	★★★		3.0
7. Multi Energy System			
7.1. Multi Energy	-	★★★	
1. Introduction of a Multi Energy system	★★★		3.0
Demand & Supply Side		★★	2.7
8. Energy Management			
8.1. Energy Management of Buildings/Area	-		
1. Energy Management of Buildings/Area	★★★★	★★	4.0
2. AEMS (Area Energy Management System)	★★★★		4.0
3. Smart Micro Grid	-		0

- **Based on the experience so far, the LCMT Project has moved to a dissemination stage.**
- **We have invited volunteer towns to make a good practice of using LCT-Indicator (LCT-I) for the improvement of the low-carbon development.**
- **LCMT Symposium is planned to be held in September 14-15, 2017 in Jakarta, Indonesia.**

Thank you for your kind attention