Low-carbon society development in Bangkok

Ms. Nuanphan Phawawes



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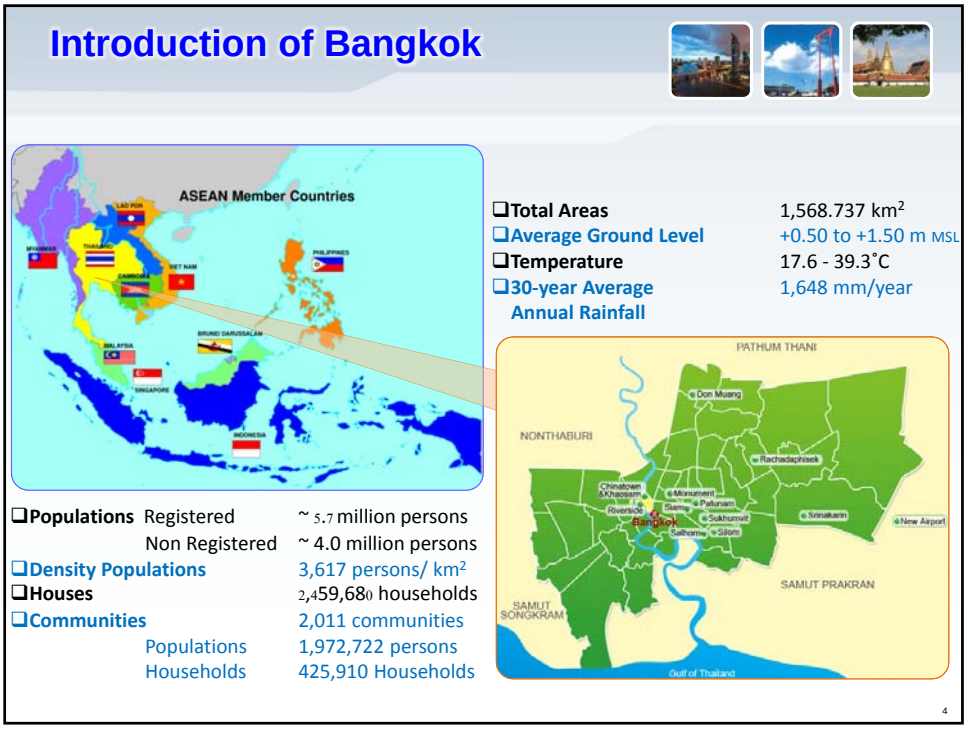
Introduction of Bangkok


Introduction of Bangkok
ASEAN Member Countries
❑Total Areas 1,568.737 km²
❑Average Ground Level +0.50 to +1.50 m MSL
❑Temperature 17.6 - 39.3˚C
❑30-year Average Annual Rainfall 1,648 mm/year
❑Populations Registered ~ 5.7 million persons
Non Registered ~ 4.0 million persons
❑Density Populations 3,617 persons/ km²
❑Houses 2,459,680 households
❑Communities 2,011 communities
Populations 1,972,722 persons
Households 425,910 Households
PATHUM THANI
NONTHABURI
SAMUT PRAKRAN
SAMUT SONGKRAM
Gulf of Thailand
Bangkok
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Environmental Situations
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Environmental Situation
A large number of people creating the huge challenges, especially the environmental problems
Development in the mega-city of Bangkok without proper planning
Bangkok is a mega-polis with many challenges for the city management
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Greenhouse Gas Emission (GHG)

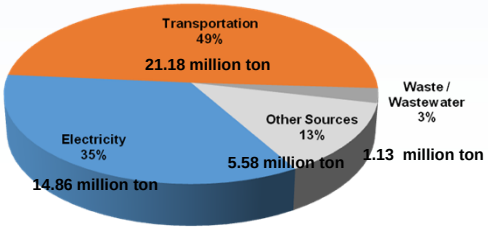


GHG emission in Bangkok Compare with Other Major Cities

City	Estimated CO_2 Emission (million ton p.a.)	Estimated Population (million)	Estimated CO_2 Emission Per Capita (ton per capita p.a.)
San Diego[1]	13	2.9	4.5
Tokyo[2]	71	12.4	5.7
London[3]	44	7.5	5.9
Bangkok[4]	42.65	6.0	7.1
New York[5]	58	8.2	7.1
Toronto[6]	24	2.5	9.6
San Franscisco[7]	8	0.7	11.4

Source:
1. City of San Diego (2005). City of San Diego Climate Protection Action Plan, 77 pp.
2. Tokyo Metropolitan Government (2007). Tokyo Climate Change Strategy – A Basic Policy for the 10-Year Project for a Carbon Minus Tokyo. 25 pp.
3. Greater London Authority (2007). Action Today to Protect Tomorrow – The Mayor's Climate Change Action Plan, 196 pp.
4. Estimated in this report
5. City of New York (2007). Inventory of New York City Greenhouse Gas Emissions, 65 pp.
6. Toronto Environment Office (2007). Climate Change, Clean Air And Sustainable Energy Action Plan: Moving From Framework To Action Phase 1 Highlights, 16 pp.
7. San Francisco Department of the Environment (2004). Climate Action Plan: Local Actions to Reduce Greenhouse Gas Emissions For San Francisco, 140 pp.

GHG Emission in Bangkok by Sectors (million ton p.a.)



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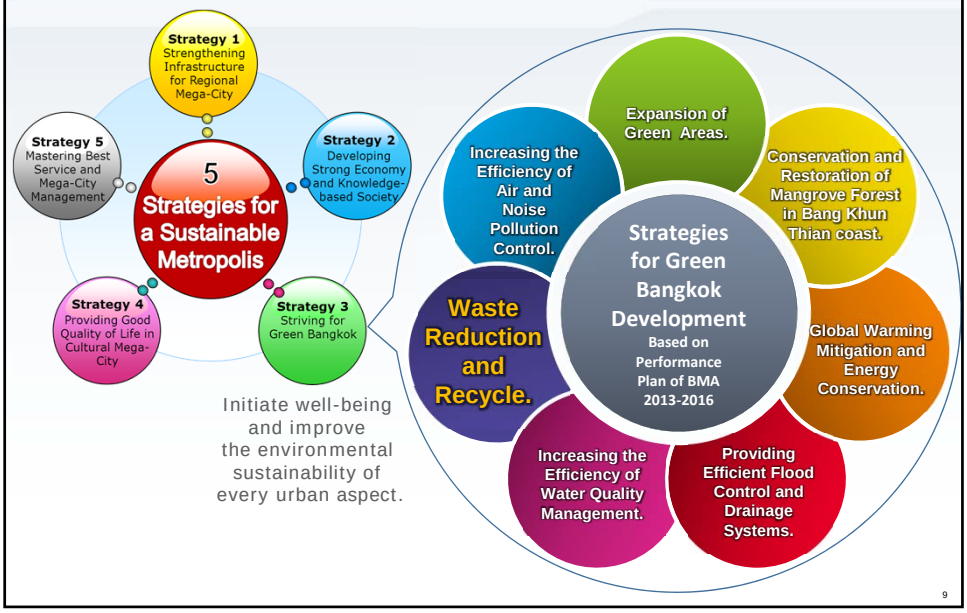
Bangkok Development Plan & Policies

The 12-year Bangkok Development Plan (2009 – 2020)



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Green Transport

Policies on Transportation Infrastructure

Multimodal Transportation Development

Public Transportation Modes

Rail Mass Transit
- BTS (Sky Train)
- MRTA (Subway)

Road Transport
- Taxis
- Bus
- BRT

Water Transport
- River
- Canal

Bangkok's Mass Transit Development Plan

- To develop efficient mass transit system including:
  * Main system to cover high density residential area and inner city area
  * Support system to link main system with medium & low density residential area
- To discourage private vehicles usage

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Better Air Quality

Bangkok Air Quality and Noise Management Action Plan (2012-2016)

To manage and control air quality and noise pollution levels within acceptable standards

Strategies by Sources & Stakeholders

Mobile Source Control	Point Source Control	Non-Point Source Control	Air Quality and Noise Monitoring	Public Participation
Ministry of Interior, Ministry of Transport, Ministry of Natural Resources and Environment	Ministry of Industry, Ministry of Natural Resources and Environment	Ministry of Interior	Ministry of Interior, Ministry of Natural Resources and Environment	All relevant parties

Concrete Integrated Actions

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Strategies of Solid Waste Management

1. Promote solid waste minimization and waste separation at sources
2. Establish networks to increase the efficiency of solid waste reduction
3. Provide regular waste collection service in order to make Bangkok clean
4. Develop the system of collection and disposal for hazardous and infectious waste
5. Increase the efficiency of solid waste disposal by adapting technologies and encouraging private sectors participation on waste management

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Better Waste Management

Master Plan on Solid Waste Management in Bangkok (2007-2026)

Waste Reduction at Sources 15% (2,891 ton/day)

Municipal Solid Waste (MSW) 16,382 ton/day

Target in 2026

- Biological Technology (31%)
  - Composting Plant 2,000 ton/day
  - Anaerobic Digester 3,000 ton/day
- Final Disposal (Sanitary Landfill) (27%)
  - MSW 3,332 ton/day
  - Reject from Other Activities
- Thermal Technology (42%)
  - Incineration 6,000 ton/day
  - Refuse Derived Fuel (RDF)

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Future Plans

- Solid Waste Disposal Centre Project Development Plan

Long-term Plan 2022 – 2031

- Provide people with insight knowledge & positive attitude toward MSW management
- Cultivate habit of waste separation
- Provide an integrated solid waste management system (according to separation habit of people)
- Provide proper & sustainable solid waste management technologies for Bangkok

Medium-term Plan 2016 – 2021

- Evaluate the achievement of the projects of the Short-term Plan
- Develop new projects adopting promising MSW management technologies
- Continuously disseminate knowledge of environmental studies
- Establish learning centres for MSW management technologies in district level

Short-term Plan 2012 – 2015

- Introduce new pilot projects (like MBT and incinerator)
- Maximize the benefit of old MSW disposal centers
- Grant concessions to private companies to operate the existing compactors at Nong-Kham and Sai-mai stations
- Disseminate knowledge of solid waste separation
- Study & evaluate promising MSW technologies
- Support environmental studies for young generation

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BMA Action Plan on Global Warming

BMA Action Plan on Global Warming Mitigation 2007 - 2012

Figure : Reduction in Bangkok's future GHG Emission Under the 5-year Action Plan

- GHG emissions 7.1 tons CO_2 equivalent / capita /year under business as usual (BAU)
- GHG emissions in future 5.5 tons CO_2 equivalent /capita /year under the implementation of activities in 5-year Action Plan

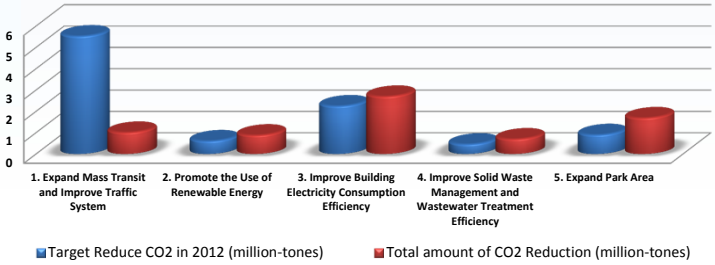
Comparison of GHG Emission in the Future Under Different Scenarios Against Current GHG Emission Condition

Sector	Year 2007	Year 2012	
	Current GHG Emission (CO_2 equivalent - million tons)	Future GHG Emission Under Business as Usual Scenario (CO_2 equivalent - million tons)	Future GHG Emission Under BMA Action Plan Implementation (CO_2 equivalent - million tons)
Transportation	21.18	25.3	19.77
Biofuels Energy (reduced GHG)			(-0.61)
Electricity	14.86	16	13.75
Waste / Wastewater	1.13	1.13	0.95
Waste Recycle (reduced GHG)			(-0.28)
Others (estimate 15% of total GHG emission from other sectors)	5.58	6.36	6.36
Green Area (reduced GHG)	(-0.10)	(-0.10)	(-1.00)
Total	**42.65**	**48.69**	**38.94**

Climate Change Mitigation

Results of Measures under BMA Action Plan on Global Warming Mitigation

BMA Action Plan on Global Warming Mitigation (2007 – 2012)	Target Reduce CO_2 in 2012 (million-tones)	Total amount of CO_2 Reduction (million-tones)
1. Expand Mass Transit and Improve Traffic System	5.53	1.01
2. Promote the Use of Renewable Energy	0.61	0.88
3. Improve Building Electricity Consumption Efficiency	2.25	2.70
4. Improve Solid Waste Management and Wastewater Treatment Efficiency	0.46	0.70
5. Expand Park Area	0.90	1.69
Total	**9.75**	**6.98**



Next Step : Bangkok Master Plan on Climate Change 2013-2023

BMA is formulating a 10-year Master Plan , 2013 - 2023, which covers adaptation and mitigation plan supported by JICA.

Project purpose:

Development of Master Plan (including its action plan)

+

Capacity development of BMA staff for master planning

Under the strong leadership by the Secretariat (DOE), BMA organized an internal study meeting on August 22, to study the process to develop the Master Plan, and the concept of *BAU* and *Project* emission reduction.

Bangkok Master Plan on Climate Change 2013 -2023



Background

- BMA Action Plan on Global Warming Mitigation 2007-2012 and further develop a comprehensive long term master plan
- 7 November 2012 signed Record of Discussion (R/D) on Technical Cooperation Project for Bangkok Master Plan on Climate Change 2013-2023 between BMA (Mr.Vallop Suwandee)and JICA (Mr.Tomoyuki Kawabata)

Objective and Timeframe

- **Objective : Develop sectoral strategies and Bangkok master plan on Climate Change 2103-2023**
- **Period of Technical Cooperation on the project: 2 years (18 March 2013-17 March 2015)**

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Challenges

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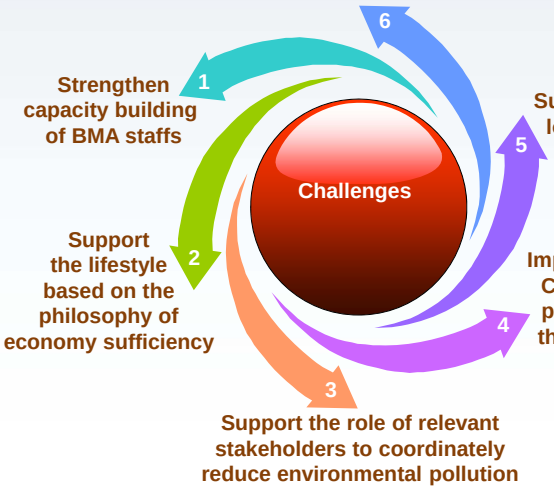
Challenges to Resource Efficient City



Green Growth Project in Bangkok

Green Growth Project in Bangkok

Duration of the project : 12 months
The Objection of the project :
- To assess the impact of urban green growth and sustainability policies on economic performance and environmental quality

Scope of Study

- Green Manufacturing and R & D
- Sustainable urban form and Mobility
- Strategies for Climate Adaptation
- Infrastructure for Logistics
- Natural Resource Consumption
- The Role of Civil society in Green Growth

Green Growth Project in Bangkok

Expected Results

The Report of Green Growth in Bangkok as a tool :

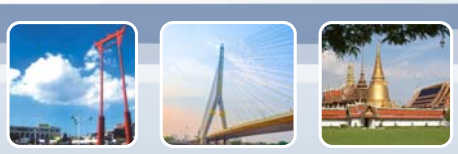
- To increase understanding of concept of green growth in Bangkok
- To enhance the potential of urban policies to contribute to urban and national green growth
- To inform the relevant organizations seeking to address economic and environmental challenges by pursuing green growth

MOU with Yokohama

In October 2013, BMA has signed the Memorandum of Understanding on Technical Cooperation on Sustainable Urban Development Between The Bangkok Metropolitan Administration, The Kingdom of Thailand and The City of Yokohama, Japan with cooperation with JICA.

- **The City of Yokohama will offer technical advice in promoting sustainable urban development of Bangkok in the area such as energy management, public transportation, solid waste and waste water management, etc.**
- **The Parties will encourage participation of the private sector, academic institutions, and local communities which have expertise and knowledge on low carbon society development to achieve the above mentioned objective.**
- **The Parties will call for support of Central Governments of both sides and international organizations in pursuing appropriate assistance to implement technical cooperation.**
- **The Parties will share and exchange information which is essential to implement the above collaboration effectively.**

Thank You
for Your Attention



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