



The Emergence and Challenges of Low Carbon Development in the City of Semarang

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INDONESIA

Semarang City, Indonesia



Population:
1.5 Million

Area: 373,67 km²

Density:
6,662 people/Km²

**Average Annual
Precipitation:**
1500 mm

Rainy season:
Nov-May

**Average Annual
Temperature** 30-
32°C

Coastal plain in the North (225 Km²) and Hilly areas in the South heading up to Ungaran Mountain

Economy: Main shipping port for central Java, industry

Climate change related issues: floods, coastal inundation, land slides and drought

The emergence of low carbon development in Semarang City, Indonesia

- The emergence of low carbon development discourse has been closely associated to climate change initiative since 2009
- Exposure from a trans-national network: The Asian Cities Climate Change Resilience Network (ACCCRN), funded by the RF and supported by MCI & URDI as national partners
- Collaboration: the climate change initiative secretariat at the Environmental Agency (BLH) → then move to Regional Planning and Development Agency (BAPPEDA)
- Climate change communication was framed as a strategy to alleviate poverty and to help vulnerable people at the bottom of pyramid.

The emergence of low carbon development in Semarang, Indonesia

- ACCCRN was a five-years program giving emphasis on climate change adaptation instead of mitigation
- ACCCRN has assisted City Working Group during the program duration to:
 - Understand climate change and impacts in the city ← CCROM
 - Conduct pilot testing of intervention to adapt to climate change
 - Perform sector studies to identify information gaps
 - Produce the City Resilience Strategy (CRS) to climate change
 - Implement selected city-wide climate adaptation interventions
- **Policy windows toward low carbon development has opened following ACCCRN**

Essential Assets in Semarang

Two important assets as a part of ACCCRN's legacy that later may contribute to promote low carbon development



City Working Group

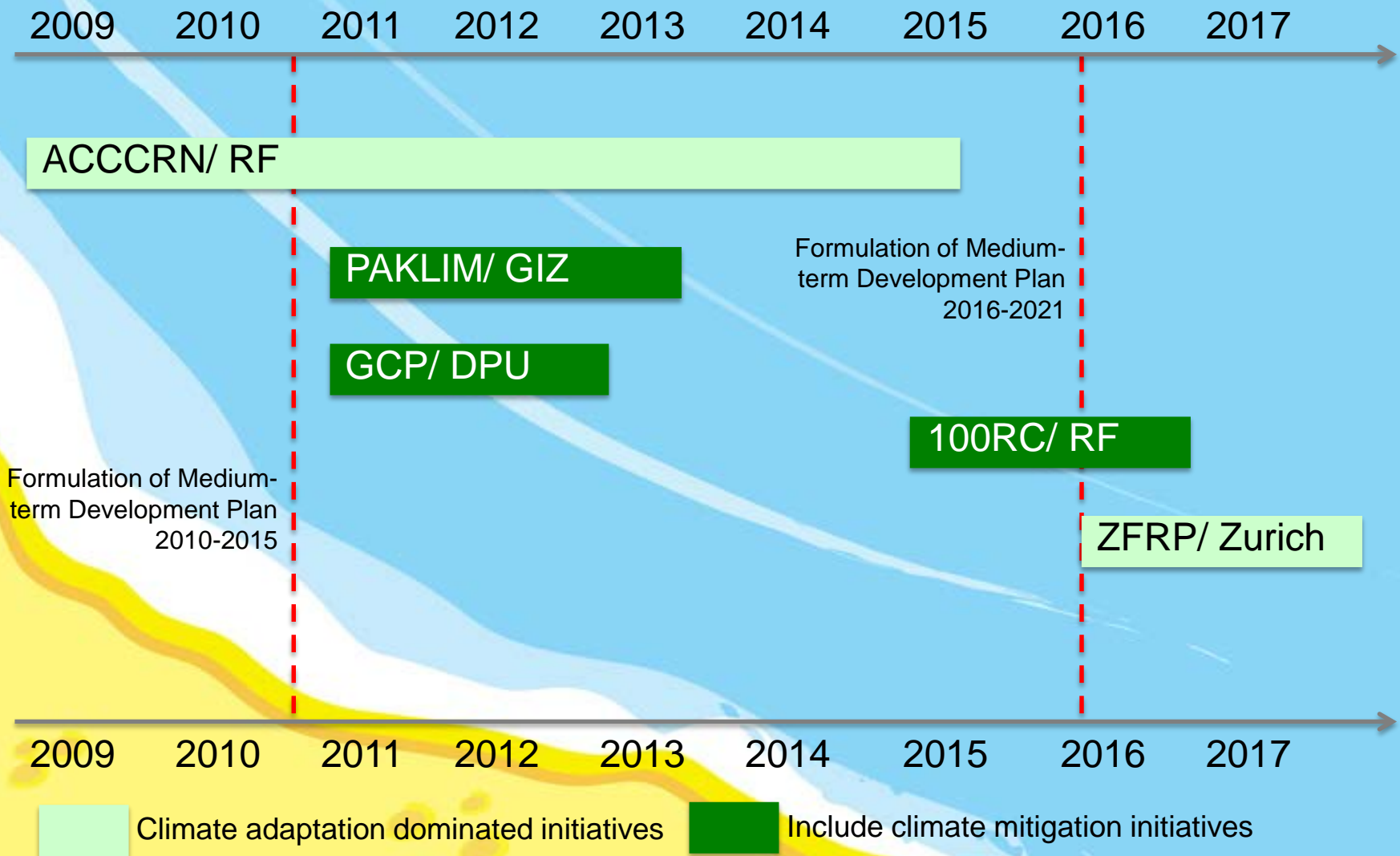


Shared Learning Dialogues



Composition: Government agencies, Academics, and NGOs.
Governance: Established by City Mayor Decree, led by City Secretary, and day to day activity is coordinated by BAPPEDA

Policy windows toward low carbon development in Semarang City

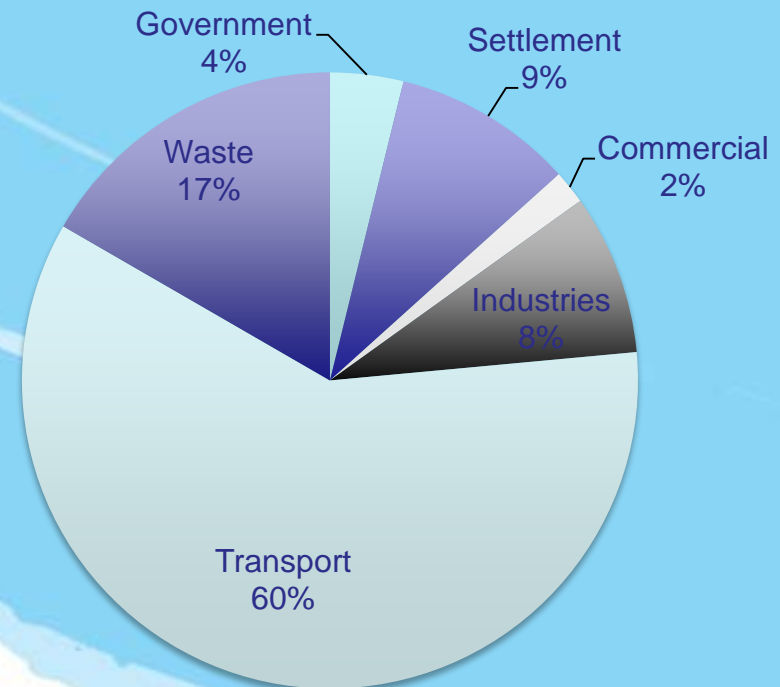


Semarang City: GHG Profiles (2010 Data)

Sector	Total CO2e (t)
Government	70,719
Settlement	174,643
Commerce	32,566
Industries	155,237
Transportation	1,101,143
Waste	306,708
Total Community	1,770,297
Total	1,841,016



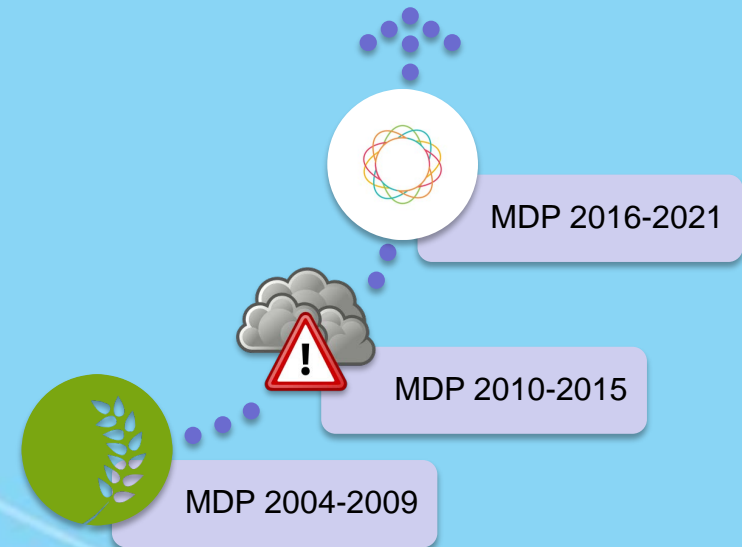
Sector	Total CO2e	Percentage
Construction	55,998	79%
Automobile	10,662	15%
Street Lights	2,649	4%
Clean & waste water	1,416	2%
Total	70,719	100%



Total GHG Emission Semarang: Gov't & Community

Addition of development themes in Semarang's Medium-term Development Plans (MDPs)

Periods	Themes		
	Prosperity	CC	Resilience
2016-2021	✓	✓	✓
2010-2015	✓	✓	
2004-2009	✓		

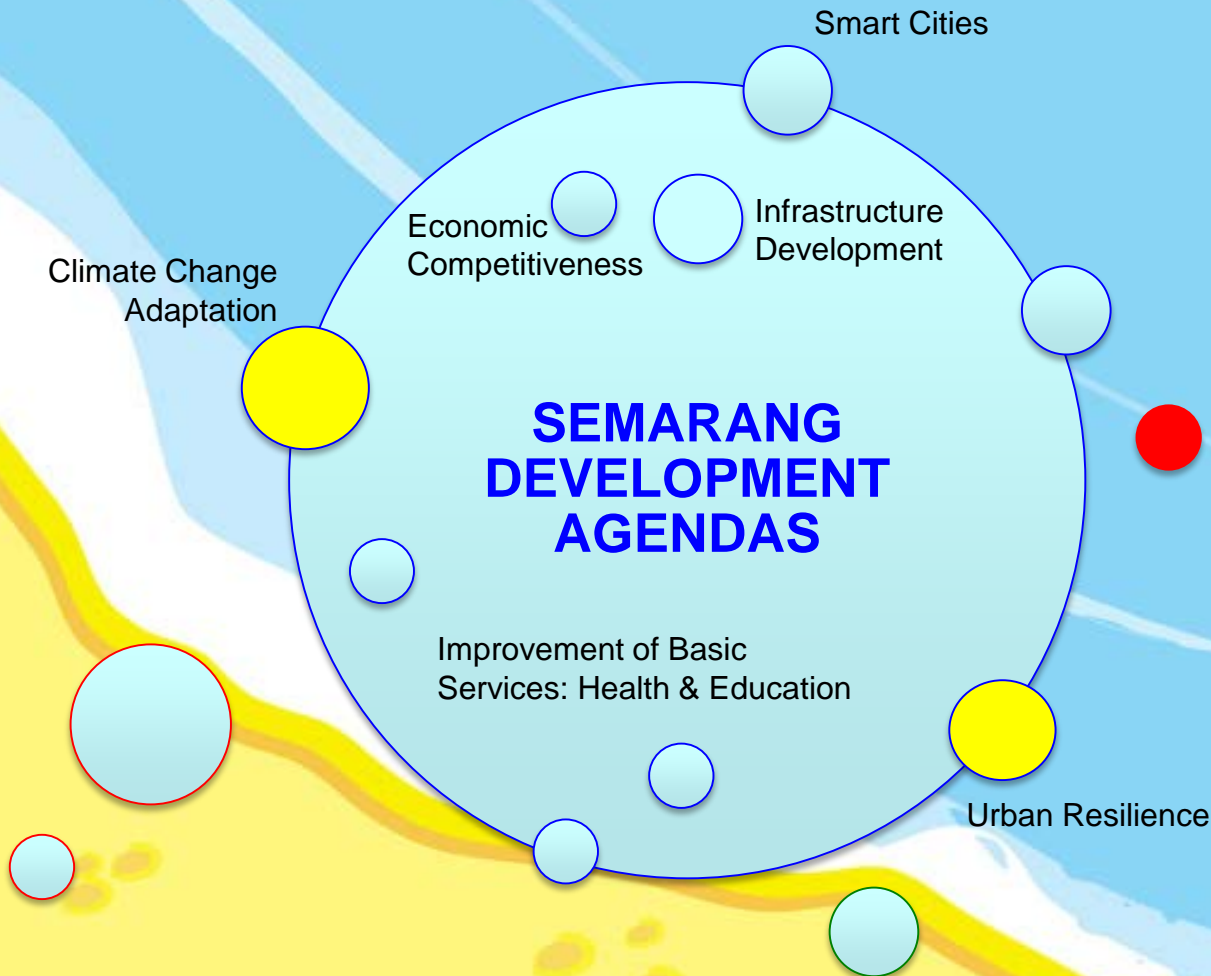


Textual analysis shows that MDP 2016-2021 has greater attention to climate change and urban resilience.

Indicates that efforts to mainstreaming climate change and urban resilience have been successful and were more intensive than before.

- In MDP 2016-2021 climate change appears in
- Chapter 2 (Overview)
 - Chapter 5 (City Vision and Missions), especially in infrastructure aspect
 - Chapter 6 (Policy Directions), particularly in the Environment and Infrastructure sectors
 - Chapter 7 (Macro Policy) which is focused to strengthen mitigation and adaptation capacity

Relative position of low carbon development in Semarang Development Agendas



MDP 2016-2021 does not literally mention “Low Carbon” OR “Carbon Neutral” Development

Low Carbon Development

Low carbon development discourse in Semarang is relatively new and is limited yet in practice

Low Carbon Development in Semarang's Medium-Term Development Plans 2016-2021

Mission #3:

To become a dynamic metropolitan and environmentally sounds city
(Resilient Semarang)



Goals #8:

Provision of Semarang City's integrated and sustainable transportation systems



Policy Direction:

Increasing of the quality of public transport service



Program:

Public transport service improvement

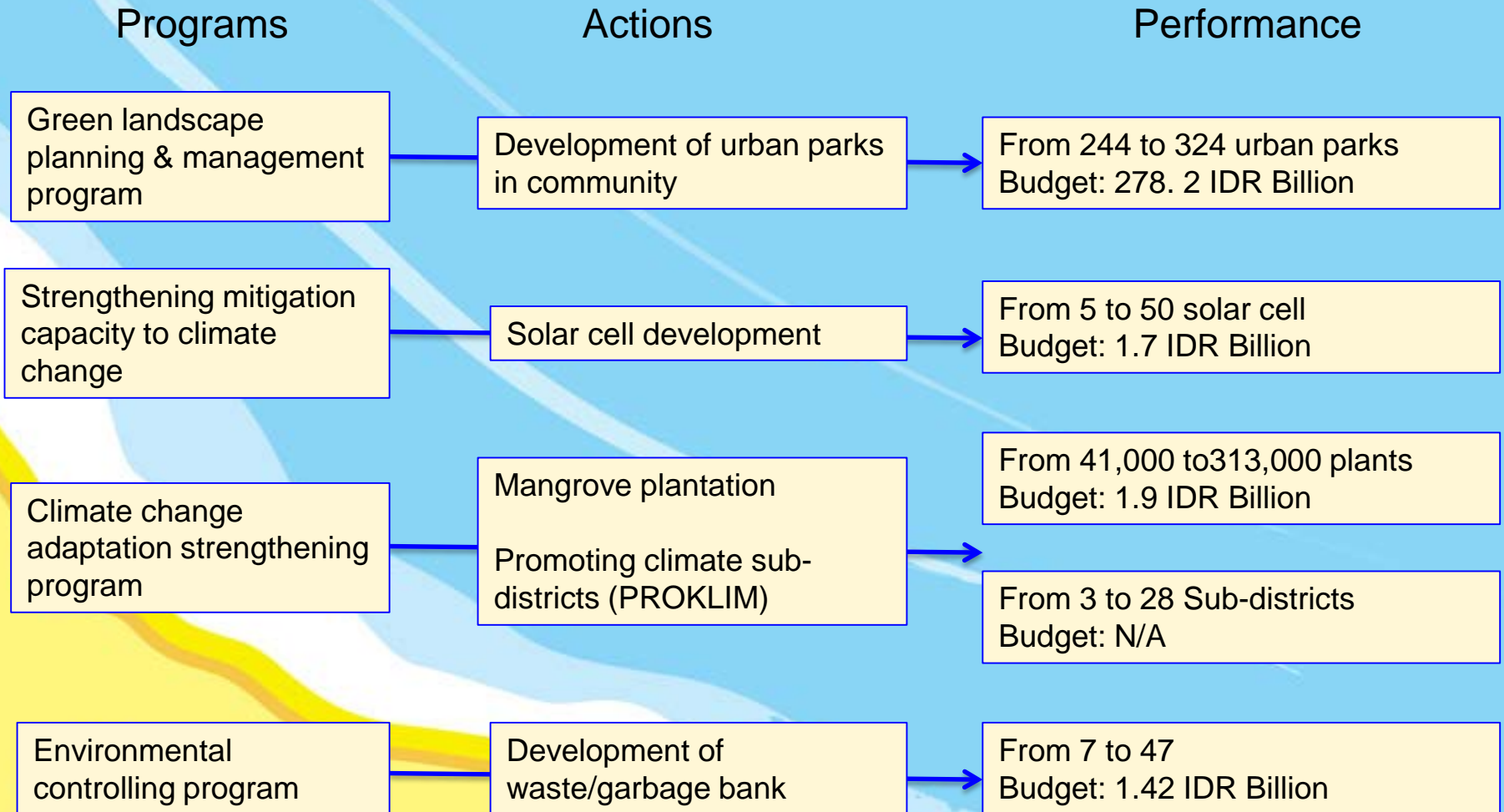


Action:

Increasing of BRT Corridor from 4 to 8



Other Low Carbon Development in Semarang's Medium-Term Development Plans 2016-2021



Emission Reduction Target in Semarang's Medium-Term Development Plan 2016-2021

The city of Semarang has no longer measurable emission reduction target in the MDP 2016-2021

Lack of clarity on the target

Emission reduction target is not stated

The City of Semarang targets to reduce CO2 emission as much as 1.4 Million Tones CO2e or as much as 43% out of total reduction that should be achieved by 2050 through utilization solar cell unit and mangrove

Source: **DRAFT** Semarang City Medium-Term Development Plan
2016-2021

Low Carbon Development in Semarang

Themes in Low Carbon Development	Yes	No	Notes
Transportation: <ul style="list-style-type: none"> Promoting mass transport instead of private auto mobile 	✓		
<ul style="list-style-type: none"> Supporting the use of non-motorized alternative transport 		✓	
Construction and building: <ul style="list-style-type: none"> Promoting development of green buildings 		✓	
<ul style="list-style-type: none"> Increasing qualification of building standard (e.g. land efficiency, environmentally friendly technology for installation and utility, efficiency in building OM) 		✓	
Energy: <ul style="list-style-type: none"> Increasing energy efficiency 	✓		street light
<ul style="list-style-type: none"> Provision of renewable energy sources 		✓	
Waste management: <ul style="list-style-type: none"> Recycling waste and close the loop 	✓		waste bank
<ul style="list-style-type: none"> Conversion of gas from waste to energy 		✓	partial
Urban Planning: <ul style="list-style-type: none"> Promoting mixed-land use planning and compact cities 		✓	

Low Carbon Development in Semarang: **Some challenges #1**

- Need better engagement with community as the major share (96%) of GHG emission, particularly from transportation (60%), Waste (17%), and settlement (9%) sectors.
 - City government has put efforts to improve public transportation, but it is not reliable yet to support people mobility
 - More community education and campaign on low carbon lifestyles are needed (including waste management campaign)

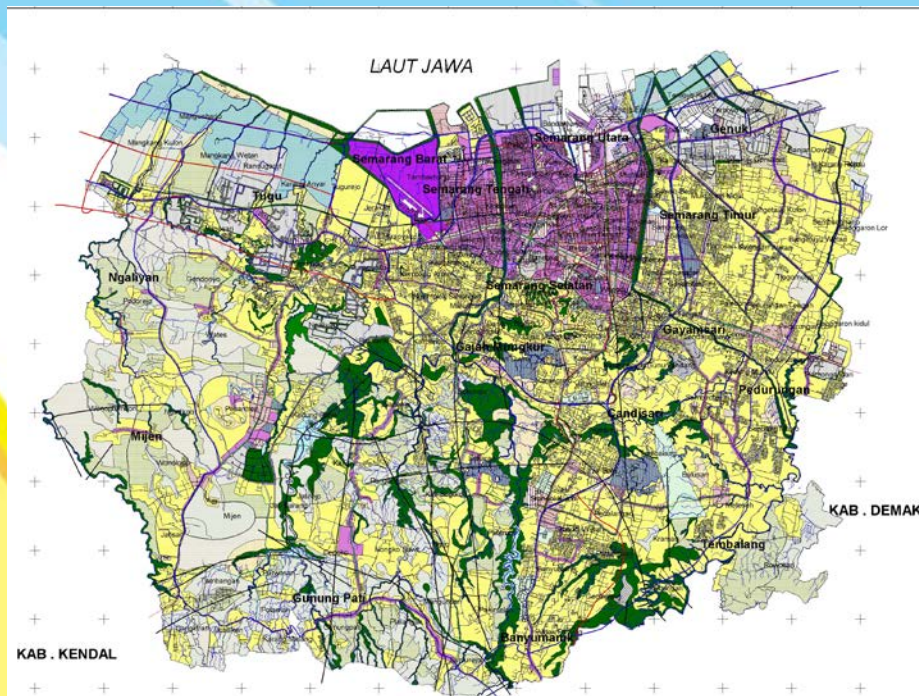
Low Carbon Development in Semarang:

Some challenges #2

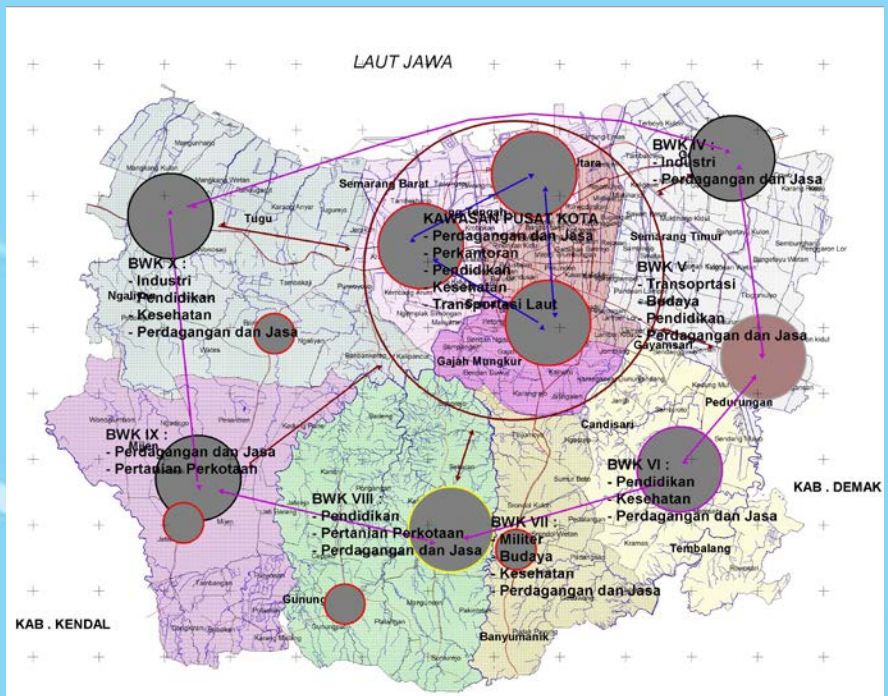
- City government needs to release restriction on building codes regulation, particularly in terms of height or permitted number of building floor.
- Building permit procedures may need to be advanced to include low carbon criteria (e.g. using energy saving technology, design, etc.)
- Environmental friendly technologies belongs to private sectors NOT city government → Engagement with private sectors to abolish barriers for the community in accessing low carbon technology

Low Carbon Development in Semarang: Some challenges #3

- Semarang Spatial Plan 2010-2030



Land Use Plan



Spatial Structure
Distribution of centres of activities

Low Carbon Development in Semarang:

Some challenges #3

- Semarang Spatial Plan Outlook:
 - Land use plan 2010-2030 indicates that Semarang urban development plan seems to distribute settlements to all part of the hinterland.
 - The road infrastructure plan is designed to support the above land use plan
 - Center of activities are distributed in 6 (six) sub-regions
- A serious attention should be focused to these centers of activity. What strategies needed to make them perform very well to balance city center attraction?



THANK YOU