



# ***GREEN GROWTH DEVELOPMENT BASED ON LOW CARBON CITY IN JAKARTA***

PRESENTED AT

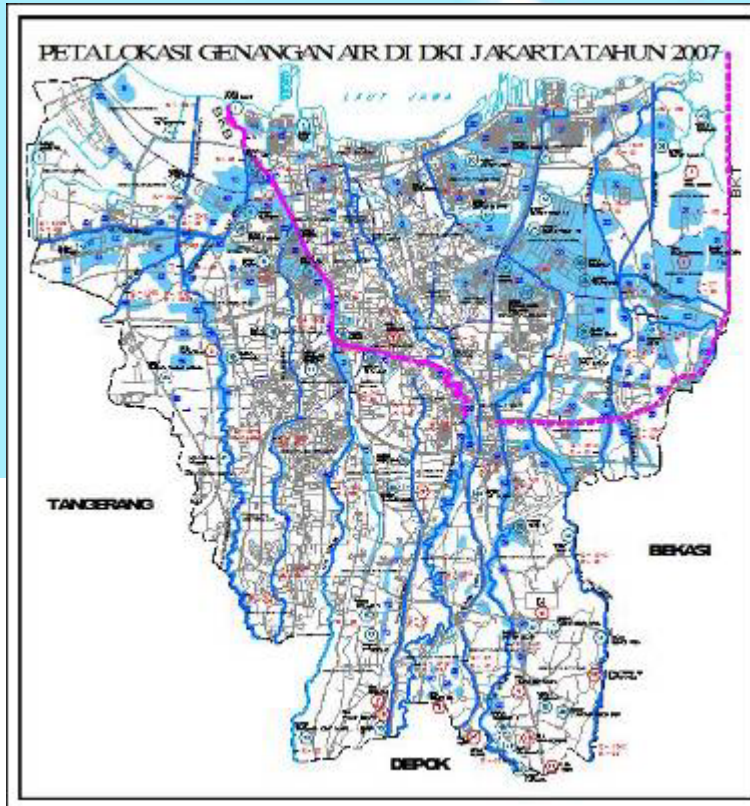
THE 10<sup>TH</sup> ASIAN-PACIFIC CITY SUMMIT 2012  
POHANG, 27 JULI 2012



**BOARD OF ENVIRONMENTAL MANAGEMENT – JAKARTA CAPITAL CITY  
GOVERNMENT**



# BACKGROUND



- Global climate change has led to many region in Indonesia are vulnarable to its effects including Jakarta
- Jakarta as the capital of Republic of Indonesia with all its appeal has become a major urban destination in Indonesia
- Jakarta topography and its high density make Jakarta prone affected by the climate change
- Based on the results of the study of EEPSEA (Economy and Environment Program for South East Asia) shows that Jakarta becoming a city which have first ranked that vulnerable to climate change in Southeast Asia, following is the ranked of the 5 of Jakarta area:
  - Central Jakarta in the first (1),
  - North Jakarta in the second (2),
  - West Jakarta in the third (3),
  - East Jakarta in the fifth (5), and
  - South Jakarta in the eighth (8) .



# JAKARTA'S CURRENT SITUATION



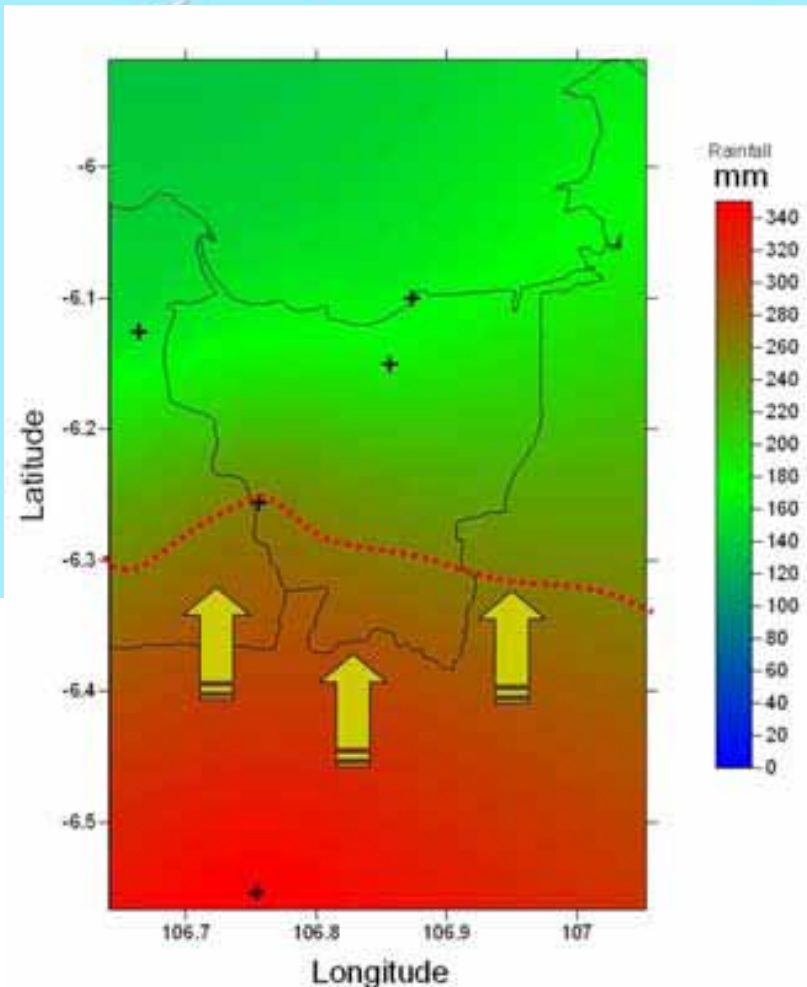
- Jakarta is divided into 5 area of city administration an administration districts, 44 districts and 267 subdistricts
- Land area : 661,52 Km<sup>2</sup>
- Sea Area : 6.977,7 Km<sup>2</sup>
- 40% of land area in northern Jakarta is below sea level
- Crossed by 13 rivers from the upstream region of Jakarta (Jabodetabek).
- Total population 9.6 mill (BPS 2010)
- Day time population 10.8 mill including commuters from surrounding area
- Population Density : 13.000 to 15.000 per km<sup>2</sup> in certain areas 20,000 to 30,000 per km<sup>2</sup>







# IMPACT OF CLIMATE CHANGE IN JAKARTA



- The various effect of the increase in global temperature such as the changes of rainfall intensity and extreme whether.
- The rising sea level makes Jakarta is prone to flood hazard , because 40 % of Jakarta land area is below sea surfaces,
- Jakarta flood is not only caused by rainfall in Jakarta itself but also by 'water' from the upstream (Bogor) and the rising sea level

Source : Rainfall Projections in Jakarta Year 2010, Susandi 2010



# IMPACT OF CLIMATE CHANGE IN JAKARTA



- Emerging phenomenon of extreme weather (high rainfall in a short time):
  - January 18, 2002, rainfall 105 mm / day,
  - January 30, 2002, rainfall 143 mm / day,
  - January 18, 2005, rainfall 89 mm / day,
  - February 3, 2007 rainfall 172 mm / day,
  - October 2010, rainfall 167 mm / day,
- Decline in the face of the ground range 2008 – 2010 (source: Office of Industry and Energy Prov. DKI Jakarta):

➤ Cengkareng Barat, West Jakarta	: 26.6 cm
➤ Pantai Mutiara, North Jakarta	: 24.7 cm
➤ Kwitang, Central Jakarta	: 21.7 cm
➤ Daan Mogot, West Jakarta	: 20.9 cm
➤ Kelapa Gading, North Jakarta	: 20.0 cm
➤ Pantai Indah Kapuk, North Jakarta	: 16.4 cm
➤ Kebayoran Baru, South Jakarta	: 13.9 cm
➤ Ancol, North Jakarta	: 12.9 cm
➤ Gunung Sahari, Central Jakarta	: 11.9 cm
➤ Cempaka Mas, Central Jakarta	: 10.3 cm
- Sea level rise (Source: Subandono Diposaptono Head of Sub Directorate of Integrated Coastal and Ocean of Ministry of Maritime Affairs and Fisheries ):
  - Based on research in the years 1990-2000, there was already a trend of sea level rise 5-10 mm per year
- Flood and Rob, the incidence of flooding in Jakarta and rob from the Year 1990 - 2006: :
  - January 23, 1990, December 21, 1991, January 24, 1992, February 28, 1992, March 16, 1992, 23 April 1992, December 3, 1992, January 10, 1993, January 8, 1994, 25-26 March 1995, 12-14 October 1995, November 15 1995, 9-14 January 1997, May 12, 1998, 26-28 January 1999, February 6, 2001, 14-15 January 2002, January 23, 2002, January 28, 2002, January 29, 2002, January 30, 2002, 1-2 February 2002, January 12, 2004, February 17, 2004, 21 April 2004, May 28, 2004 July 12 2004.29 November 2004, December 12, 2004, January 21, 2005, January 23, 2005, March 6, 2005, June 16, 2005, July 15, 2005, January 17, 2006 and 20 April 2006



# CLIMATE CHANGE CONDITIONS



## FLOOD

FLOOD 2007

FLOOD 2008

FLOOD 2009







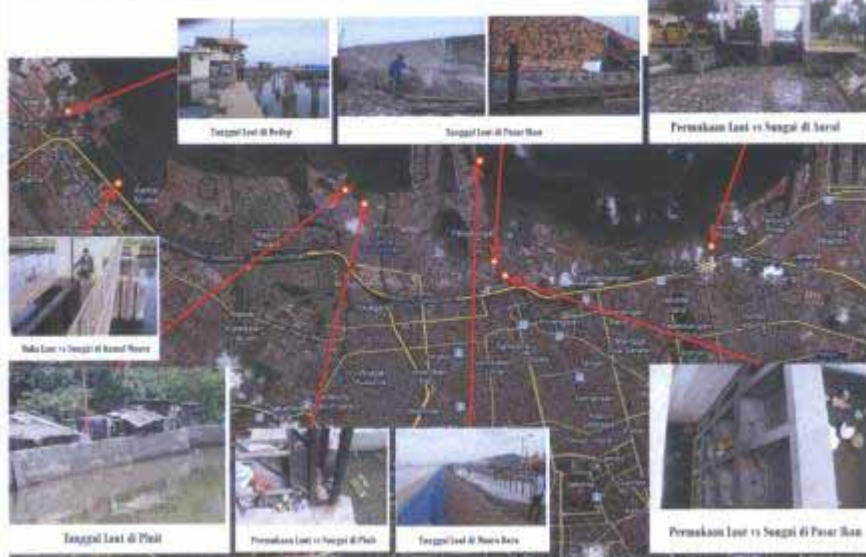
# CLIMATE CHANGE CONDITIONS



## ROB

- ROB on the North Coast Jakarta occurred in December, January and February
- Areas that have been affected by ROB is the Kamal Muara, Pluit, Penjaringan, Ancol, Kalibaru, Cilincing and Marunda
- ROB incident in Jakarta is influenced by: high tides, topography and global warming.

"Permukaan Air Laut versus Permukaan Air Sungai River" dan "Tanggul Laut" di beberapa lokasi di Jakarta



"Penurunan Jembatan" di beberapa lokasi di Jakarta







# CLIMATE CHANGE CONDITIONS



- Rob in Muara Baru, Penjaringan District, North Jakarta, 22 to 26 December 2007. Condition: dozens of homes collapsed, paralyzed the highway access including the road to Soekarno-Hatta Airport
- Cause: the increasing greenhouse effect, excessive soil water suction (a decline in face of the land), relating to the geology, broken embankments, high rainfall in the North Coast, sea level rise
- Anticipation: Rejuvenation beaches, mangrove rehabilitation, reforestation, and preservation of coral reefs is an attempt restoration of a natural
- The occurrence of landslides street Jl. RE Martadinata 2010
- Rob flood that flooded parts of North Jakarta increasingly widespread. Having previously Muara Baru area, flooded Penjaringan rob on Tuesday, January 18, 2011 and now turn to the New Estuary areas affected by flooding. These floods caused by levee jebolnya located on Marina Road. As a result, roads in the vicinity of levee flooded ankle adults. There are six RTs submerged road environment, namely RT 07, RT 15, RT 16, RT 17, RT 18 and RT 19. All are located on RT 017 RW.





# JAKARTA'S COMMITMENT TO ANTICIPATE CLIMATE CHANGE



- In the Year 2007, Jakarta join in the C40 Cities Climate Leadership Group is a group of associations of cities committed to tackling climate change.
- In 2009 at COP15 in Denmark, Jakarta is committed to lowering greenhouse gas emissions (GHG) emissions by 30% in 2030,
- Strategic Plan: Commitment reduction in greenhouse gas (GHG) emissions by 30% in 2030 has been poured in Spatial Planning (RTRW) of DKI Jakarta from 2010 to 2030, followed by preparation of the Regional Action Plan for academic paper in Reducing Greenhouse Gas Emissions



# REGIONAL ACTION PLAN FOR REDUCTION OF GREENHOUSE GAS EMISSIONS IN JAKARTA



- Regional Action Plan For Reduction of Greenhouse Gas (GHG) Emissions in Jakarta aims to obtain data / information sources and amounts of greenhouse gas emissions by the year 2005 as base year (base year).
- Simulate GHG emissions by 2030 (baseline scenario),
- Develop an Action Plan For Reduction of Greenhouse Gas (GHG) Emissions in Jakarta until the year 2030 (mitigation scenario).
- Efforts to implement GHG emission reduction through the potential sectors such as:
  1. Green Open Space
  2. Wastewater Management
  3. Energy
  4. Waste Management
  5. Transportation





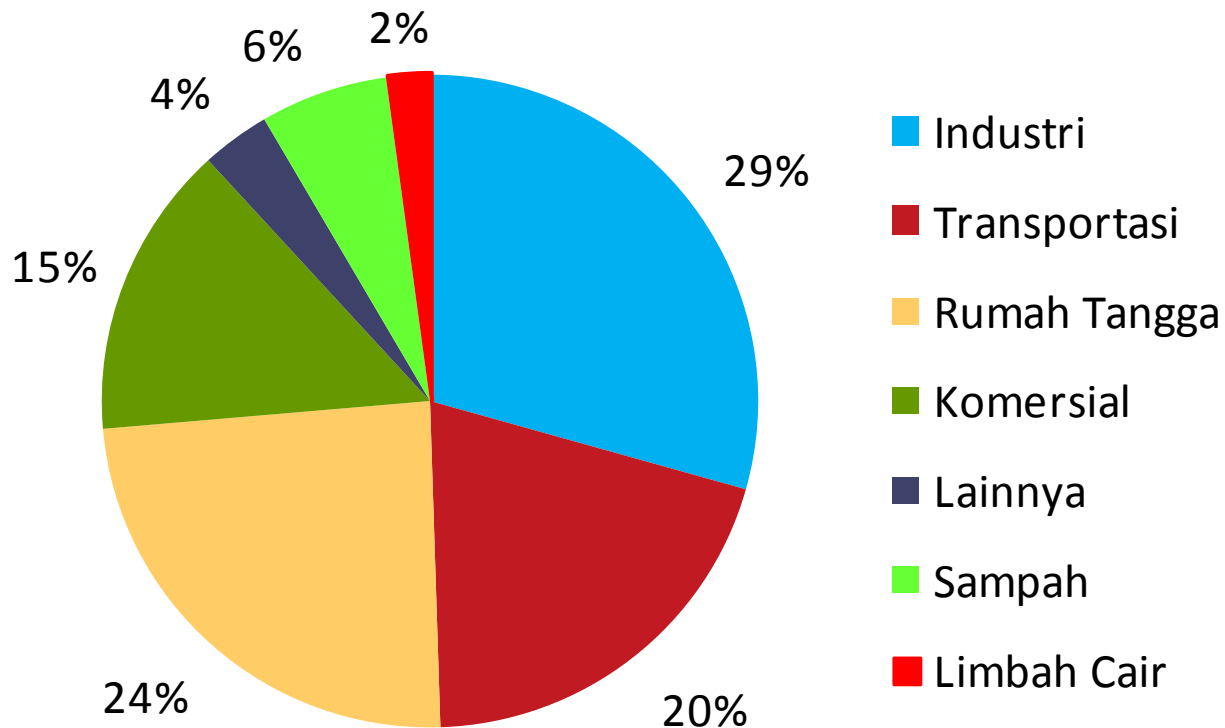
# POTENTIAL SECTORS OF GREEN HOUSE EMISSION SOURCES IN JAKARTA



- Energy:
  - Generation (electricity consumption)
  - Transport (land, sea, air)
  - industry
  - household
  - Commercial (building)
- Waste
  - Solid (municipal solid waste)
  - Domestic liquid (IPLT Pulogebang dan Duri Kosambi, RPH Cakung dan Kapuk)
- Industrial processes (non-fuel combustion)
- Agriculture, forests, other land uses



# CO<sub>2</sub>e PER SECTOR EMISSIONS BASE YEAR 2005

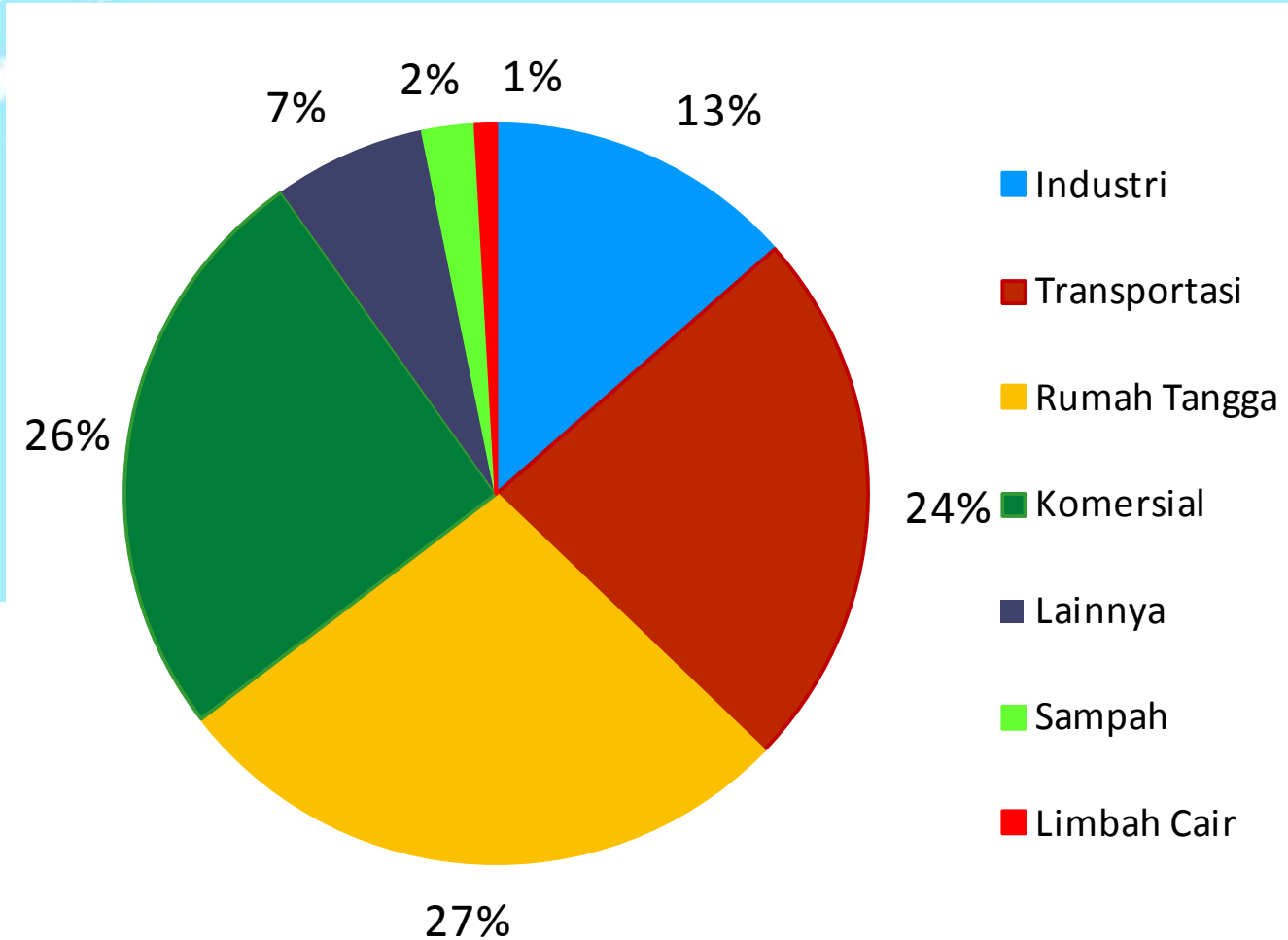


2005: 35,09 Juta Ton CO<sub>2</sub>e





# CO<sub>2</sub>e PER SECTOR EMISSIONS PROJECTED 2030



**2030: 113,94 Juta Ton CO<sub>2</sub>e**



## SPATIAL STRATEGY OF RTRW JAKARTA 2030 IN ORDER GREEN GROWTH DEVELOPMENT BASED ON LOW CARBON CITY IN JAKARTA



- Develop a public transportation system as a back bone mass transportation systems and TOD (Transit Oriented Development) with a high density development patterns. (Mass transport)
- Develop infrastructure and facilities for flood control with the development of polder systems, recovery and development there and the reservoir, dam and levee safety development of the river and the sea. (Flood Control)
- Protected areas and conserve water resources, open space for ecological balance of the town green (green open space)
- Lowering greenhouse gas emissions by 30% through the implementation of the concept of eco-friendly building (green building), based waste management technologies and alternative energy development (Green house gas emission reduction by promoting green building, waste to energy and developing energy alternatives)





## GREEN GROWTH DEVELOPMENT BASED ON LOW CARBON CITY IN JAKARTA



### Mitigation Programme :

- "Car Free Day"
- Vehicle Emission Test Program
- Increase Mass Transit Use: TransJakarta
- Fuel Conversion Konversi Bahan Bakar dari from fuel oil to natural gas. Minyak Tanah ke Gas (LPG)
- Smart Energy Program
- Solid Waste Disposal Management in Bantar Gebang
- Wastewater Management
- Water Provider and Preservation
- Green Building: Jakarta Capital City Government is being prepared to finalizing the regulate of green building and as its pilot project is the city hall building retrofit.



Suksesnya Halal Boleh Kendaraan Bermotor



## GREEN GROWTH DEVELOPMENT BASED ON LOW CARBON CITY IN JAKARTA



### Adaptation Program :

- Flood Control Infrastructure Development
- Maintenance of Shore Line Flood Barrier and Construction of Flood Channel
- Rehabilitation of the mangrove forest
- Plan of Giant Sea Defense Development









# MITIGATION EFFORTS PER SECTOR



- Transportation Sector :
  - Activities that have been / are running:
    - 10 Corridor Busway construction with a total length of 171.5 km for a capacity of 524 units of BRT (Bus Rapid Transit) and 250,000 passengers / day
    - The use of CNG for the BRT (Bus Rapid Transit)
    - The use of CNG for public transportation (taxi, bajaj, public transportation / microbus, etc.)
    - Implementation of Free Day Motor Vehicle / Car Free Day on some streets
    - Periodic Motor Vehicle Emissions Test
    - Restriction of vehicles through the zone of three-in-one
  - The plan further activities:
    - Construction of the MRT (Mass Rapid Transportation)
    - Development of Electronic Road Pricing System
    - Monorail construction
    - Construction of the railway line for access to Soekarno Hatta Airport





# MITIGATION EFFORTS PER SECTOR



- Solid waste sector :
  - Activities that have been / are running:
    - Converting waste management system in Bantar Gebang from dumping system into managed sanitary landfill
    - Utilizing of landfill gas to energy
    - Aware for proper waste
    - Composting program at the Regional Scale RW / RT
    - Application of 3R (Reduce, Reuse, Recycle)
  - The plan further activities:
    - Construction of Intermediate Treatment Facility
    - Cooperation with the Private Developers for sorting and managing waste
    - Reducing waste transport
    - Construction of a new Final Disposal Site





# MITIGATION EFFORTS PER SECTOR



- **Waste water sector :**
  - Activities that have been running:
    - Conversion of liquid waste into fertilizer
  - The plan further activities:
    - Construction of Drinking Water Treatment
    - Recapture methane gas into energy
    - Gradual separation between the drainage of rain water with the exhaust system
    - Recycling wastewater into clean water
    - Supervision Management of Industrial and Domestic Wastewater





## RECOMENDATION PROGRAMME



- Statement on Environmental Management Program in Coastal
- Clean Beaches Sea Lester
- The promotion of development of water catchment
- Development of urban forest and mangrove
- Efficient movement of water through 5R program (Reduce, Reuse, Recycle, Recharge, Recovery)
- Restricted the use of ground water in Jakarta area
- Control of water underground
- Centralized handling of domestic wastewater
- "Smart Adaptation" Program to reduce vulnerability to climate change impacts in Jakarta, which consists of:
  - Climate model development and vulnerability to climate change
  - Development of Mangrove Forest in north Jakarta coast
  - Construction of sea wall that serves to maintain the entry of sea water with a potentially higher than the surrounding land
  - Making Poulder which is available to overcome the potential of Jakarta floods
  - Making Water Source



# COMMUNITY PARTICIPATION AND PARTNERSHIP



- **Community participation :**

- Development and Education in Environmental Management, such as : Jakarta Green and Clean Program, Urban Greening Program, Cleaning Service on Ciliwung River - Istiqlal Water gate, etc.
- Mangrove planting
- The promotion Biopori (Adsorption hole)
- Implementation of 3R (Reduce, Reuse, Recycle) in waste management
- Implementation of 5R (Reduce, Reuse, Recycle, Recharge and Recovery) in the management and utilization of water.
- Water Infiltration Area Development

- **Sources of funding and assistance :**

- Central Government and Local Government
- Private Sector and the World of Business
- Funding Global / International



Perkemahank Bakti pada Kawasan Reklamasi Ciliwung Heras Lembang Angkr. Raya. Para siswa kelas, mengikuti kegiatan-karya bagi bakti sosial



## CHALLENGES AND OPPORTUNITIES



- Integrated strategy about vehicles and emission standards more stringent, the improvement of fiscal and technological
- The coordination of relevant institutions which is in charge for the Regional Action Plan and also with stakeholders
- The principle of prioritizing GHG mitigation efforts that can be done in a relatively inexpensive but the reduce GHG emissions are relatively large
- Coordination with the central government through bilateral and multilateral cooperation to obtain funding in fulfilling those commitments until 2030





BOARD OF ENVIRONMENTAL MANAGEMENT  
JAKARTA CAPITAL CITY GOVERNMENT



**THANK YOU**

Website : <http://bplhd.jakarta.go.id>