



SURABAYA CITY GOVERNMENT



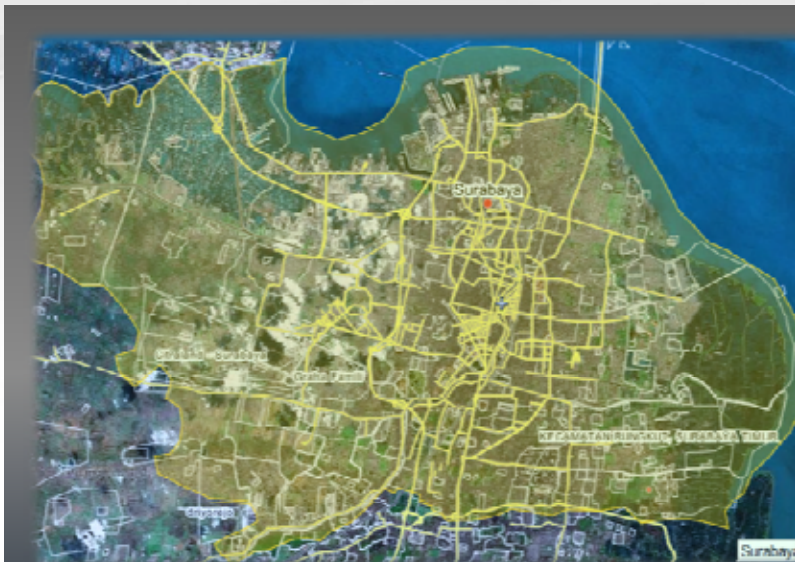
LOW CARBON MANAGEMENT IN SURABAYA

EFFORTS AND ACTIONS TOWARDS A ECO AND SUSTAINABLE CITY

PRESENTED BY
GIN GIN GINANJAR
SURABAYA CITY, INDONESIA

ISAP 2012
Yokohama, July 25th 2012

Surabaya City Overview



ORIENTATION OF SURABAYA

Surabaya city is located in East Java Province, Indonesia. Possessing the status as the 2nd biggest city in Indonesia, Surabaya has a strategic role as a gateway to East Indonesia and it has grown as a center for trade and industry services in Indonesia.

Geography

Lies between 07 21 South Latitude dan 112 36 to 112 54 East Longitude. Area is plains with an altitude of 3 to 6 meters asl, except in the southern area is 25 to 50 meters asl

Boundaries

North : Madura strait
East : Madura strait
South : Sidoarjo city
West : Gresik city

Total area : ± 326,36 km2.

Government

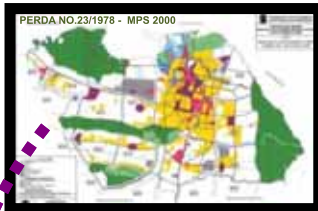
Surabaya city consist of ;
District : 31
Sub-district : 163
RW (Community Association) : 1.405
RT (Neighbors Association) : 9.271

Population : 3.024.321

HISTORICAL SEQUENTIAL

Surabaya City Regional Spatial Planning

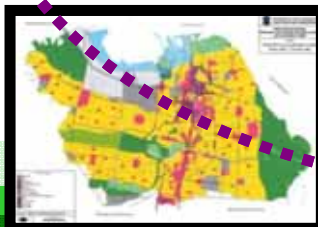
Th. 1978 DASAR PENYUSUNAN
SK. DPRD-GR No. 09/DPRD-GR/Kep/70



Th. 1985 EVALUASI MPS2000 - TAHAP 1



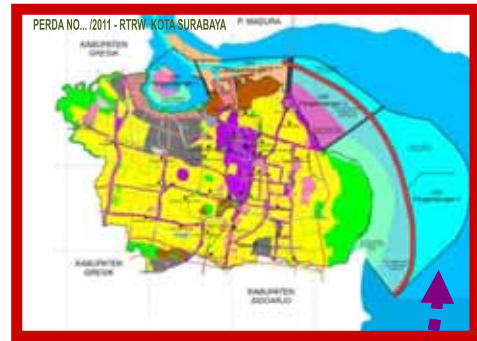
Th. 1990 EVALUASI MPS2000 - TAHAP 2



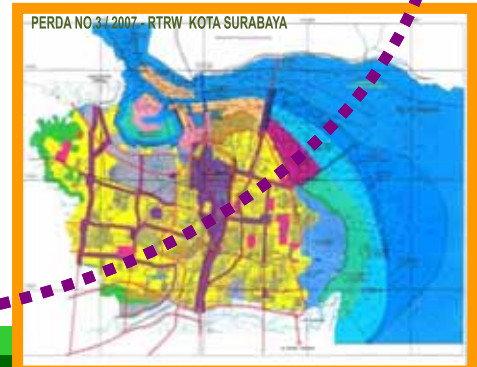
Th. 2005 REVIEW RTRW KOTA SURABAYA TH 2005



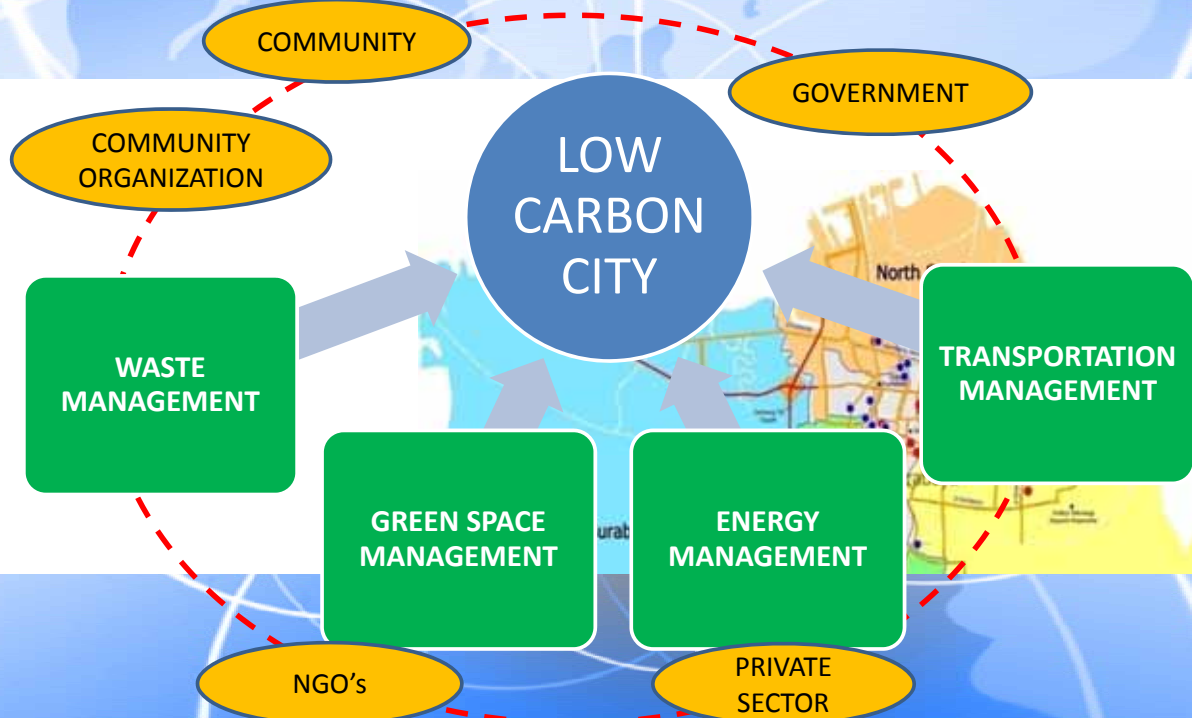
Review Perda 3 / 2007 DASAR PENYUSUNAN UU. No.26/2007



Th. 2007 DASAR PENYUSUNAN UU. No.24/1992



STRATEGIES TOWARDS LOW CARBON CITY





WASTE MANAGEMENT

COMMUNITY BASED WASTE MANAGEMENT



Surabaya City Government - 2012



COMMUNITY BASED WASTE MANAGEMENT

BASIC CONCEPT

1. Reducing waste from its source
2. Waste segregation
3. Waste treatment and processing:

OBJECTIVE

1. Extend the life of the Benowo landfill
2. Implementing 3R concept
3. Enhance role of community and private sector as partner
4. Transforming culture and mindset

GOAL

1. Reduce waste volume dumped to Benowo landfill
2. Encourage community to be able to perform independently on waste management in their household unit
3. Create clean city environment with less of waste





COMMUNITY BASED WASTE MANAGEMENT

ACTION AND PROCESS

1. Socialization/counseling
2. Campaign
3. Establishment of facilitators and cadres, eliminating motivators
4. Assisting residents in cooperation with the environmental NGOs
5. Distribution of cleanliness facilities for free (Takakura basket, composter container, trash cart, etc)



EXPANSION

1. Competition (Surabaya Green and Clean and Free From Garbage)
2. Waste Bank
3. Composting Center (Government and Community)

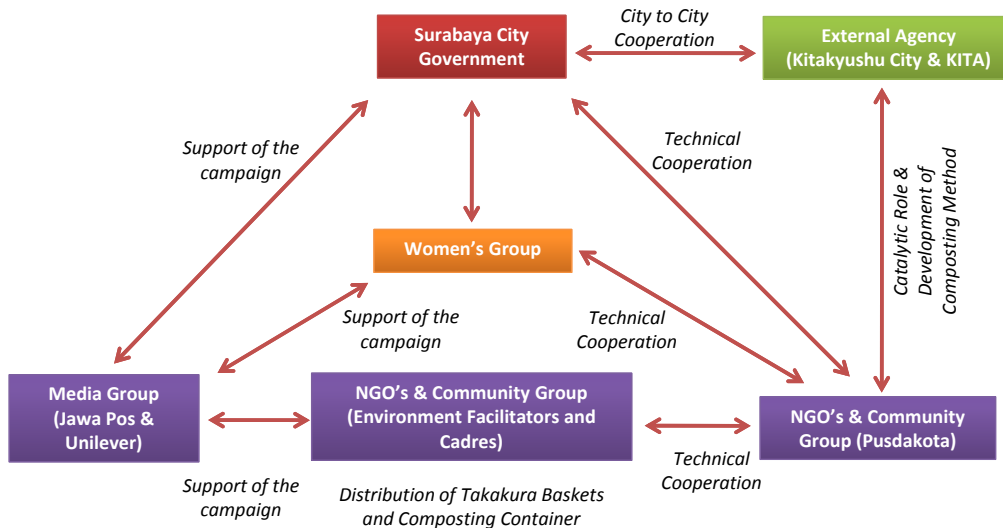


COMMUNITY BASED WASTE MANAGEMENT

ACTOR

All city element

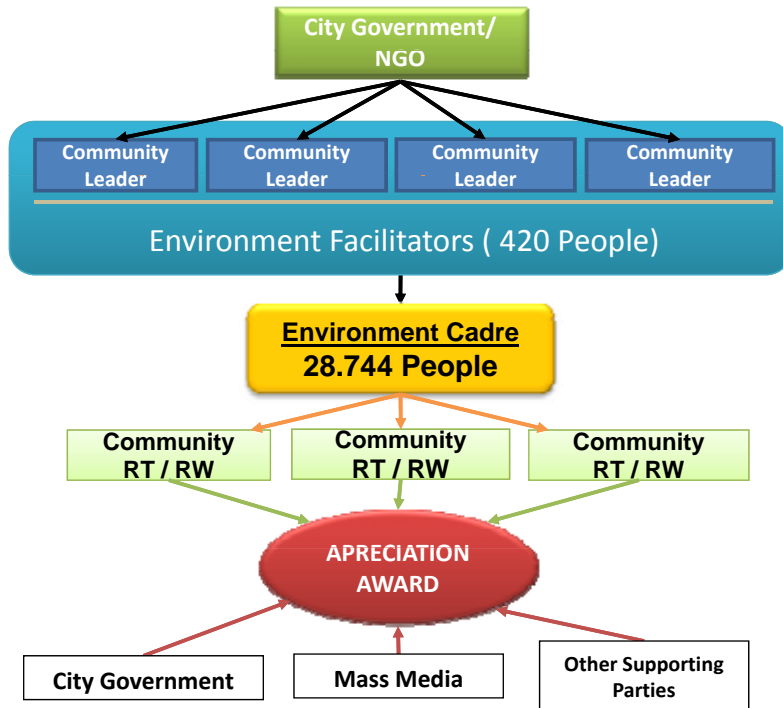
NETWORKING AND PARTNERSHIPS WILL PROVIDE OPPORTUNITY FOR EXCHANGE EXPERIENCE AND LEARNING BEST PRACTICES IN OTHER PLACES



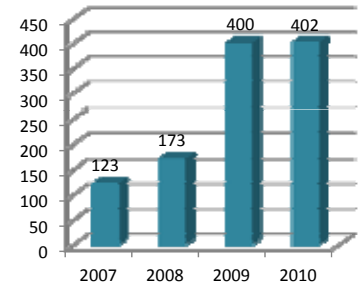


COMMUNITY BASED WASTE MANAGEMENT

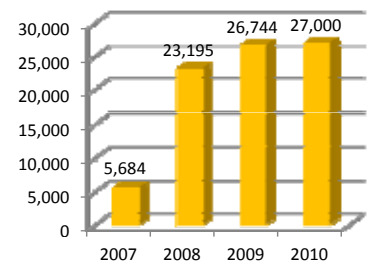
ENVIRONMENT CADRE RECRUITMENT



FACILITATOR

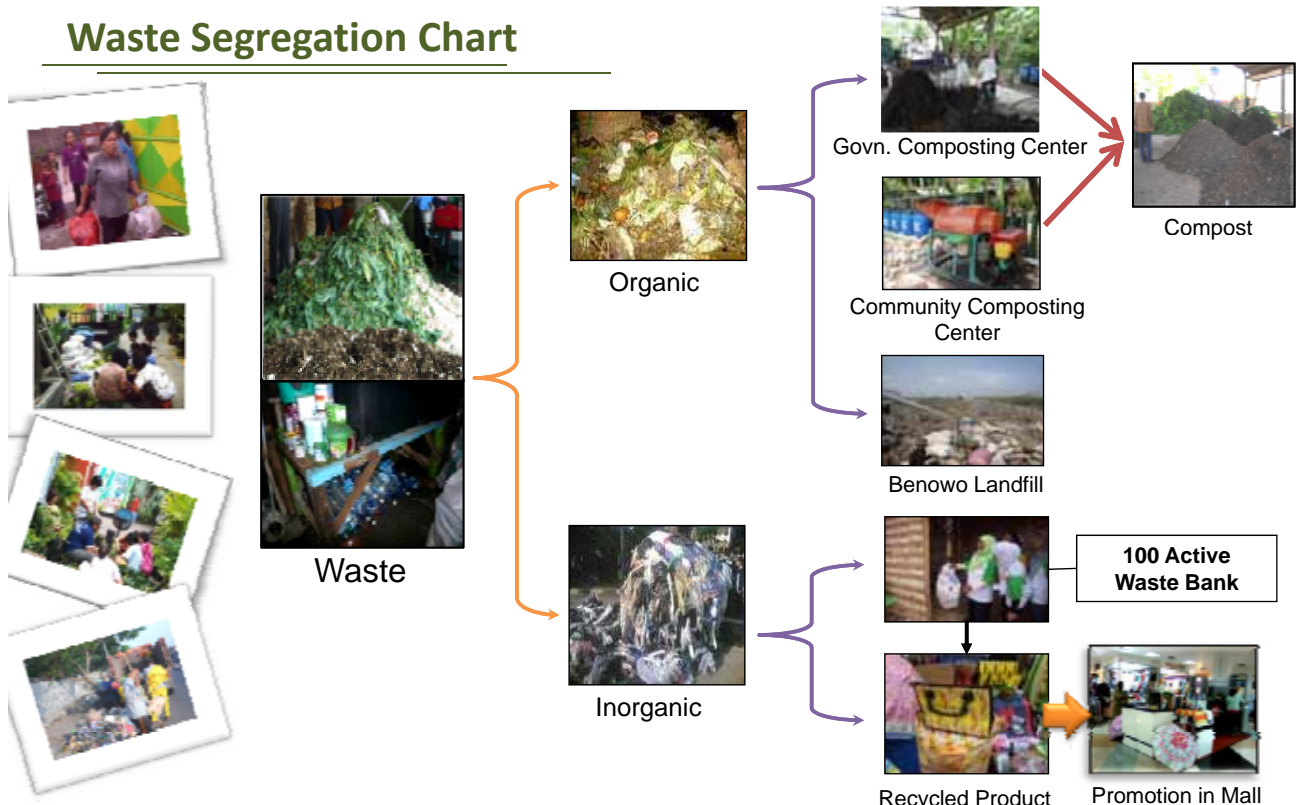


CADRE



COMMUNITY BASED WASTE MANAGEMENT

Waste Segregation Chart



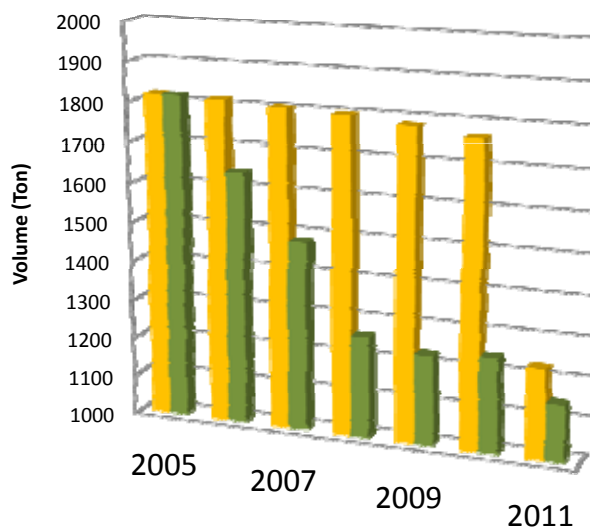


COMMUNITY BASED WASTE MANAGEMENT

RESULT AND IMPACT

- Community Level**
 - Waste Reduction : 79,8%
 - Participation Rate : >90 %
- City Level**
 - Waste reduction : 30%
 - Area coverage Sub-district (total 163) : 100%
 - RT (Neighbors Assc.) (total 9.271) : 30%
 - Assistance Coverage
 - Facilitators : 420
 - Cadres : 28.744
 - Household (total 768.932) : 37,4%
- National Level**
 - Coverage of 10 cities
 - Private Sector (Unilever) increased CSR commitment

WASTE DUMPED IN BENOWO LANDFILL



	2005	2006	2007	2008	2009	2010	2011
Target	1819	1815	1804	1797	1783	1765	1229
Realization	1819	1640.7	1480.4	1258.7	1229.43	1241.8	1146



COMMUNITY BASED WASTE MANAGEMENT

SEVERAL REGIONS ALREADY REDUCING THEIR WASTE

NO	REGIONS	NUMBER OF HOUSEHOLD	WASTE VOLUME (M ³ /MONTH)		OUTCOME
			BEFORE	AFTER	
1	Rungkut Lor RW IV	1.165	65	16	
2	Mojo RW XII	1.156	262	139	
3	Kebonsari RW II	638	63,16	21,76	
4	Wonokromo RW V	523	46,32	0	1.500.000/ month
5	Komplek Kenjeran RW I	260	90	0	
6	Pakis RW III	1.056	202,8	147,33	
7	Karah RW V	500	58	13,34	8.000.000/month
8	Margodadi RW VII	691	178	60,25	
9	Jambangan RW II	510	68	26	8.000.000/month
10	Kedung Baruk RW V	350	14,4	4,32	
11	Tenggilis Mejoyo RW IV	791	420	90	1.500.000/month
12	Ketintang RW III	720	618	210,4	
13	Margarokun RW X	617	186,04	65,05	



WASTE MANAGEMENT PROGRAM EXPANSION



Surabaya City Government - 2012

WASTE BANK IN SURABAYA

Number of Customer and Turnover of Waste Bank in Surabaya

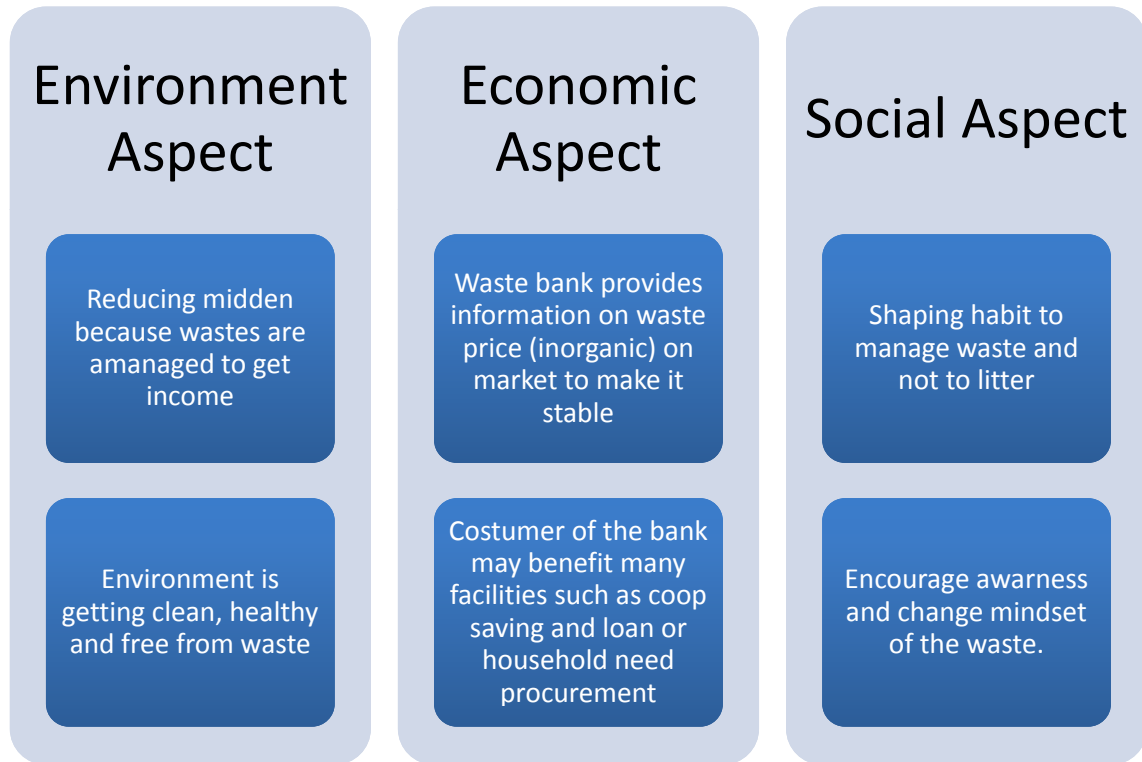
Name	Customer	Turnover
1. Bina Mandiri Waste Bank	± 703	± 67.000.000,00 / Month
2. Rukun Karya Waste Bank	± 168	± 2.000.000,00 / Month
3. Jeruk Sub-district, Lakarsantri District	± 151	± 1.018.000,00 / 2 Month
4. Gading Sub-district, Tambaksari District	± 120	± 1.812.500,00 / 2 Month
5. Bulak Banteng Sub-district, Kenjeran District	± 45	± 1.049.000,00 / 2 Month
6. Surabaya 14 Junior High School	± 300	± 600.000,00 / 2 Month
7. Yamassa Elementary School	± 400	± 2.000.000,00 / 2 Month
8. Lidah Kulon I Elementary School	± 100	± 600.000,00 / 2 Month
9. Kaliasin I Elementary Scholl	± 510	± 800.000,00 / 2 Month

There are 100 Active Waste Bank in Surabaya

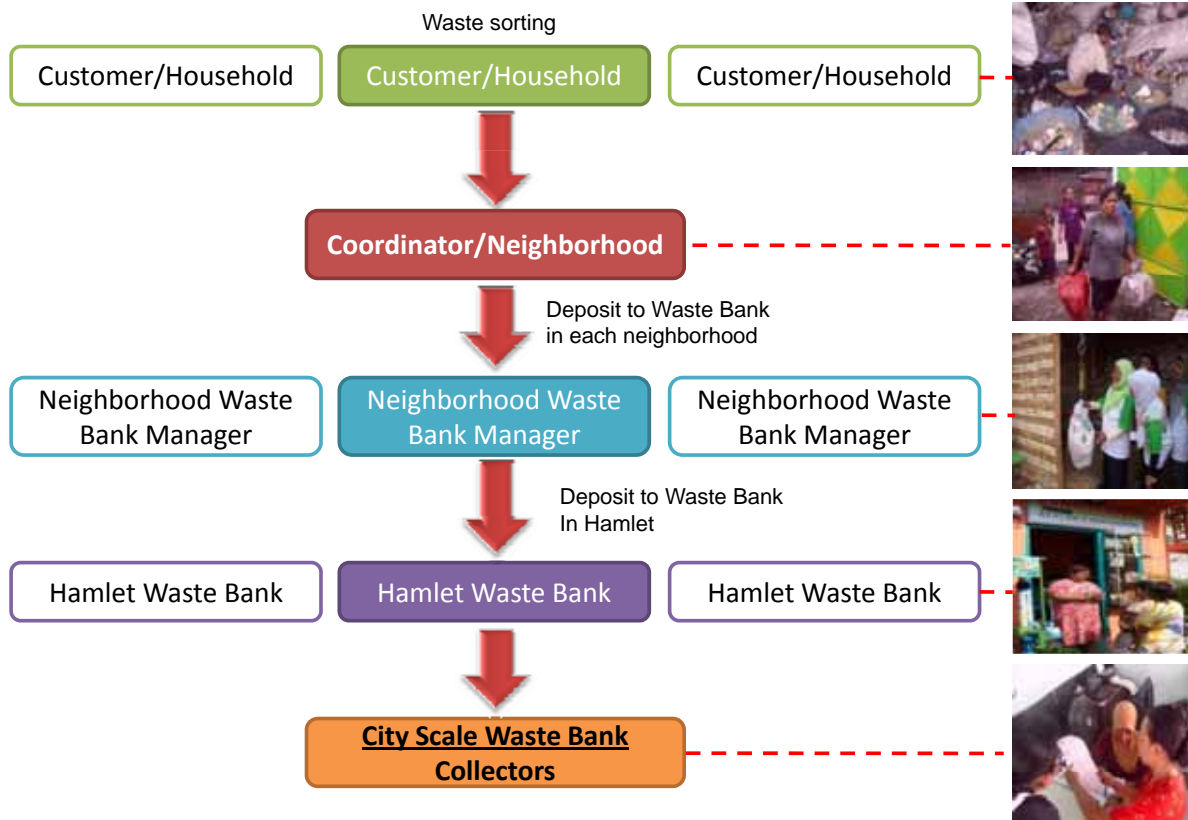
- Spread in **28 district**
- Inorganic waste is reduced to **7,14 Tons / Week**
- Minimum of average turnover in every Waste Bank is **Rp. 250.000,-/Month to Rp. 2.000.000,-/Month**
- In year 2012, it is planned to set up Waste Bank in **65 Location** (Priority in District that do not have Waste Bank)

WASTE BANK IN SURABAYA

BENEFITS OF WASTE BANK



WASTE BANK ORGANIZATION IN SURABAYA



COMPETITION

SURABAYA GREEN AND CLEAN (SGC)

- Starting on 2005 -

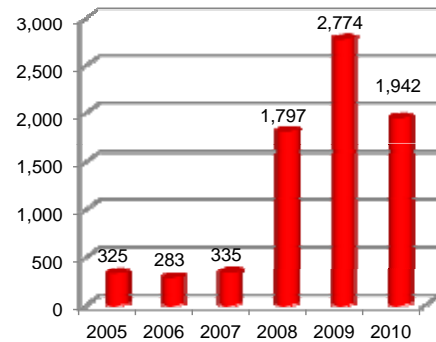
GOAL

- To develop and expand Community Based Waste Management throughout the city

PROCESS

- Partnership (Unilever, Jawa Post, Surabaya City)
- Competition
- Creating facilitators
- Activity/program expansion

SURABAYA GREEN AND CLEAN PARTICIPANT



FREE FROM WASTE

- Similar program with SGC, but the participant is come from area (RT) that is starting implement Community Based Waste Management

ECO SCHOOL, ECO CAMPUS, ECO PESANTREN

- Starting on year 2011.
- Coaching the younger generation to care about the environment

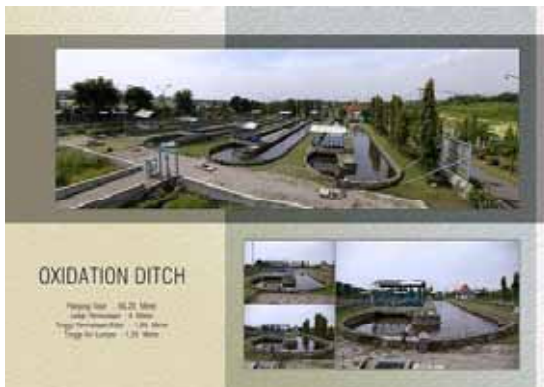
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WASTE MANAGEMENT WATER WASTE MANAGEMENT



SEWAGE TREATMENT PLANT



COMUNAL WWTP IN SURABAYA



COMUNAL WWTP IN SURABAYA



Kel. Pakis RW III



Kel. Gundih RW VII



RT.04 Demak Timur



RT-04 Demak Timur

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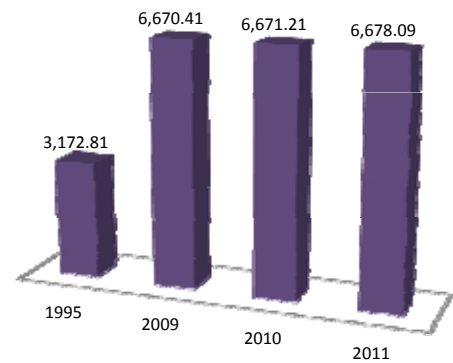
OPEN GREEN AREA MANAGEMENT CITY OF SURABAYA



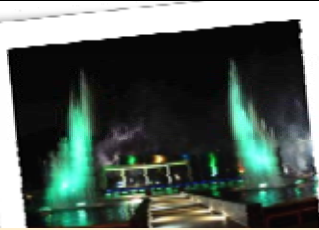
OPEN GREEN AREA DEVELOPMENT

NO	TYPE OF OPEN GREEN AREA	WIDTH (Ha)			
		1995	2009	2010	2011
1	Cemetery	191.95	178,45	178,45	178,45
2	Sport field	123.83	220,68	220,68	220,68
3	Pond / Reservoir	-	144,33	144,33	144,33
4	Social and Public Facility of Housing	-	108,15	108,15	113,93
5	Protected area	942.33	4.115,90	4.115,90	4.115,90
6	City forest (including zoo)	379.07	41,16	41,16	41,16
7	Park and median	1535.63	1.861,74	1.862,54	1.863,64
Total Width		3.172,81	6.670,41	6.671,21	6.678,09
Area of Surabaya City		33048,00	33048,00	33.048,00	33.048,00
Percentage of Open Green Area to Surabaya City Area (%)		9.60	20,18	20,19	20,21

OPEN GREEN AREA DEVELOPMENTS AREA



ITS CITY FOREST



MUNDU PARK



KEPUTIH CEMETERY



BUNGKUL PARK

OPEN GREEN AREA DEVELOPMENT

STRATEGY:

- 1. Establish regulations** to preserve the spatial extent and designation open green area.
- 2. Increasing awareness** to private sector and community through Environmental Award Program (Green And Clean, Surabaya Berwarna Bunga Program, and Green Office Program)
- 3. CSR programs** for supporting funding

CHALLENGE

- **Limited land** in city
- **Imbalance development** between environmental needs and residential-commercial-industrial needs



CONSERVATION AREA

Pamurbaya Conservation Area

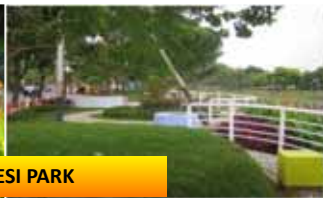
• Total Area : 2.510,24 Ha

- CONSERVATION CONTROL IMPLEMENTATION USING :
1. BOZEM RING SYSTEM (BORDERED BY 10 M CANAL)
 2. DETERMINING LOWEST BEACH BOUNDARY LINE



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Kali Mas River Revitalization



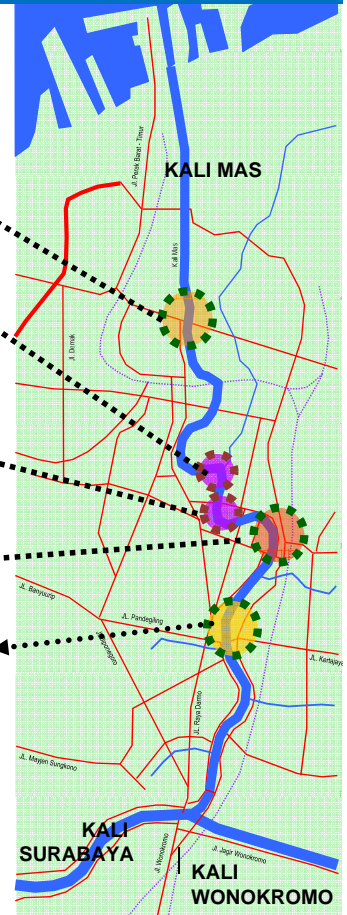
SPOT 1
JAYENGRONO PARK

SPOT 2
PRESTASI PARK

SPOT 3
EKSPRESI PARK

SPOT 4
BMX & SKATE PARK

SPOT 5
KEPUTRAN PARK



PLANT SELECTION

CO2 ABSORBING PLANTS

in Surabaya

NO	NAMA LOKAL	NAMA ILMIAH	DAYA SERAP CO2 (kg/pohon/th)	
1	<u>Trembesi</u>	<u>Samanea saman</u>	28.448,39	planted
2	<u>Cassia</u>	<u>Cassia sp</u>	5295,47	
3	<u>Kenanga</u>	<u>Canarium odorantum</u>	756,59	
4	<u>Pinoku</u>	<u>Dysoxylum excelsum</u>	720,49	planted
5	<u>Beringin</u>	<u>Ficus benvamina</u>	535,90	
6	<u>Krev Pavuna</u>	<u>Fellicium decioiens</u>	404,83	
7	<u>Matoa</u>	<u>Pometia pinnata</u>	329,76	planted
8	<u>Mahoni</u>	<u>Swettiana mahaqoni</u>	295,73	
9	<u>Saga</u>	<u>Adenanthera pavoniana</u>	221,18	
10	<u>Bunour</u>	<u>Lagerstroemia speciose</u>	160,14	planted
11	<u>Jati</u>	<u>Tectona arandis</u>	135,27	
12	<u>Nangka</u>	<u>Arthocarpus heterophyllus</u>	126,51	
13	<u>Johar</u>	<u>Cassia grandis</u>	116,25	
14	<u>Sirsak</u>	<u>Annona muricata</u>	75,29	
15	<u>Puspa</u>	<u>Schima wallichii</u>	63,31	

Notes:
 1-2 : very high
 3-5 : high
 6-10 : medium high
 11-15: medium

Note : The amount of the tree planted in Surabaya is 5.267.000 trees (until 2010)



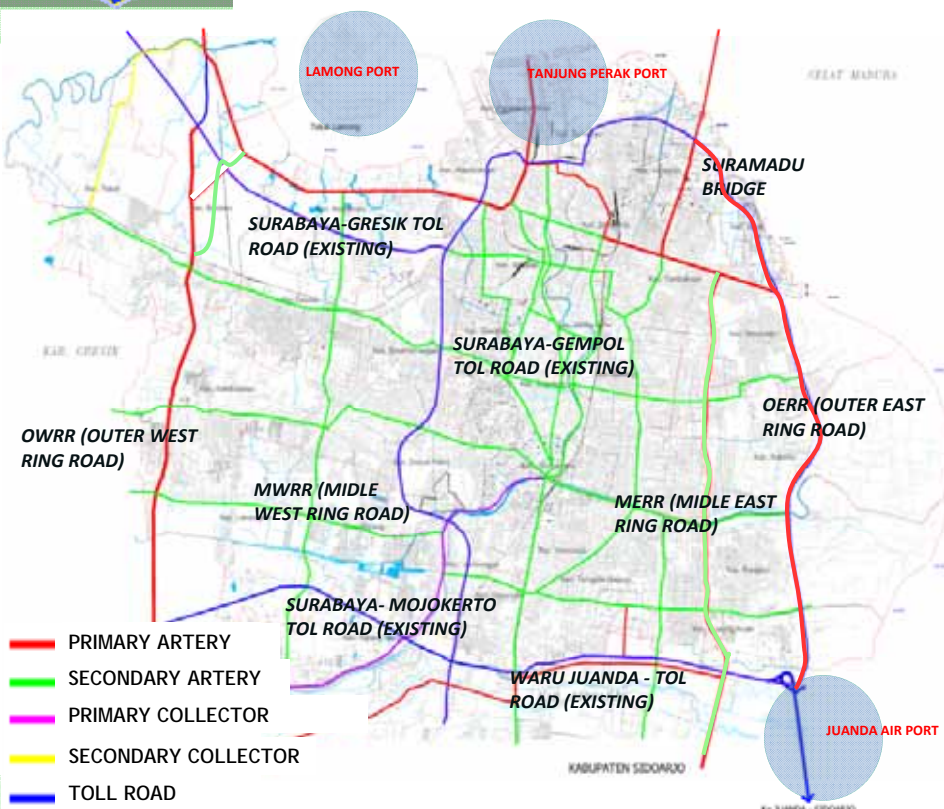
TRANSPORTATION MANAGEMENT IN SURABAYA





STRATEGY

1. Avoid or reduce unnecessary distance/Km travel (efficient)
 - Integrating Landuse and Transportation Planning
 - Developing urban areas through transit corridors
2. Shift or switch to a mode of transportation is more environmentally friendly
 - Develop or enable the conditions for low-carbon modes of transportation.
 - Encourage people to reduce private vehicle use and switch to non motorized transport such as walking, cycling, public transport through the improvement and development of infrastructure.
3. Improve the energy efficiency of transportation
 - Ensure the low emission vehicles and encouraging the efficient use of vehicles through setting emission standars, conduct periodic testing of emissions.

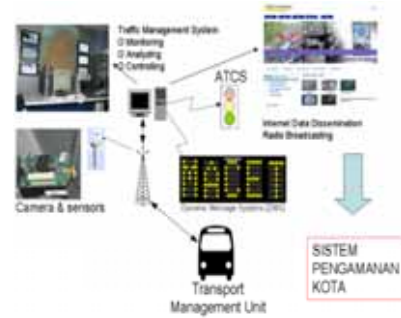
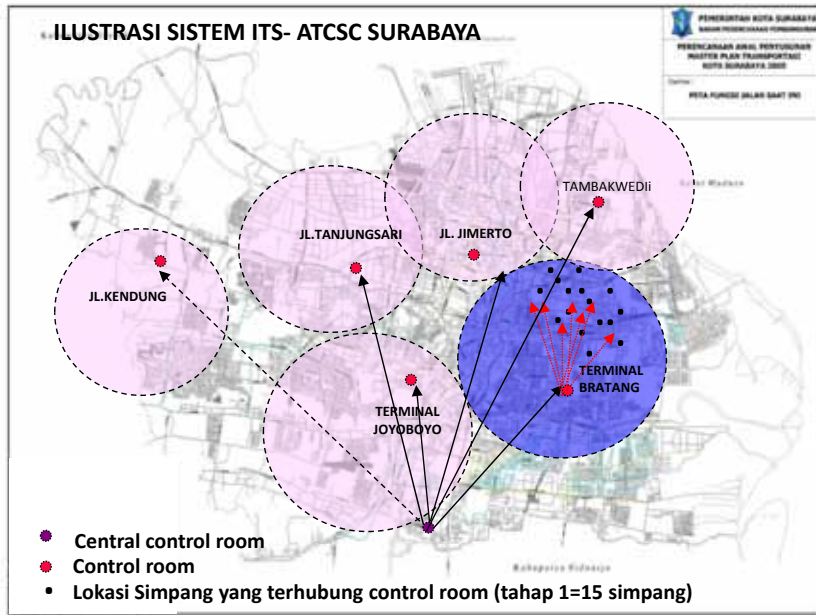




PEMERINTAH KOTA SURABAYA

TRANSPORTATION INFRASTRUCTURE ATCS IMPLEMENTATION

ITS (INTELLIGENT TRANSPORT SYSTEM) – ATCS



SKEMA SISTIM ITS-ATCS

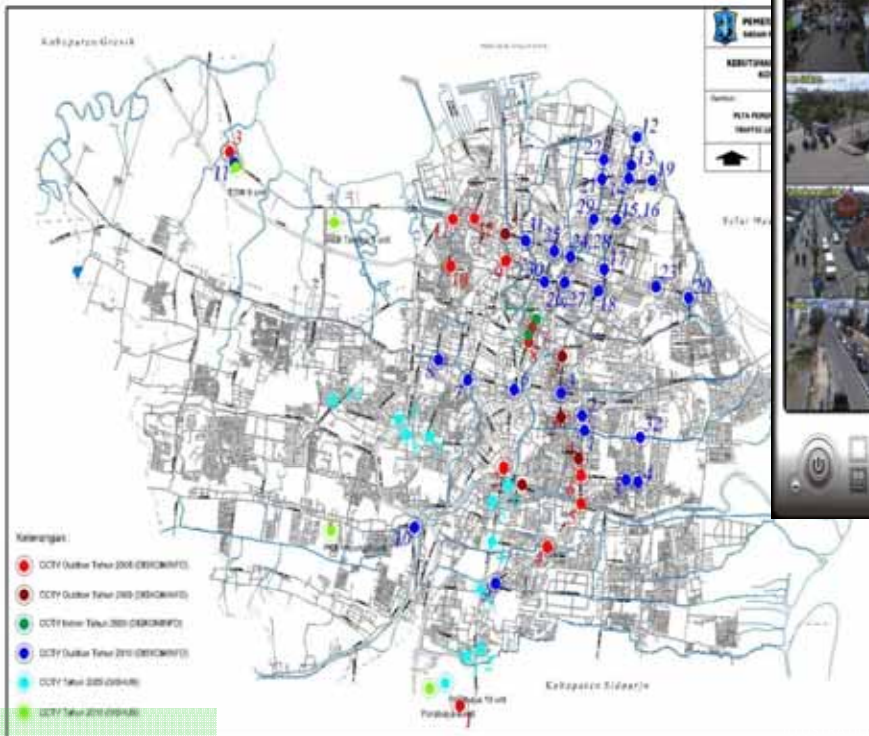
NO	LOKASI	ZONA
1	JL. NGINDEN – JL. PANJANG JIWO	TIMUR
2	JL. SEMOLOWARU – JL. BRATANG	TIMUR
3	JL. RAYA MANYAR – JL. MENUR (LP3I)	TIMUR
4	JL. BRATANG BINANGUN – JL. BARATA JAYA 19	TIMUR
5	JL. NGAGEL JAYA UTARA – JL. NGAGEL JAYA (LINDA JAYA)	TIMUR
6	JL. NGAGEL JAYA – JL. NGAGEL JAYA SELATAN (BILKA)	TIMUR
7	JL. PUCANG ANOM – JL. PUCANG ANOM TIMUR	TIMUR
8	JL. KERTAJAYA – JL. DHARMAWANGSA	TIMUR
9	JL. MENUR – JL. MANYAR KERTOARJO	TIMUR
10	JL. MANYAR KERTOARJO – JL. KERTAJAYA INDAH TIMUR	TIMUR
11	JL. MOESTOPO – JL. DHARMAWANGSA	TIMUR
12	JL. KARANG MENJANGAN – JL. MOESTOPO	TIMUR
13	JL. DHARMAWANGSA – JL. AIRLANGGA	TIMUR
14	JL. AIRLANGGA – JL. MENUR	TIMUR
15	JL. NGAGEL MADYA – JL. NGAGEL JAYA UTARA	TIMUR

- Implemented in phase starting FY 2010
- 1 st Phase applied to 15 intersection zone in East Surabaya



PEMERINTAH KOTA SURABAYA

TRANSPORTATION INFRASTRUCTURE CCTV PROVISION



135 CCTV Spot



Monorail Track Development

PLANNING



Monorail Detail Visualization



Tremway Development

PLANNING



Tremway Detail Visualization



PEMERINTAH KOTA SURABAYA

TRANSPORTATION INFRASTRUCTURE

PROVISION OF BICYCLE TRACK (PHASE 1)



BICYCLE TRACK - Jln Basuki Rahmat





PEMERINTAH KOTA SURABAYA

PRASARANA TRANSPORTASI

PROVISION OF PEDESTRIAN

Provision of supporting infrastructure to facilitate pedestrian accessibility



EMISSIONS TESTING ACTIVITIES IN THE ROAD





ENERGY MANAGEMENT

CITY OF SURABAYA



Surabaya City Government - 2012

Use of Alternative Energy in the city of Surabaya

Solar Cell in Public Street Lighting



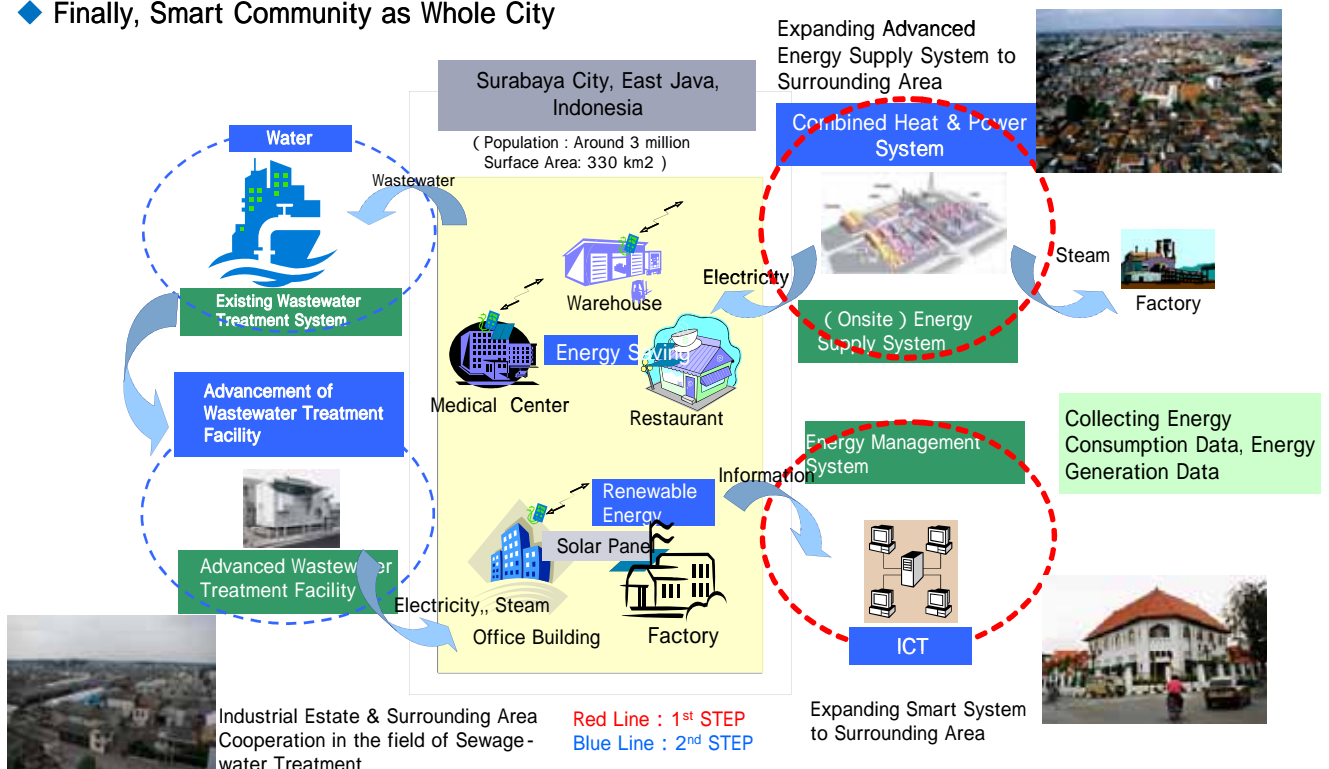
Solar Cell in Traffic Light

Alternative Energy Biogas Utilization in Surabaya



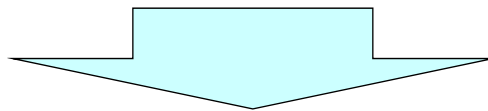
Develop Smart Community in Surabaya

- ◆ Starting from Introduction of Low-carbon Technology at Industrial Estate & Advancement of Infrastructure such as Wastewater Treatment and Smart. Next, Realizing Low-carbon Community & Smart Community in Surrounding Area
- ◆ Finally, Smart Community as Whole City



Develop Smart Community in Surabaya

- ◆ Master Plan Preparation of Smart City
- ◆ Environmental Policy Planning (Energy Saving, Renewable Energy Introduction)
- ◆ Human Resource Development
- ◆ Stepwise Approach
 - 1st STEP : Independent Combined Heat & Power + Energy Management System (EMS)
 - 2nd STEP : Efficient & Advanced Sewage water Treatment Facility, Advanced Waste Disposal Site



Smart City at Surabaya

SURABAYA ACHIEVEMENT IN ENVIRONMENT

1. Smart Environment 2011, Warta Ekonomi
2. Indonesia Green Region Award 2011, Majalah SWA & KBR68H
3. ADIPURA 2011
4. The Best Park Management in Indonesia - 2011
5. Adiwiyata Mandiri – SDN Kandangan III
6. ASEAN Environment Sustainable City (ESC) Award 2011
7. Asian Cities of the Future 2009/2010
8. Adiwiyata National Level – SDK Santa Theresia
9. "Dubai International Award For Best Practices to Improves The Living Environment 2008" for Green and Cleas Initiative Indonesia
10. "The Green Apple Award 2007" for Environmental Best Practice
11. Energy globe 2005
12. Adipura 1988-1998 dan 2005-2010
13. Green Building di Kota Surabaya: ASEAN Center for Energy Award



ADIPURA KOTA SURABAYA
2005-2010



GREEN APPLE AWARD
(Award for Surabaya Green and Clean program)



Thank You

