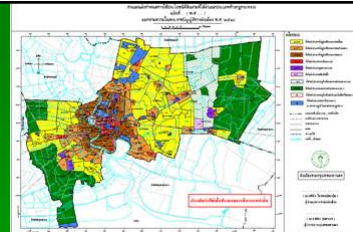


Promoting Travel Demand Reduction in Transport Sector in Cities of Asian Developing Countries: Case of Bangkok

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BANGKOK COMPREHENSIVE PLAN 2001

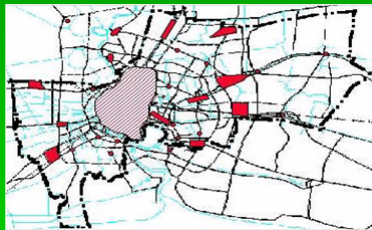


Objectives

- To conserve the historical and cultural heritages and to maintain the national identity.
- To preserve valuable environmental resources in order to improve the quality of life;
- To create knowledge-based economy;
- **To improve the city's accessibility by improving an efficient mass transit system;**
- **To plan more efficient land use in outer city to accommodate future growth.**

STRATEGY 1

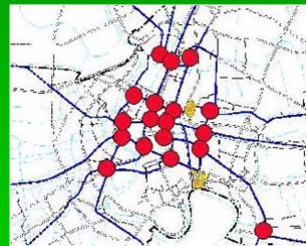
To develop polycentric city by strengthening existing business centers that are located in the heart of the city and to develop other business and community centers which are scattered around outskirts areas



● Business Centers

STRATEGY 2

To set up the land use schemes to be ready for the future public transportation networks, public utilities and infrastructure in and nearby public transportation nodes.

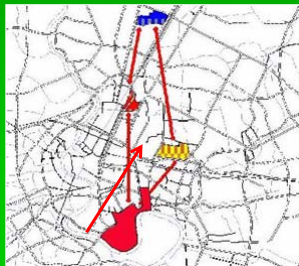


● Transport Nodes

Source: City Planning Department, BMA

STRATEGY 3

To set up the special development areas for future CBD where a convenience transport is highly required such as Chaeng Wattana Government Center, Bangsue Commercial Center, and Rama III Special Development Area.



● Special Development Areas

STRATEGY 4

To improve the traveling convenience by integrating all urban transport modes in Bangkok, through smooth transit system.



● Transportation Networks

Source: City Planning Department, BMA

STRATEGY 6

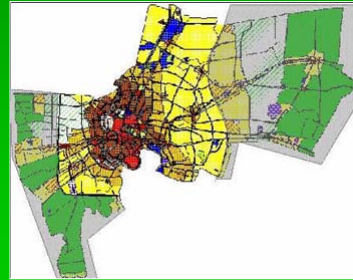
To promote the balance between workplaces and residential zones, by promoting mix land uses.



● Mix Land Use Promotion

STRATEGY 7

To promote urban containment and reduce urban sprawl by encouraging major developments undertaking inside the outer ring road frame.



● Encourage urban containment within green belts

Source: City Planning Department, BMA

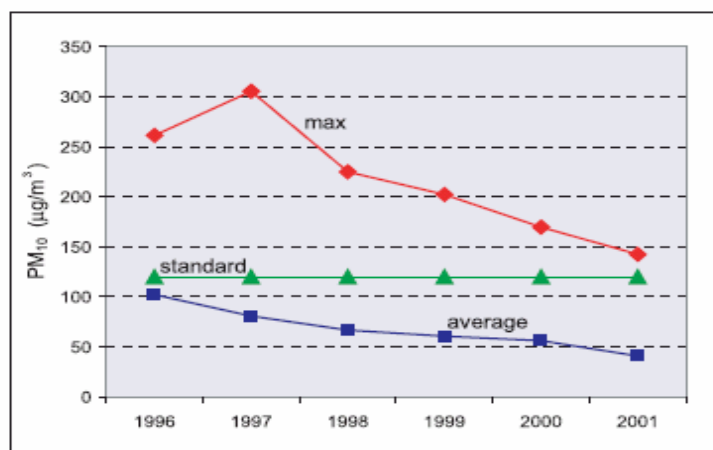
STRATEGIES TO IMPROVE AIR QUALITY IN BANGKOK

- Shifting from leaded to unleaded gasoline and fully phased out in 1995;
- Introduction of van transit system for ride sharing in 1995;
- Shifting from two to four-stroke engines of motorcycles program in 1997 nation-wide;
- The use of low emission fuels e.g. NGV for vans and buses and LPG for taxis and other private transport;
- Operation of Sky-train (BTS) to provide full capacity of services for public transportation system in 1999;
- Introduction of park-and-ride system to complement BTS operation in 1999;
- Operation of subway (MRT) to complement integrated public transportation system in Bangkok in 200.

TRENDS OF AIR QUALITY

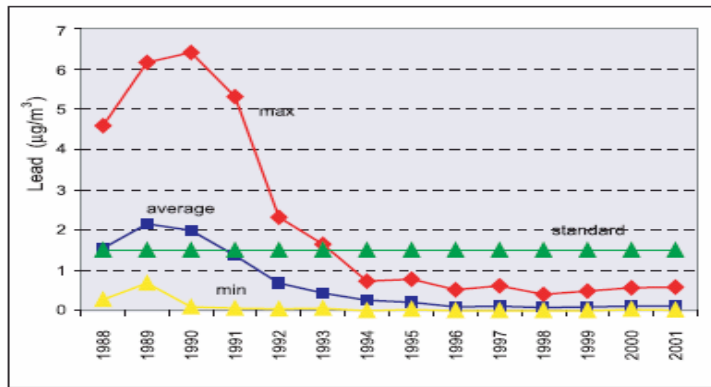
- Air quality in Bangkok is steadily improving due to reduction of all greenhouse gases emission and PM concentration over years, particularly since 1996;
- Average PM concentration is declining since 1996 (below standard);
- Visibility is improving since 1996, from 7.5 km (1996) to 9 km (2000);
- Lead concentration significantly reduce and below standard since 1993;
- Average ground level Ozone concentration is below standard since 1996 and maximum concentration is significantly reduced since 1997;
- Maximum concentration of Carbon Monoxide is significantly reduced since 1997 and below standard since 2001;
- Sulfur dioxide concentration is reduced since 1997.

Annual Trends of PM10 Concentrations (24-hr average) in Bangkok, 1996-2001 (mg/m³)



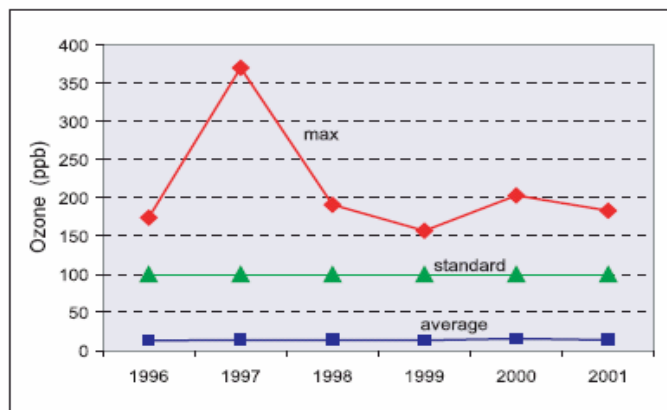
Source: PCD, 2002. Data came from 5 sites.

Roadside Lead (24-hr average, All Sites Combined in Bangkok 1988-2001 (mg/m³))



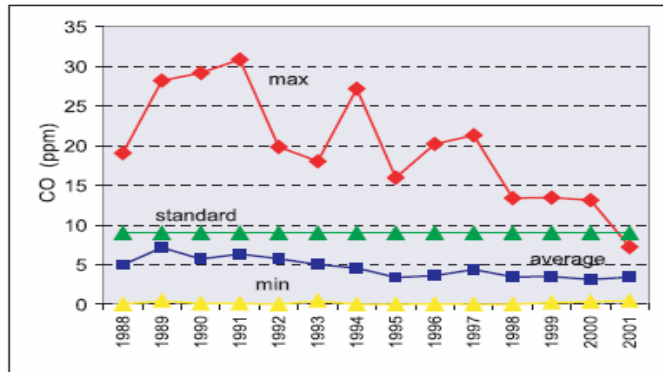
Source: PCD 2002. Number of sites varied from 9 sites to 21 sites from 1988 to 2001.
 Note: Standard is monthly standard.

Average and Maximum 1-hr Ambient Ozone at All Sites in Bangkok 1996-2001 (ppb)



Source: PCD, 2002. Data came from 8 sites.

Roadside CO (8-hr average) All Sites Combined in Bangkok 1988-2001 (ppm)



Source: PCD 2002. Number of sites varied from 10 sites to 21 sites from 1988 to 2001.

Note: Standard is 8 hr average standard.

CONCLUDING REMARKS

- Bangkok provides good examples on how urban air quality is improved amid car-dependent metropolitan..
- Road development policies in Bangkok have in fact encouraged citizens to own private cars;
- However, synergistic interventions in urban development and transport sectors have contributed to improve urban air quality in Bangkok;
- The reduction of travel demands seems to be possible by promoting growth centers and mixed land-uses in mid-city and outer city areas.
- Promotion of pedestrian friendly environment in the city center areas could also support the reduction of travel demand.