

Source of PM and Health Impacts in Bangkok



**Ms Termsiri Chongpoonphol,
Director of Air Quality and Noise Management Division
Department of Environment
Bangkok Metropolitan Administration (BMA)**



Scopes of Presentation

- 1. Air Quality Situation in Bangkok**
- 2. Source and Health Impact of PM**
- 3. PM2.5 Challenges**





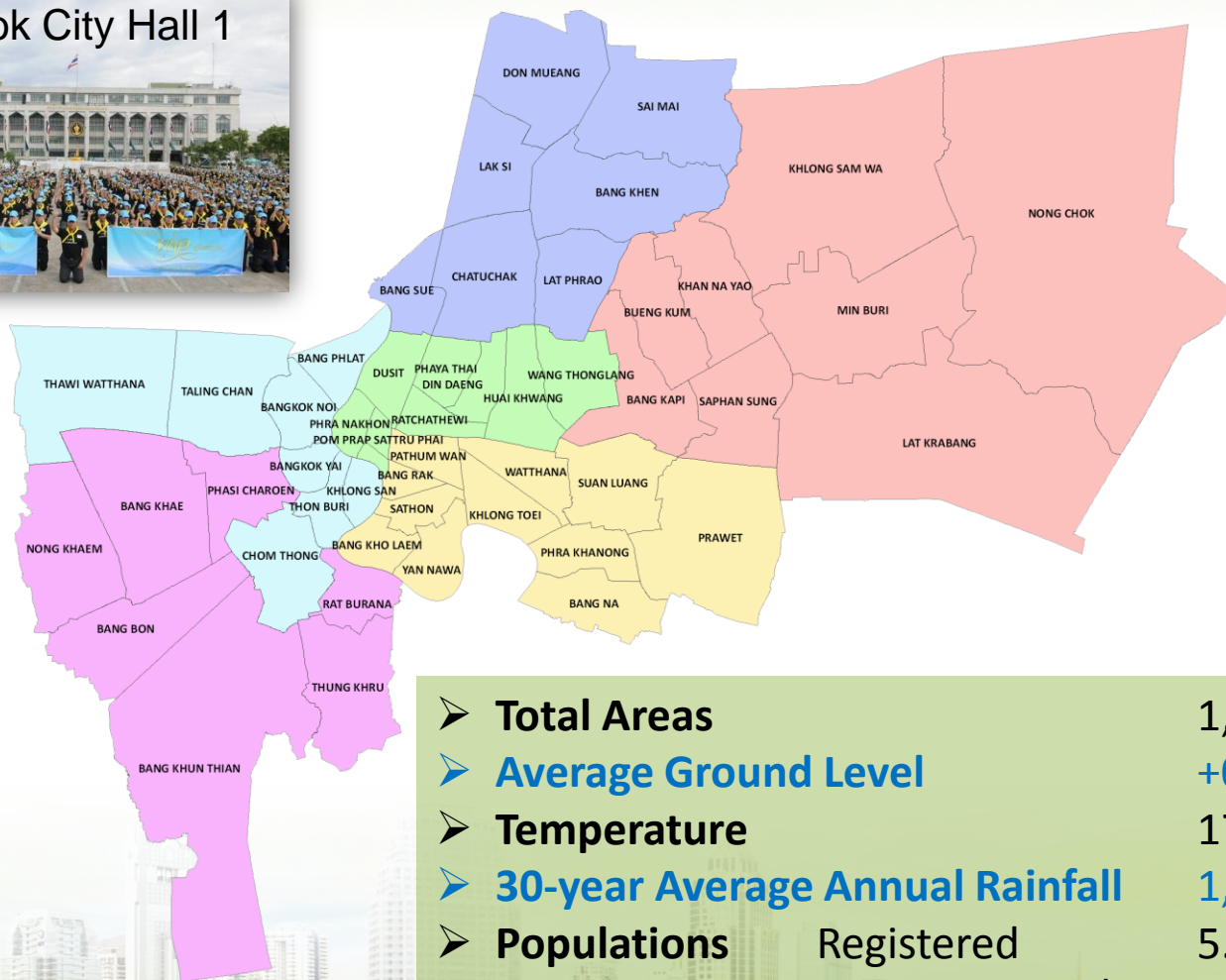
Introduction to Bangkok City



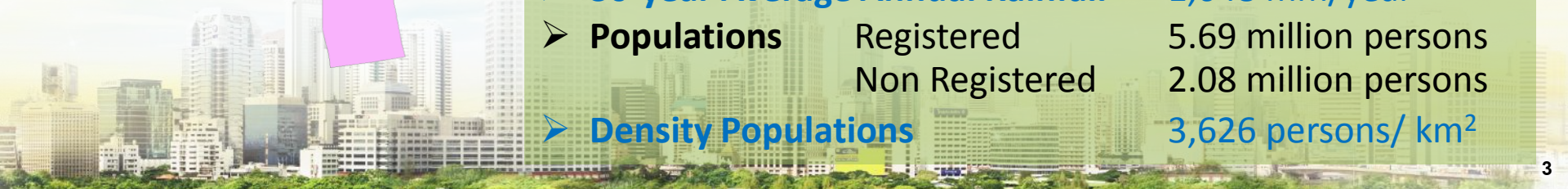
Bangkok City Hall 1



Bangkok City Hall 2



➤ Total Areas	1,568.737 km ²
➤ 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 5.69 million persons Non Registered 2.08 million persons
➤ Density Populations	3,626 persons/ km ²

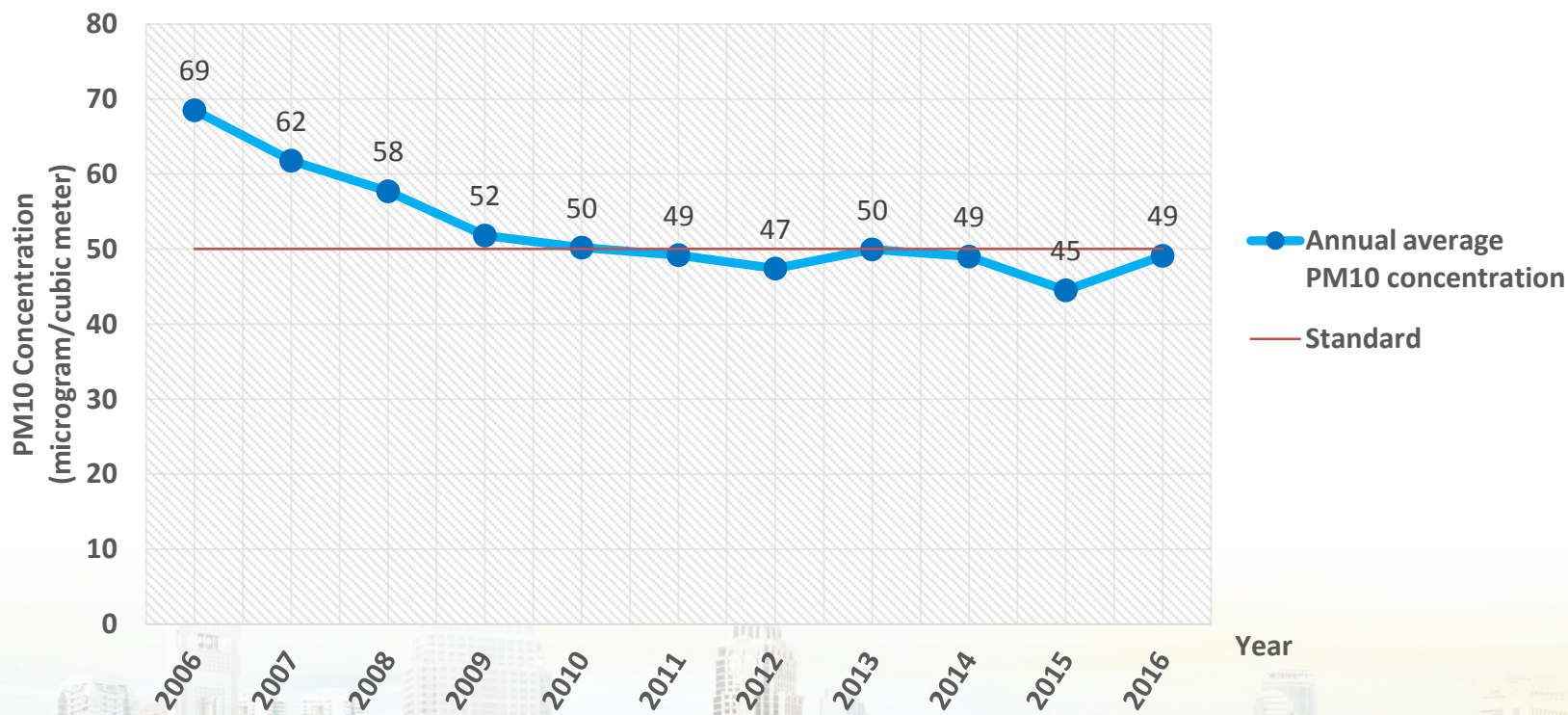




1. Air Quality Situation in Bangkok

❖ Particulate Matter (PM10)

❖ which is still a problem along the main roads

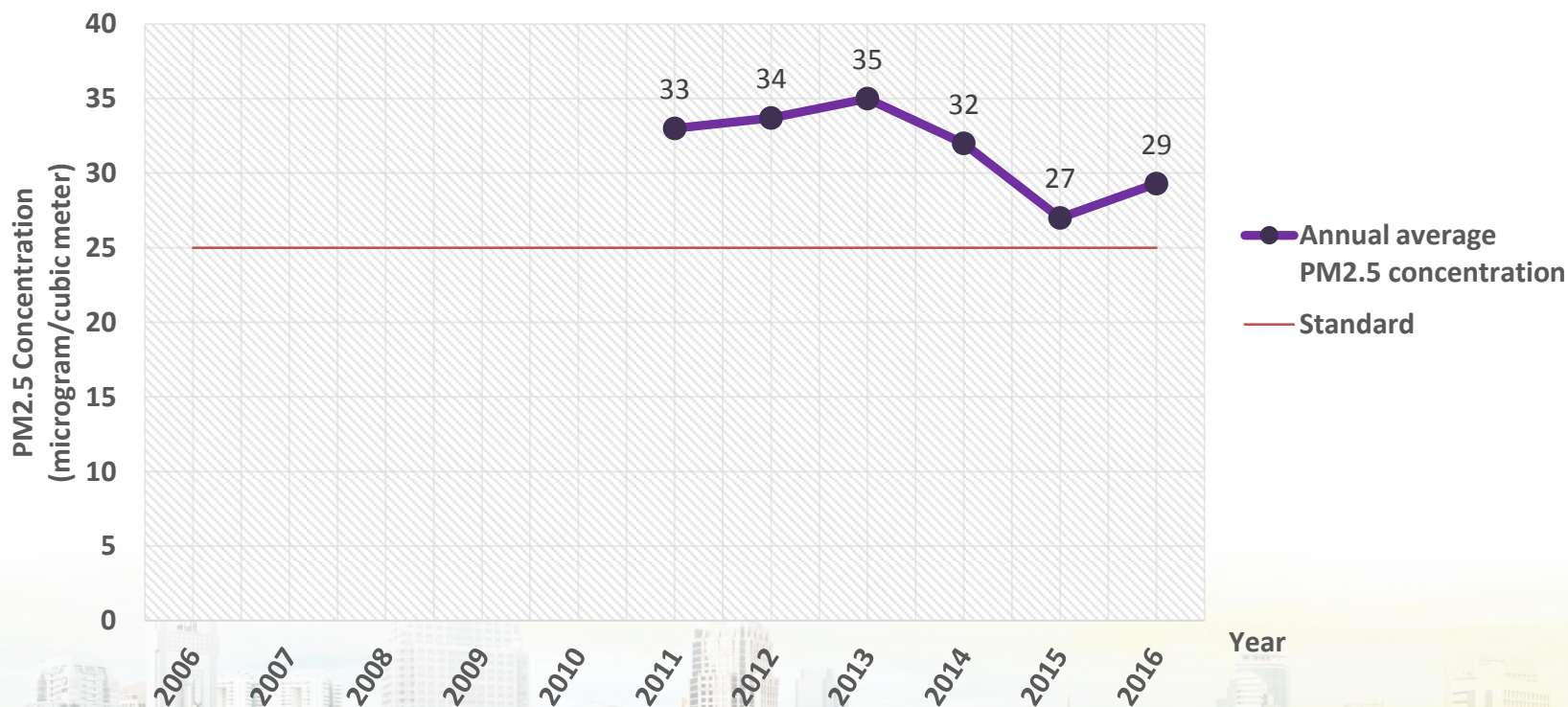




1. Air Quality Situation in Bangkok

❖ Particulate Matter (PM2.5)

❖ which is still a problem along the main roads

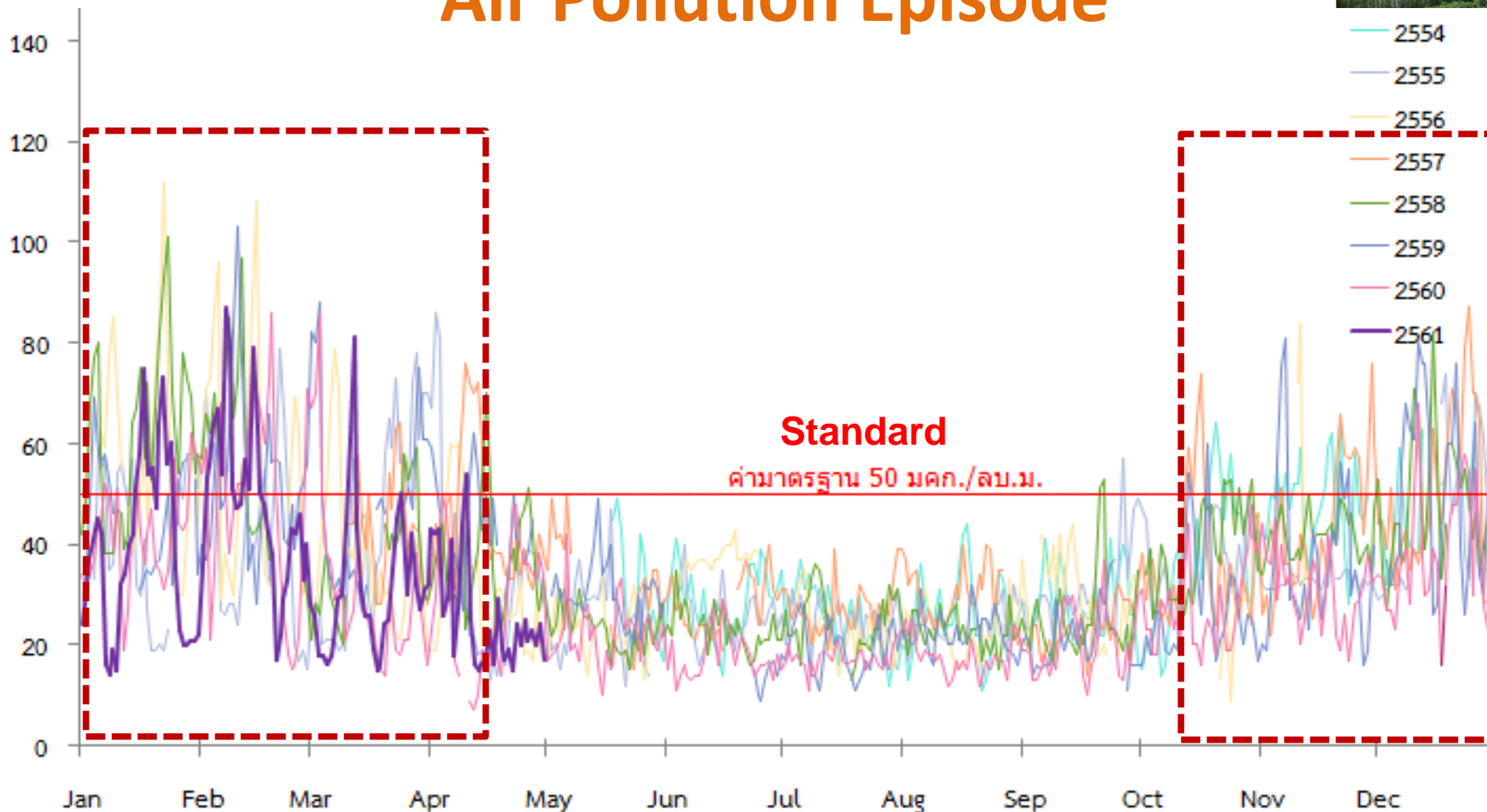




Trend of PM 2.5 during the year



Air Pollution Episode





2. Source and Health Impact of PM



Mobile Source

Stationary Source

Registered Vehicles : **9.78 million**

Permitted Building Construction : **7 million m²**

Diesel	2.49 million
Petrol	6.33 million
LPG	0.58 million
CNG	0.24 million
Other Fuels	0.14 million

Open Burning > 3,000 times/yr
Grilled food > 1,000 vendors



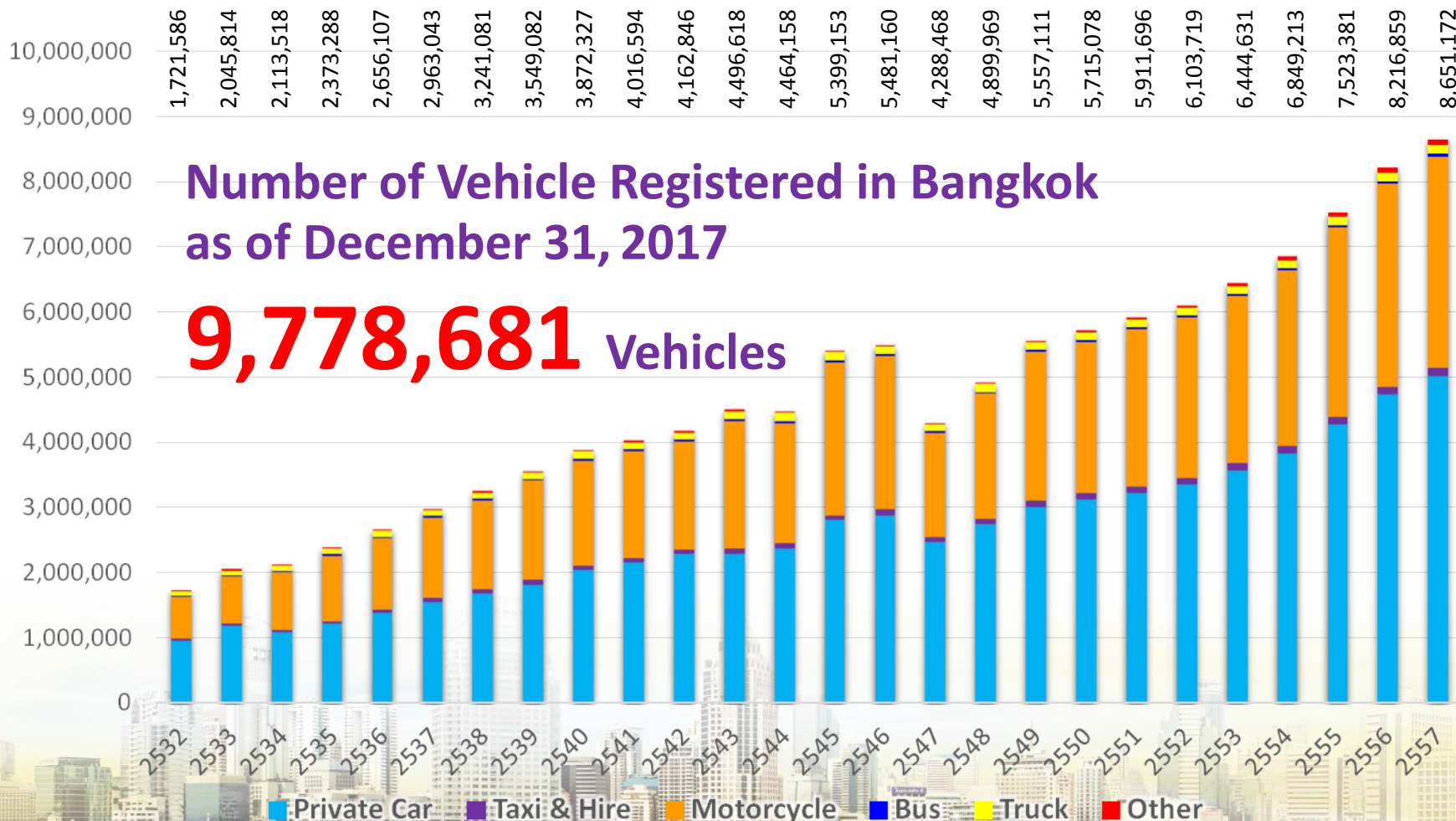
PM_{2.5}, PM₁₀, CO, HC, NO_x

TSP, PM₁₀, VOC, SO₂



2. Source and Health Impact of PM

❖ Vehicles





2. Source and Health Impact of PM

❖ Open Burning

Biomass Open-burning

Solid Waste



Agricultural Residues



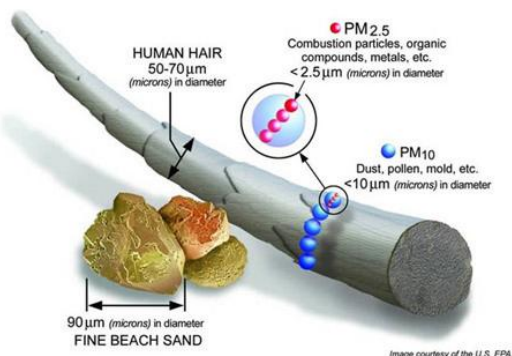
Forest Fires



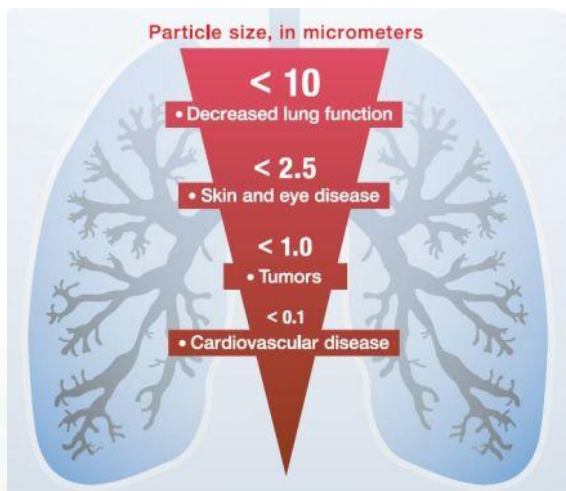


3. PM2.5 Challenges

❖ Health Impact from PM2.5



- The rising in number of the patients with respiratory diseases
- In 2016, 227,841 cases visiting BMA Health Service Center with respiratory diseases



Surveillance diseases: respiratory tract disease, cardiovascular disease, conjunctivitis and dermatitis



3. PM2.5 Challenges

PM2.5 : PM as a Disaster Draft Plan for PM2.5 Management

Short-Term Measures

Before (Nov.)

Integrate data to forecast and inform the public

During (Dec-Mar.)

Strictly Reduce Emission at Source

Reduce Pollutants in Ambient

Monitoring and Informing PM2.5 Situation

Monitoring and Reducing Health Impact



After (Apr.)

- Summarize PM2.5 situation and actions

- Lessoned learnt to revise measures for preparation in next year





3. PM2.5 Challenges

❖ PM2.5 : PM as a Disaster



Draft Plan for PM2.5 Management

Long-Term Measures

- Reduce Emission at Source
- Reduce Pollutants in Ambient
- Monitoring and Reducing Health Impact
- R&D on How to Control at Source





***Thank you
for your kind attention***

**For more information
www.bangkok.go.th/environment**