

# DA LAT

## to become a Low-Carbon City

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# Presentation:

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- **Overview**
- **Current quality of environment**
- **Environment management**
- **Target**
- **Approaches to low-carbon town solutions**

# Introduction

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- Da Lat City – Viet Nam's famous tourist destination on highland region with magnificent landscapes and nice weather.
- Head of many rivers and streams in the area -> Makes Da Lat a key place to guarantee the quality of water supply.
- Clean environment thanks to the forest, photosynthesis process help stabilize carbon amount and reduce greenhouse gases.

# Natural, Economic and Social Conditions

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- Natural area: 39.445ha (Forest: 20.827,37 ha),
- Average altitude: 1.500m from the sea level;
- A Class 1 City under Lam Dong Province (12 wards and 4 communes ),
- Two types of terrains: Mountain and high plain. The high plain area including city center are surrounded by mountains.;
- *Population* 226,978 (2017) people.
- Development direction: Services, tourism and hi-tech agriculture; Average temperature: 18,5<sup>0</sup>C; Dry months' average wind speed is higher than rainy ones'; From October to February of the following year, average wind speed is from 2.1 to 3.5m/s, 2,0 to 2,7m/s from June to September, 3,3m/s in August, and 1,4 to 1,8m/s in the others.

# Natural, Economic and Social Conditions

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- ❖ The highest wind speed relates to affection caused by storms, tropical depression, strong Northeastern monsoon or even paroxysm of Southwestern monsoon.
- ❖ Wind speed becomes extreme when storms are around or in Northeastern monsoon season; It barely reaches annual maximum speed in other months of the year.
- ❖ Da Lat is located in tropical-monsoon climate zone, nevertheless, affected by altitude and terrains' laws. Thus, Da Lat has cool climate, high amount of rain, short dry season, low evaporation. Barely suffer from direct storms
- ❖ Has advantages in developing tourism and manufacturing high-quality agricultural products.

# Hạ tầng và cảnh quan

- ❖ At its 125<sup>th</sup> anniversary of Establishment and Development, Da Lat is proud to well preserve many mansions with unique architectural features as well as historic and cultural relics.
- ❖ The city prioritizes preserving the forest, building green urban areas.
- ❖ Thành phố Đà Lạt rất chú trọng đến việc duy trì hiện trạng rừng và xây dựng mảng xanh nội thị. With 49,02% of city area covered by forest, Da Lat has well preserved the feature: “Forest within city – city within forest”;
- ❖ Thanks to natural advantages of climate, terrains and landscapes, Da Lat has long become the country’s famous tourist destination, named “the Flower City” or acknowledged by the Prime Minister as Viet Nam’s City of Flower Festival
- ❖ 178 streets (239,760 km in length) within a hilly terrain, Da Lat is the only city has no traffic lights, which is also a unique feature. Recent boom of tourism, services, accommodation, resorts and new tourist destination have been significantly invested, including 1,251 hotels with 17,807 rooms, 20 tourist attraction. Turn of visitors increases annually (4.9 million visitors in 2018, increases by 18% compare to 2017)
- ❖ Da Lat has also many unique natural landscapes and rich ecosystem with over 3,000 kinds of species
- ❖ Da Lat is known as **“the City of Thousand Flowers”**

# Features of Da Lat

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# Agriculture in Da Lat

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# Terrace Fields





# Pinhatt Mount – Da Lat's southern highest point

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## Xuan Hong Lake – A relaxing place along the stream

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# Tuyen Lam Lake





# Da Lat's many green hills

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# The Cathedral





# The City within the forest – The forest within the City

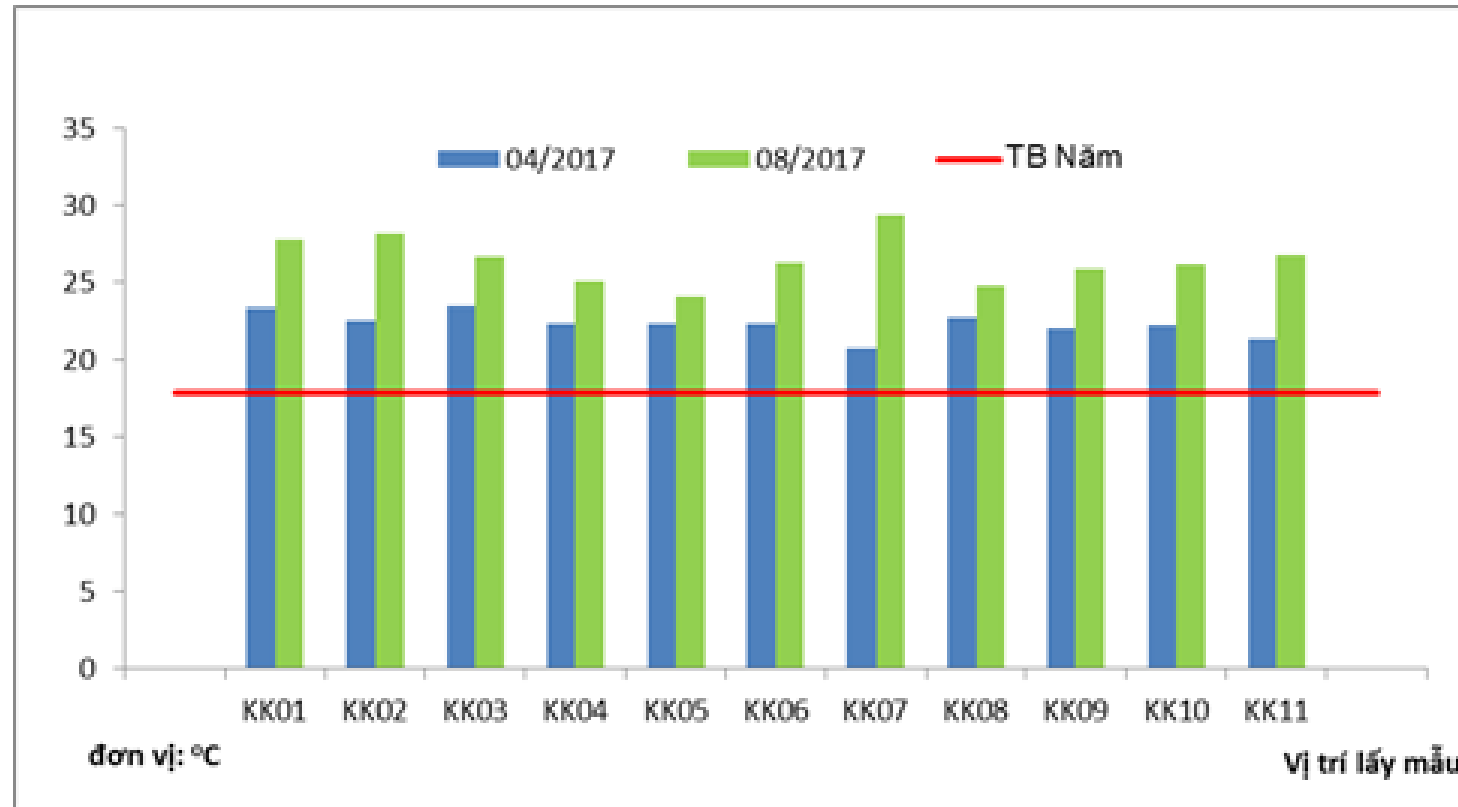


# Current environmental condition

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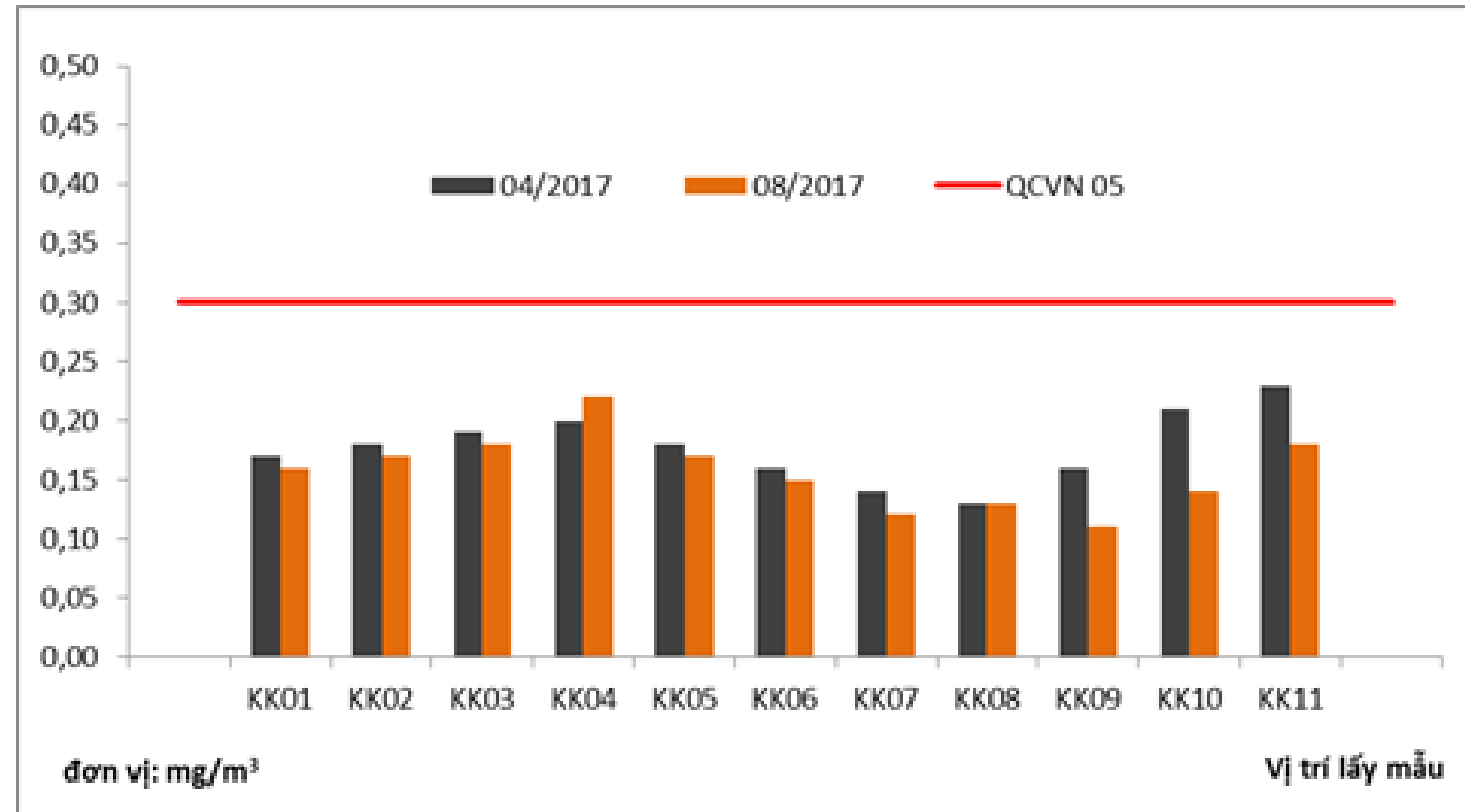
Many studies, tests and analyses show that the quality of air, water at surface and underground levels match Viet Nam's standard of environmental observation. However, observation results in recent years show an increasing in carbon emission

# Chart of compared environmental indexes



*Figure 1.1. Air temperature along observational points*

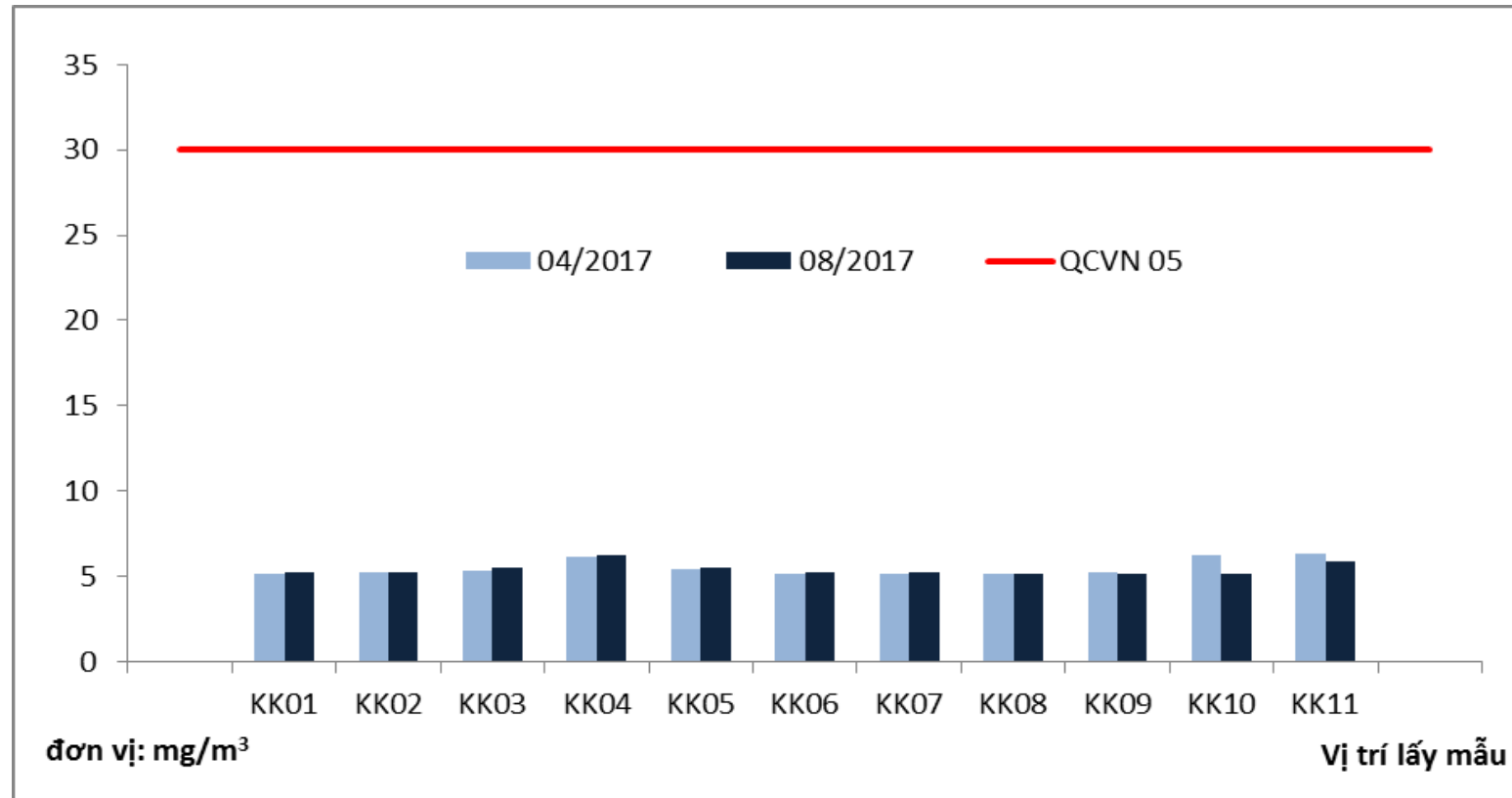
# Chart of compared environmental indexes



*Hình 2. Compared index of particulates*



# Chart of compared environmental indexes



*Figure 3. Concentration of CO*

# Environment Protection Attempts

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Environmental sustainably development direction: To develop long-term policies for environment and to invest new environment protection facilities.

To conduct many new projects for environment including: Collect and process pesticide containers, pay for forest environment protection services and many others attempts to reduce emissions.

According to Da Lat's master plan, It is comprised by resident areas, inner-city agricultural manufacturing areas, forest, lakes, rivers and streams. These make Da Lat unique features architecture, in which resident and hi-tech agricultural production are within natural landscape – the sustainable standard (aka. Green Urban Villages)

# Environment management

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- Increasing afforestation (current forest cover: 49.0%)
- Encourage citizens to plant trees in urban and private spaces; to collect and process domestic wastes in all city areas (98.5%). 2017: total amount of domestic wastes was about 70,575 tons (193.36 ton per day).
- Collect and process 99% of medical wastes (about 86,4 ton per year)
- Organise the “Green Sunday” to encourage people to collect wastes and clean their living areas.
- Project for a centralised waste water treatment facility to process 88.8% of waste water in 5 central wards
- Supervise the manufacturing facilities, projects, construction sites and promote environment protection attempts

## Future tasks

To maintain Da Lat's ecosystem and environmental sustainability, we need sustainable solutions based on proper use of natural resources. The solutions must be strategic to tackle current long-term requirements

**Environment planning**

**Socialize works of environment protection**

**Increase investment in environment**

**Promote international cooperation for environment matter**

# Urgent issues

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Because of the quick growth of tourism and services, the city is facing new challenges of urbanization, population growth as well as high demand for houses, food, industrial production, energy use and increasing solid waste; carbon emission from personal transports will also negatively affect Da Lat's nature, environment and climate



# Targets

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- **Basically control sources of pollution:**

- + Guarantee that: All of newly established production match environment standard; 60-70 of commercial and services providers have Viet Nam-standard waste treatment facilities; Safe storage for hazardous waste which has proper waste collectors; All of manufacturers, industrial points, tourist attractions have centralised waste water treatment facilities
- + 70% of households (12 wards) connect waste water pipes to the city's centralised waste water treatment facility.
- + Collect and process 99% of solid wastes, industrial wastes, 85% of agriculture solid wastes and 100% of medical solid wastes.
- + 85 % of solid wastes are reused, recycled or re-collected for energy generation

# Targets

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- **Recover polluted areas to improve people's living condition:**

- + Recover 50% of damaged natural ecosystem.

- + Recover

Đạt quy chuẩn đối với hàm lượng các chất độc hại trong không khí ở đô thị, khu dân cư.

- **Control natural degradation and biodiversity**

- + To guaranty rate of forest cover: 51% – 52%

# Targets

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**- Enhance Adaptive Capacity and Resilience to Climate Change and control speed of greenhouse gases emissions:**

+ Reduce 3 – 4 % of greenhouse gases emission in each GDP unit.

To reach that targets, besides solutions to enhance rate forest cover (plant trees), Da Lat needs to enhance capacity of wastes collection and process and of the centralised waste water treatment facility (on-going).

# Overview of Low-Carbon City plan

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- Control and reduce number of vehicles with high CO<sub>2</sub> emission
- Eradicate old agriculture production affecting environment;
- Develop model and action plans of greenhouse gases control;
- Develop action plans for energy and climate change;
- Develop plans for energy reuse and saving from 2018 to 2023;
- Calculate amount of greenhouse emission in Da Lat, identify sources of emission to significantly reduce carbon, seek new solutions
- Enhance government workers' capacity for carbon emission calculation and reduction..

# Specific actions

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- Invest one wind farm in Xuân Trường Ward;
- Allocate area (25-30 hectares estimated) at city's entrances as parking areas for (commercial buses and trucks) to minimise carbon emission in city centre



# Approaches, Ideas for Low-carbon town

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- 1) Electrical bikes combined with renewable energy;
- 2) Develop public traffic model using by renewable energy;
- 3) Widen pedestrian streets in Ward 1;
- 4) Develop tourist services powered by renewable energy.

# Essential factors to be a low-carbon city

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- Group 1: Energy use-related solutions: demand, supply, and demand-supply relations.
- Groups 2: Unexploited potential energy, renewable energy.

**Thank you for listening**

