



**ENERGY EFFICIENCY IN CONSTRUCTION SECTOR**  
**FOR THE STABLE DEVELOPMENT IN HANOI CITY**

# Urban development in Hanoi

Year 2008



14 districts,

922 km<sup>2</sup>;

Population: 3,4 m

30 districts.

3.329 km<sup>2</sup>;

Population: 7,2 m

GNP: 2.257 USD/person/Year.

-Growth rate: 200.000 Person/year

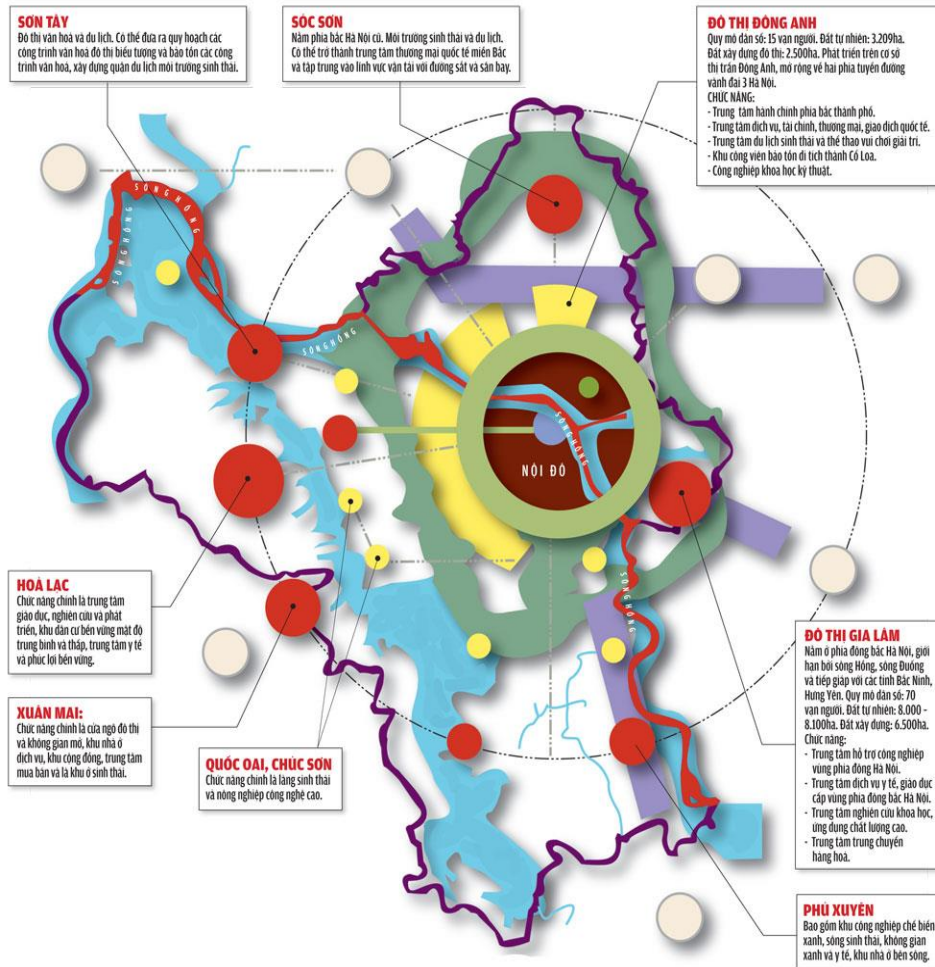
-GDP growth rate:

2011 - 2020: 9- 0%/year; 2021 - 2030: 8- 9%/year.

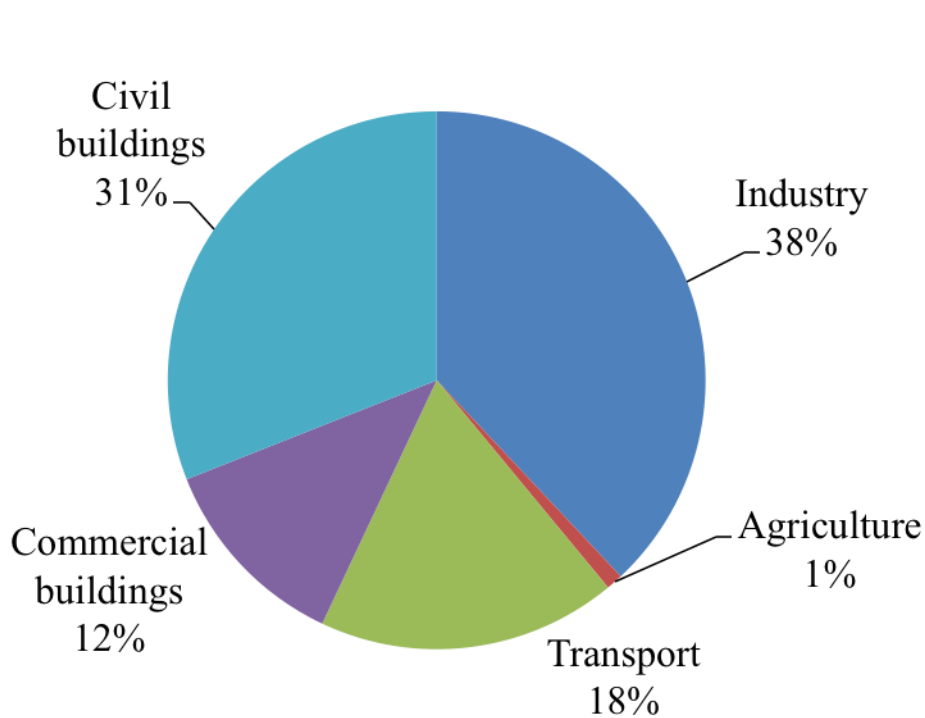
- Energy growth ratio 2011-2020:

6-10%/year; 2021-2030: 10-11% year.

- **The goal to develop the city : 1 core city and 5 satellite cities**

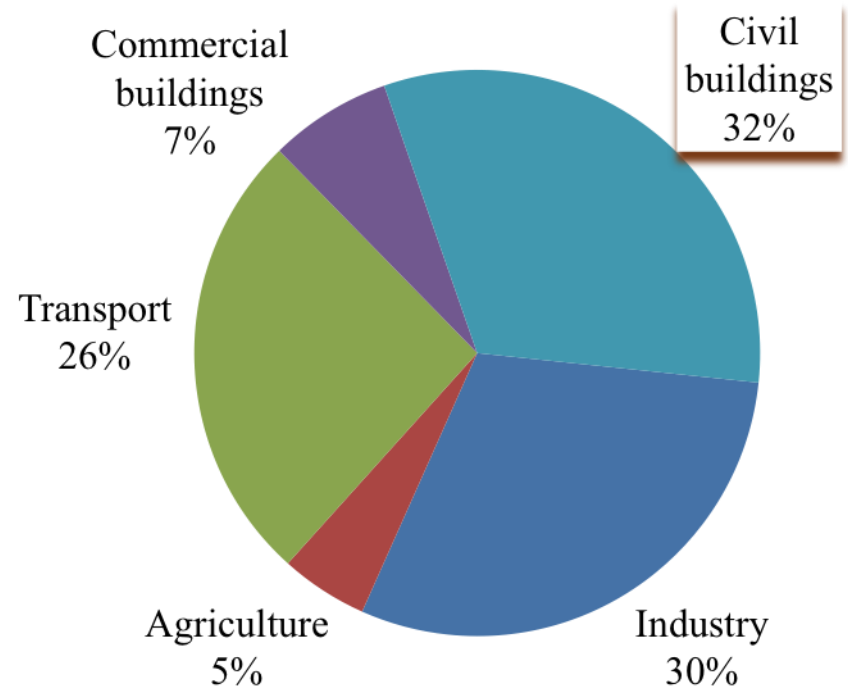


# ENERGY USAGE



Energy utilization in categories 2014

\* Source: Hanoi Energy Conservation center

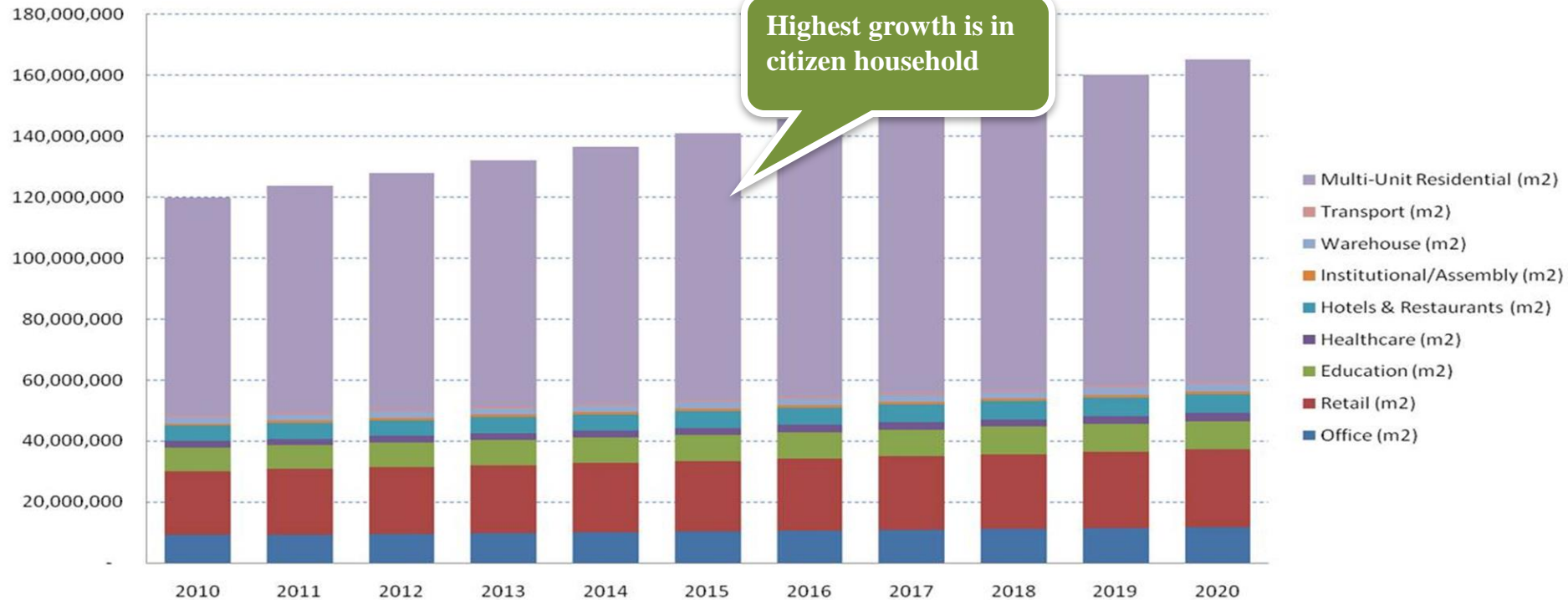


CO2 emission rate by categories in 2014

\* Source: Hanoi Energy Conservation center

- ❖ Energy utilization and CO2 emission in civil and commercial building area account for large percentage (**43%**).
- ❖ Electric power consumption (kWh/person/year):
  - + *Hanoi City: 1.388 in 2010; 3.700\* in 2020.*
  - + *Cities in ASEAN area: 4.000-22.000.*

## Building Stock Projections, Vietnam in square meters



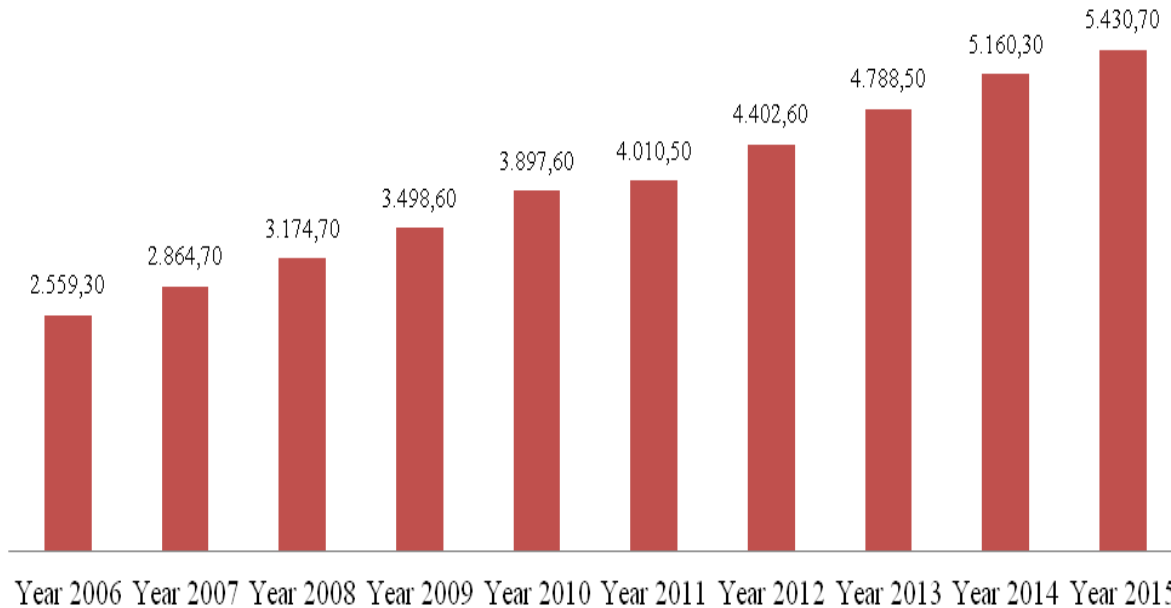
- In recent years, total building area in average, which was built in Hanoi City, is around 200.000 – 250.000 m2/year. \*
- Office, hotel, supermall areas have high increasing rate as well, the highest rate is in citizen households

\* Source : Ministry of Construction



# Energy consumption in Hanoi city from 2006 to 2015

■ Energy consumption in Hanoi city (kTOE)



- **Fast urbanization rate is one of the causes that lead to increase energy utilization:** Energy utilization has increased more than 50% from 2006 to 2015 ( in 2006: 2.559,30 kTOE; in 2015: 5.430,70 kTOE)

## - **Energy saving potential in building construction in Hanoi:**

+ New building projects, apply energy saving solutions early from the start can save 20 – 30% \*

+ For existing buildings are energy audits, if the implementation of solutions in the energy audit report to reach the goal saving 15 – 25% \*

\* *Source : Ministry of Construction*



# LIMITATION IN ENERGY EFFICIENCY

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM  
QCVN 09:2013/BXD  
**QUY CHUẨN KỸ THUẬT QUỐC GIA  
VỀ CÁC CÔNG TRÌNH XÂY DỰNG  
SỬ DỤNG NĂNG LƯỢNG HIỆU QUẢ**  
NATIONAL TECHNICAL REGULATION ON ENERGY EFFICIENCY BUILDINGS

State's document system require energy saving in building projects has not widespread



Lack of Engineering expertise workforces project consulting workforce about energy saving and recycling energy.

## 1. Lack of energy utilization strategy to develop city

Not familiar with recycling energy and energy saving equipment



## 2. Workforce

Energy management in building lack of training, skills





Finding financial supporters to promote energy saving to difficulty in exist buildings



The administration building is not uniform and science, lack of management tools

### 3. Policy enforcement

### 4. Constructions management

New building project can not apply QC 09-BXD policy, satisfy green-project standard  
*(QC-09 BXD: technical codes nation in construction)*



The authorities have no incentives to apply QC-09 in new building projects or renovation projects.



## 5. Material, equipment, technologies using saving- efficiency energy

Low rate of business  
change to saving energy  
equipment and  
technologies, Not  
widely popular

The device and material has  
not been standardized





# SOLUTIONS TO IMPROVE EFFICIENCY IN ENRGY

1

Recycling energy into city development project in Hanoi

2

Ensure new projects follow QC 09-BXD policy, develop, apply design and calculation energy saving tools for each type of constructions (EDGE)

3

- ❖ Training sessions to enhance engineer expertise skills, consulting staffs about energy saving in companies, states .
- ❖ Building training center to manage energy in Hanoi, improve energy saving in business.



# SOLUTIONS TO IMPROVE EFFICIENCY IN ENRGY

4

- ❖ Support business in building investment capital which can satisfy green projects follow QC 09-BXD standard.

5

- ❖ Create technologies transformation market in saving energy, high productivity equipment: ENTECH HANOI FAIR, ESCO SERVICE.....
- ❖ Encourage consumers using saving energy products

6

- ❖ Increase in cooperation, exchange knowledge with other countries to reach stable development , especially in South East Asia and Asia.





*Thank you for attention !*



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