



UCTEA

TURKISH CHAMBER OF CIVIL ENGINEERS

URBAN MANAGEMENT

URBAN INFRASTRUCTURE AND NETWORKS

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PRESIDENT OF THE TURKISH CHAMBER OF CIVIL ENGINEERS

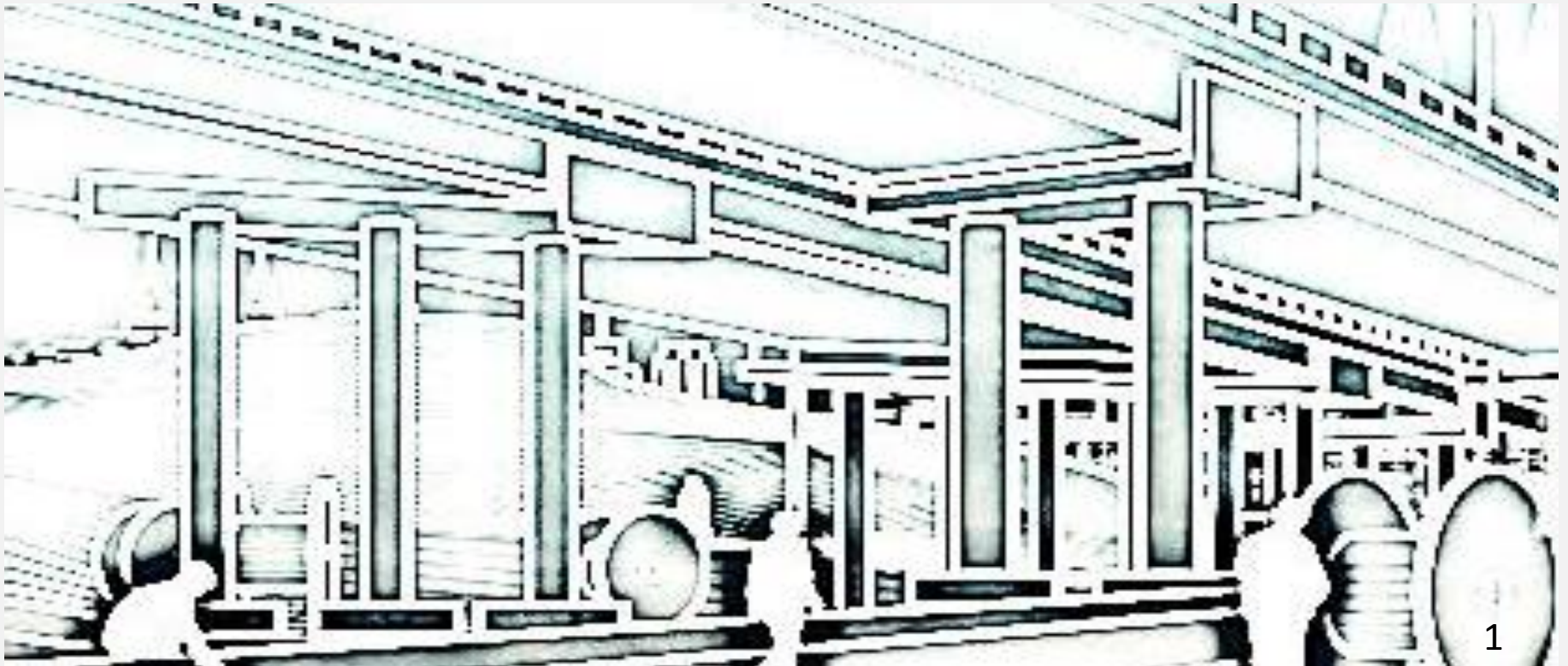
26 September 2019-Lisbon/Portugal

1-Introduction

There is an increasing climate change and a serious ecological degradation in our globalized world.

This makes the relationship between urban planning and urban infrastructure even more important.

Risks created by new technological structures are added onto risks arising from earthquakes and similar natural events.



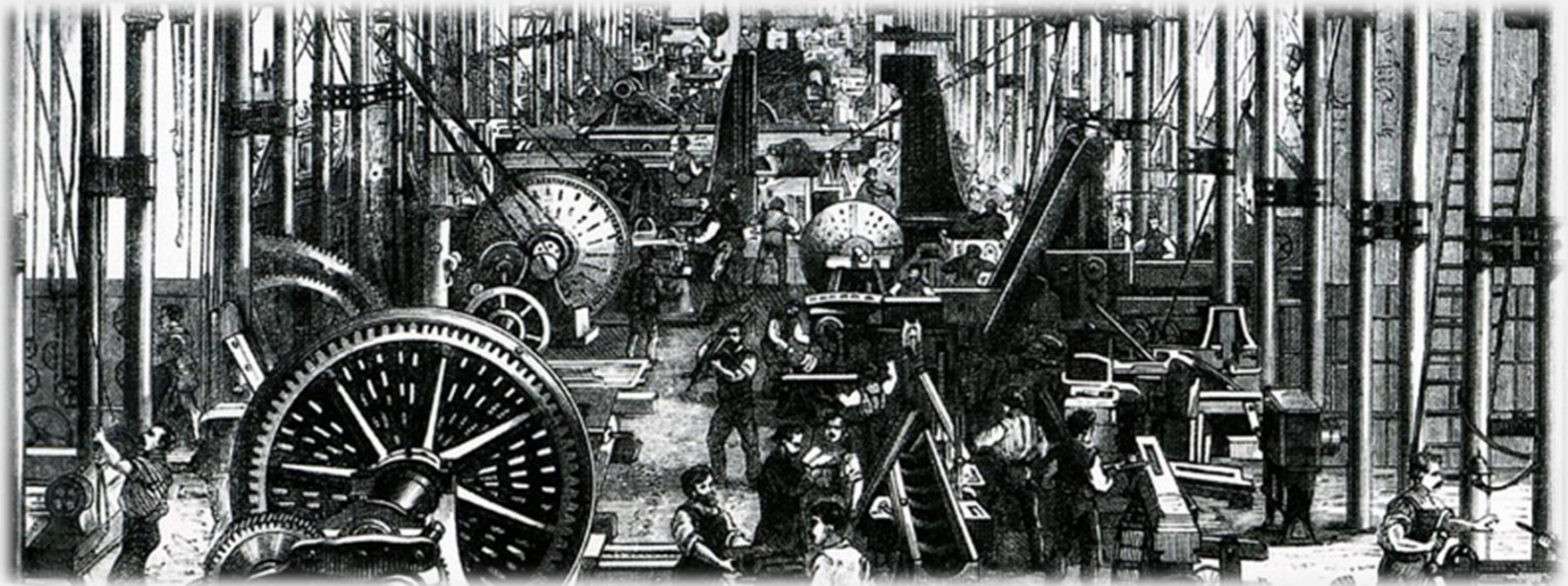
Therefore, it is necessary to deal with and evaluate the relationship between sustainable urban planning and urban infrastructure management as a whole.

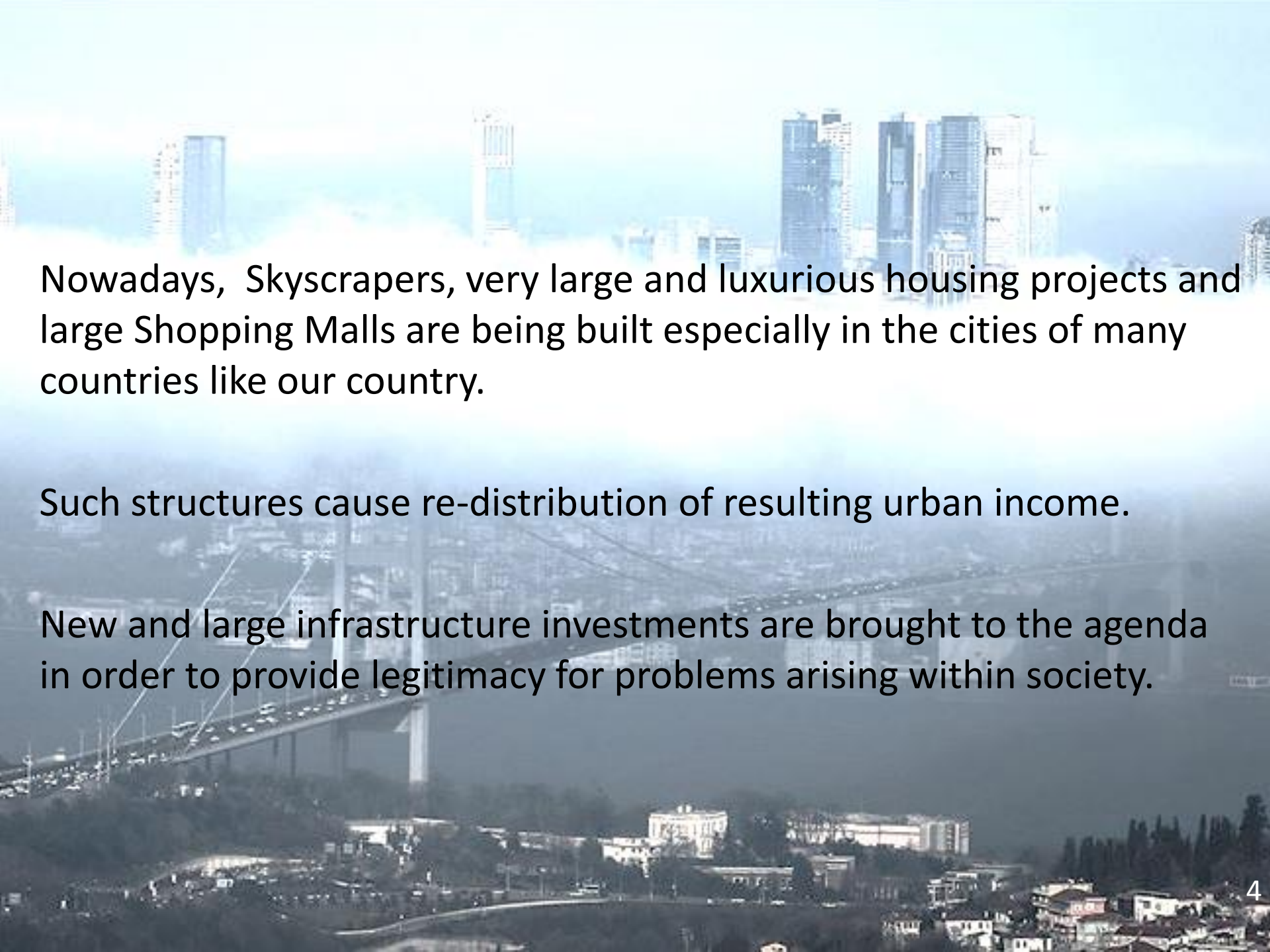
The countries shall produce «developing policies» on what kind, how much, where and which quality of infrastructure to be constructed.



Countries have planned their development processes by considering urbanization, industrialization and the infrastructures of both while planning development processes after the **Second World War**.

Having limited Money (developing countries) such as Turkey used their sources in different areas of priority..





Nowadays, Skyscrapers, very large and luxurious housing projects and large Shopping Malls are being built especially in the cities of many countries like our country.

Such structures cause re-distribution of resulting urban income.

New and large infrastructure investments are brought to the agenda in order to provide legitimacy for problems arising within society.

Attempts are being made to eliminate the negative effects of society against Administration Authorities through investments such as airports, bridges and tunnels.



2-What is Infrastructure?

It can be said that they are physical structures provided by public or semi-public organizations to facilitate the living way of community, ensure that they live in a healthy manner and to produce all kinds of services needed.



The concept of urban infrastructure; is addressed as representation of a whole, covering the supply and distribution of healthy drinking water, waste water and sewage, solid waste collection, recycling and treatment, urban transportation, energy distribution, communication and etc., services, as well as the planning and management of such services, and establishment, operation and renewal of necessary facilities and networks.

Especially in the developing countries, issues such as planning, settlement and urbanization, management, economic development and etc., are also seen as a continuation of regional income inequalities and together with urban infrastructure inadequacy, they affect urban life significantly.

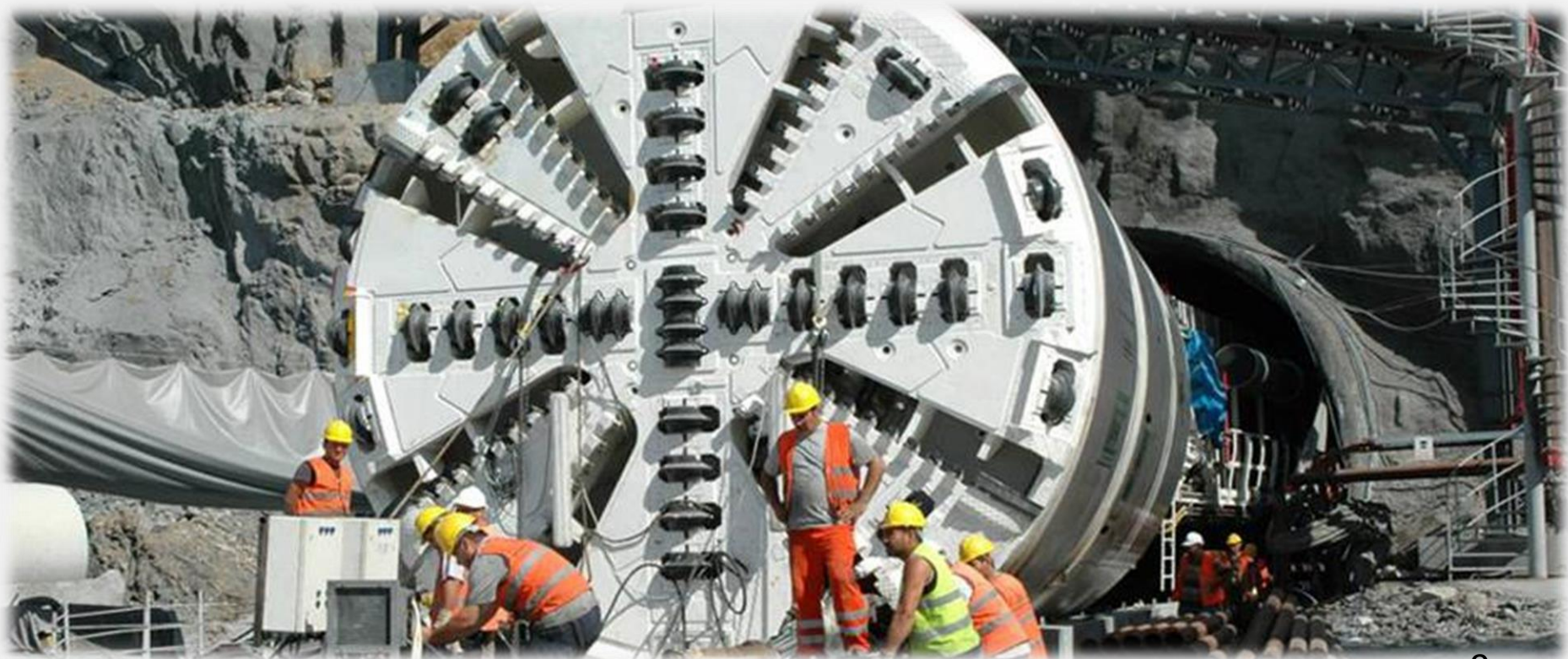
While the infrastructure of ancient times was road, drinking water, sewerage and amphitheater, advances in engineering technologies have increasingly diversified infrastructure systems like;

Railway systems such as trains, trams and subways have been constructed. In addition, electricity, gas, natural gas, telegraph, telephone infrastructure systems and airports were constructed.



Diversification and growth of urban infrastructures; **supported by large electro-mechanical systems.**

The development of mechanical systems has led to the delivery of infrastructure even where it is impossible to build infrastructure.



Although the integration of such negative and unsuitable places into urban plans is a result of improvements generated in the infrastructure systems by engineering and technological progress, it also creates an important problem that the country and city Administrators put in front of the city people.



Developments in engineering technologies have brought new opportunities to the city people and the city administration.

City administrations should be fair and egalitarian.

Income sources should be used correctly.



3-Urban Management –

Infrastructure and Technological Developments

In the early 1900s and later in the industrialized western cities, the population increased considerably.

This situation caused air pollution and epidemics. However, these problems were solved with the new infrastructure system.

Developing transport infrastructure has accelerated migration from rural areas to cities and other countries.

This problem happened in the past only in the cities of western countries but it happens today, in the cities of developing countries such as Turkey. **Our cities such as Istanbul, Ankara, Izmir, Bursa and Adana can be examples of this situation.**



Migration from city centres to suburbans and opening of new residential areas brings new infrastructure investments to the agenda..

In this case, Urban trips between work and house increased and construction of infrastructures for water, electricity, sewage, fire brigade, storm water collection channels, treatment, education and public health became prominent.



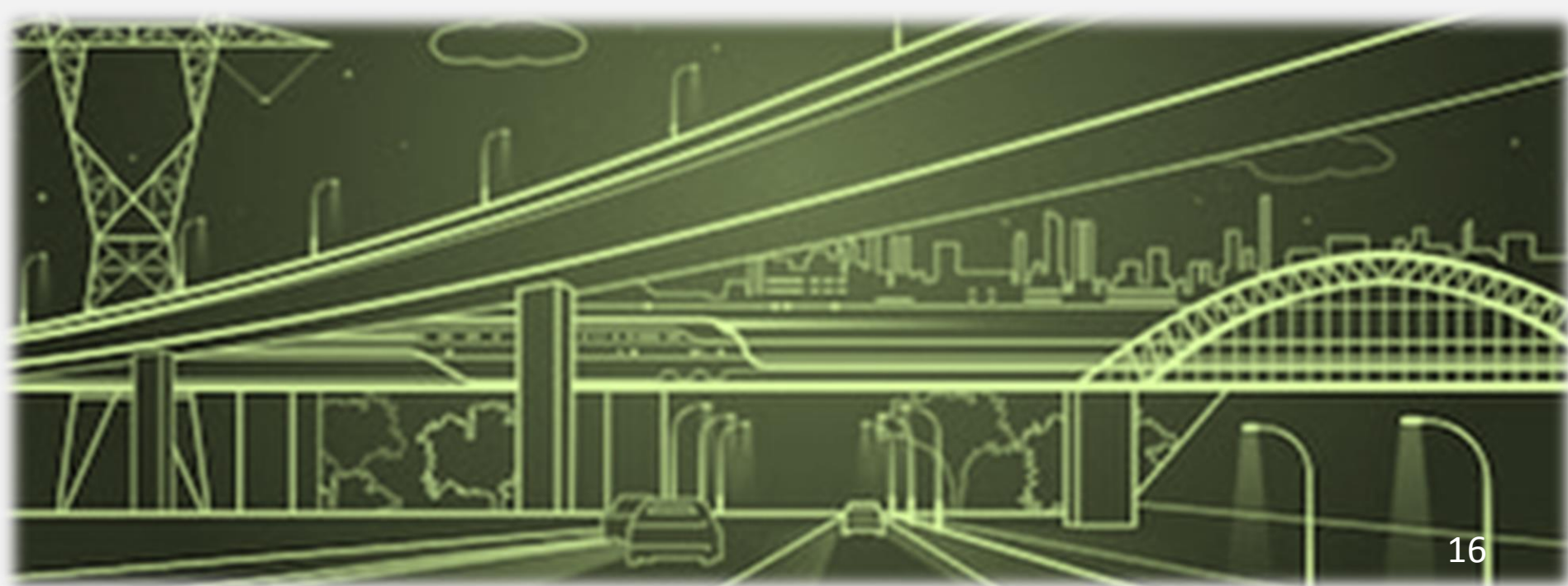
Infrastructure investments have a public feature. In any case, infrastructure investments must be of public interest.

The main feature of the production of goods and services here, is that it is consumed together by the people of the city after it is produced.



Urban infrastructure services are evaluated under two categories, including physical infrastructure and social infrastructure.

a) Physical Infrastructure: These are networks such as transportation, sewage, drinking and potable water, electricity, telephone, natural gas, park and green areas and etc. These networks do not lead to additional cost for urban management and urban citizens. Energy, transport, water and etc., technical infrastructures provide direct input to economic production processes.



b) Social Infrastructure: The main social infrastructure is education and health services.

NOTE: The technical and social infrastructures in a city have to be in close relationship with each other. However, in recent years, “urban transformation applications” in our country have created new infrastructure problems in urban centers.



4-Urban Population and Infrastructure Relation

- ✓ Advanced technical and social infrastructures in cities significantly increase the population accumulation in centres.
- ✓ The distribution of the infrastructure in the physical space in the cities can be networked or dotted..
- ✓ The existence of infrastructures accumulates the population within a certain area.
- ✓ As the population increases in cities, infrastructures begin to diversify.
- ✓ As the infrastructure diversifies, the population increases.
- This trend is becoming stronger in the globalizing world.



Developments reveal that the world's population will gather in a small number of large cities.

In the past years, it was the *geographical superiority* that made a settlement “the centre of attention”.

Today, *the diversity and quantity of infrastructure services* provided by historical accumulation is becoming a centre of attraction.



Communication satellites have eliminated the relationship between infrastructure and space on earth, and as a new situation, it has been reflected in urban and human life.

The moving of the communication satellite to space has brought the concept of infrastructure from the earth into space.



The globalization and dissatisfaction of the liberal capitalist system has removed the land use and construction processes of cities from plan integrity. Urban infrastructure is increasingly seen as a routine investment process.

In countries such as Turkey, infrastructure issues considered in two main rings as; **priority investments and non-priority investments.**

Roads, water and electricity were seen as priority infrastructures, while others were often neglected.



5-Establishment of Policies on Production of Urban Plans and Infrastructure

A rational calculation is needed when determining the construction prices of infrastructure investments.

The creation of a low-quality and unreliable infrastructure system brings greater costs to cities.



It is obvious that there is a close relation between urban infrastructure and urban planning. If there is a harmony between these two plans, there will be no problems encountered in the city.

However, infrastructure seems to be a continuous problem for developing countries such as Turkey.

The first is; the rapid population growth and migration to urban areas.

And the second is; the applications made are different from plans for development of cities.



There is a construction issue within both local and central administration that will increase the density of buildings together with storey heights.

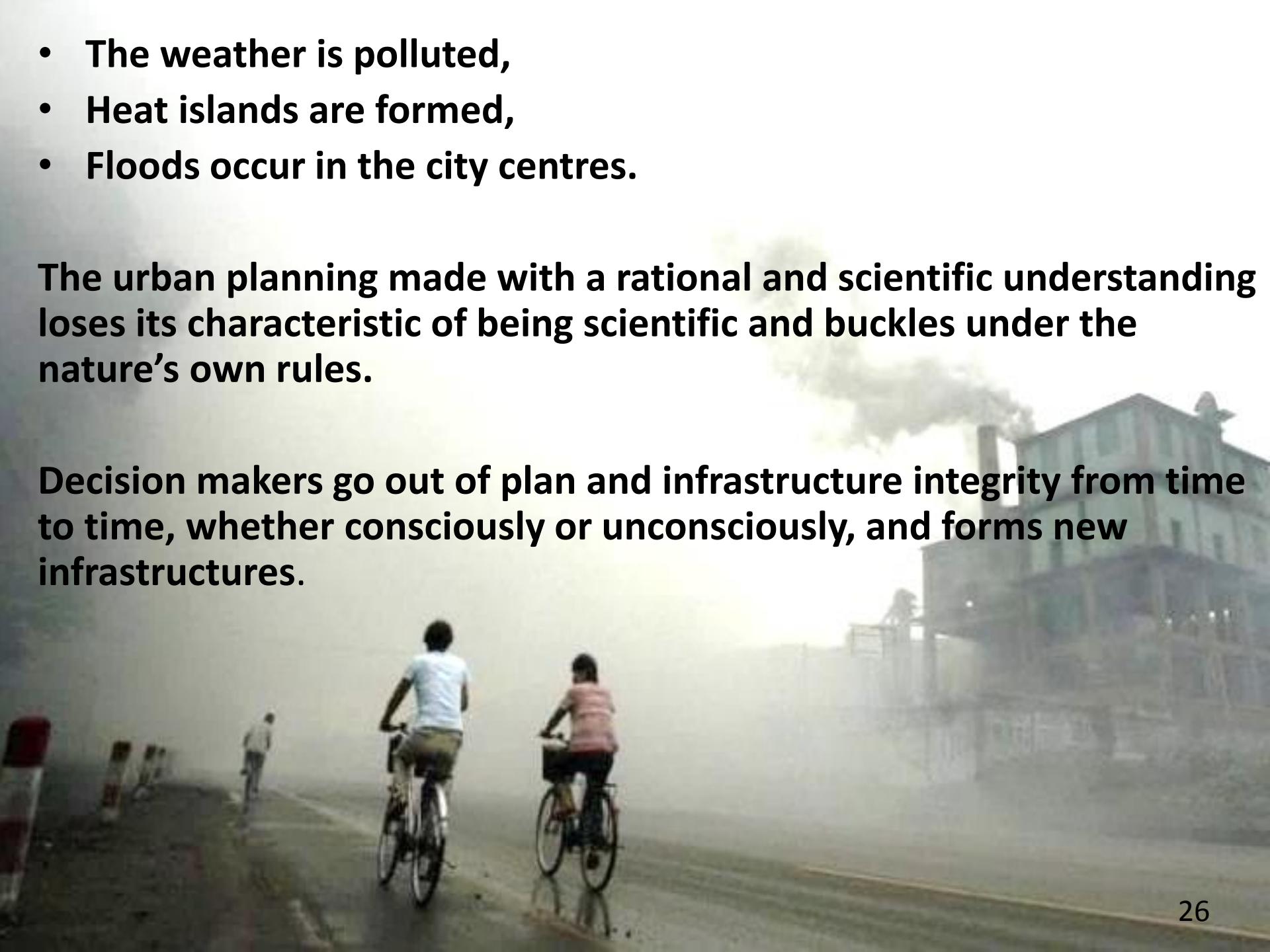
Local governments face with high infrastructure expenditures due to these two situations.



- **The weather is polluted,**
- **Heat islands are formed,**
- **Floods occur in the city centres.**

The urban planning made with a rational and scientific understanding loses its characteristic of being scientific and buckles under the nature's own rules.

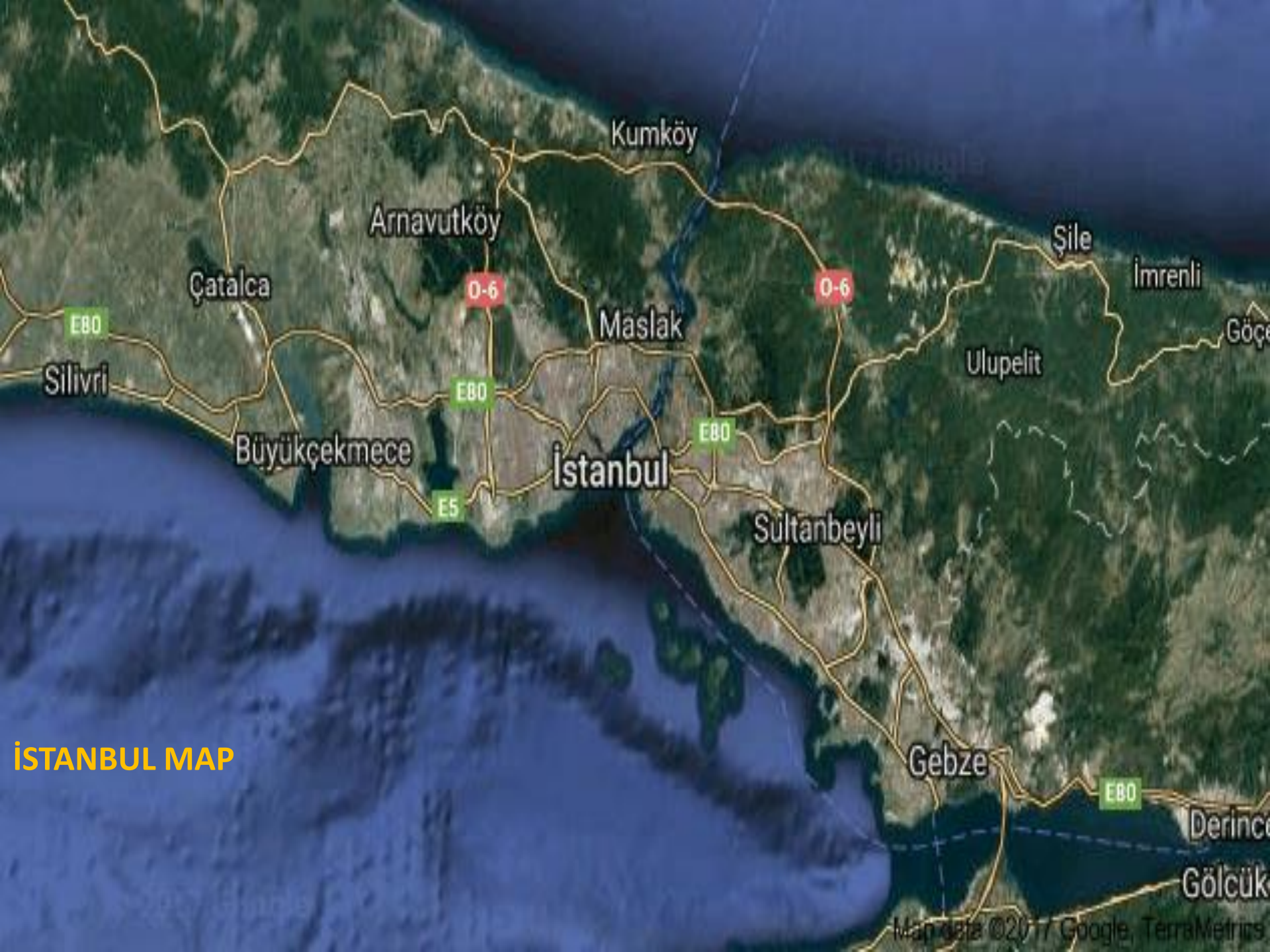
Decision makers go out of plan and infrastructure integrity from time to time, whether consciously or unconsciously, and forms new infrastructures.



On a route where there is no heavy traffic demand, new traffic is drawn to the road **by raising the road standard.**

Roads and bridges are built in places close to the city centers cause new construction areas that should not be built.





Kumköy

Arnavutköy

Çatalca

Silivri

Büyükçekmece

İstanbul

Maslak

Sultanbeyli

Şile

İmrenli

Göçmen

Ulupelit

Gebze

Derince

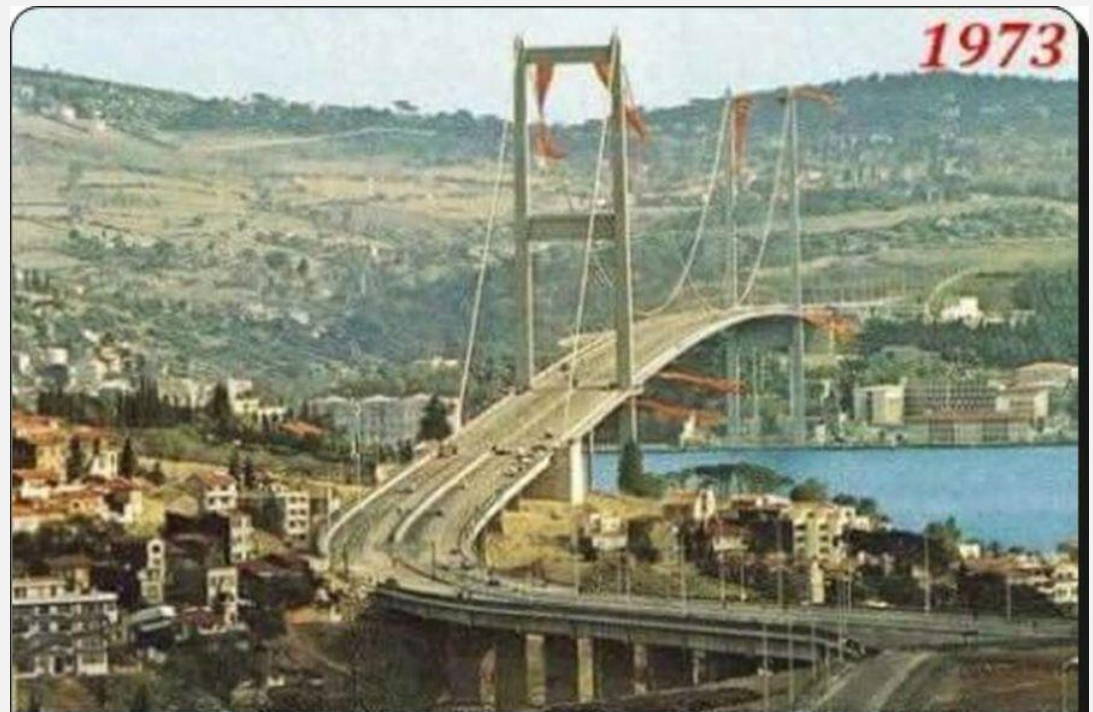
Gölçük

İSTANBUL MAP

Istanbul;

The construction of the 1st Bosphorus Bridge on the north of Istanbul, which was planned to expand on the East-West axis, led to the expansion of Istanbul towards the north. Again the 2nd Bosphorus Bridge caused Istanbul to grow further north.

The **northern forests** and **water basins of Istanbul** were opened to new construction in an uncontrolled manner.



Again, the 3rd Bridge on the Bosphorus and the 3rd Airport constructed at the north of Istanbul revealed that this region would be under a pressure of large scale construction.



Of course, we can manage the development of city in terms of how and in which direction it will be carried out via infrastructures.

This can be done as a strategy of the “Provincial Environmental Plans”(PEP). Obviously, the use of infrastructures to direct urban development is particularly important when making strategic urban plans.

The citizens trying to live within legal and administrative boundaries are paying the price for problems caused by decisions, leading to unfair settlement based on illegal or political power.



6-Consequently

When city plans and urban infrastructure plans are made, the citizens should participate in the planning process via their city representatives.

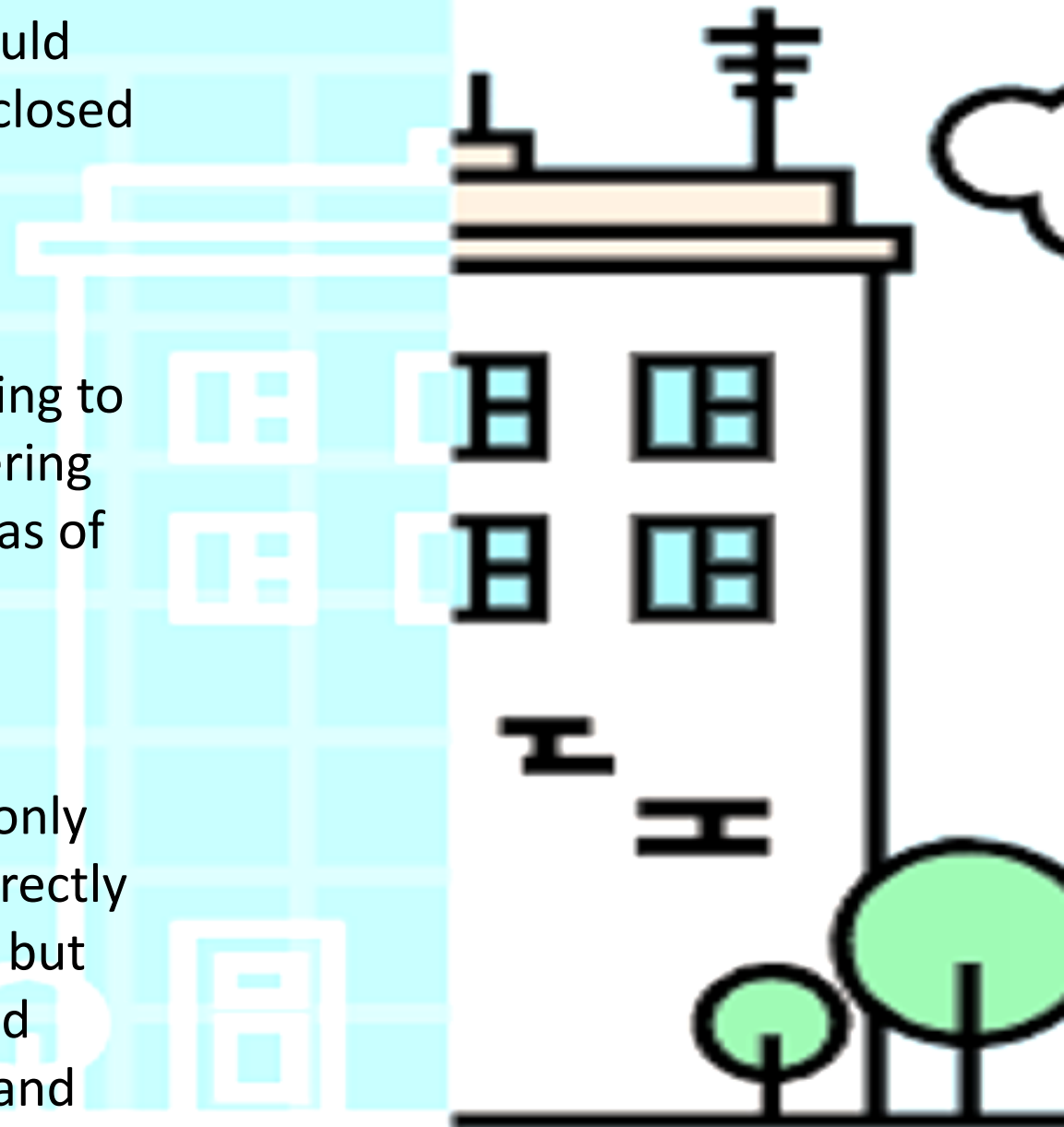


Especially, when the “**Provincial Environmental Plans(PEP)**” that are accepted as the **Constitution of Cities** are prepared, the **Professional Chambers**, science and knowledge people, **Universities**, lawyers, doctors, social scientists and everyone who can be involved in the planning process should take part in the discussion process. It can be said honestly that it is a “**multi-disciplinary task**” to make urban plans and urban infrastructure plans. It is also important to manage these plans as well.

It is not the best way to impose infrastructure plans that would create problems by staying closed to a participatory planning process, as an engineering understanding.

This is the worst possible thing to do against different engineering disciplines and different areas of expertise.

Urban planning, urban infrastructure and urban management practices can only be guided and managed correctly not through daily decisions, but through the contribution and participation of knowledge and expertise.



Therefore;

- Are there regional institutions in the planning hierarchy to make, practise, monitor and evaluate plans at the regional level and who are engaged to constitute?
- What is the capacity and training level of local governments in planning, implementation and supervision?
- Are mechanisms for participation in urban management functioning?
- How does the relation between city and legal system work?
- Does community have a continuous involvement in the planning and implementation processes?
- Is there an understanding of organization at the district - area level and ownership at the local scale, and if so, how does it work?

The answers to these questions should be sought!!



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THANK YOU!!

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