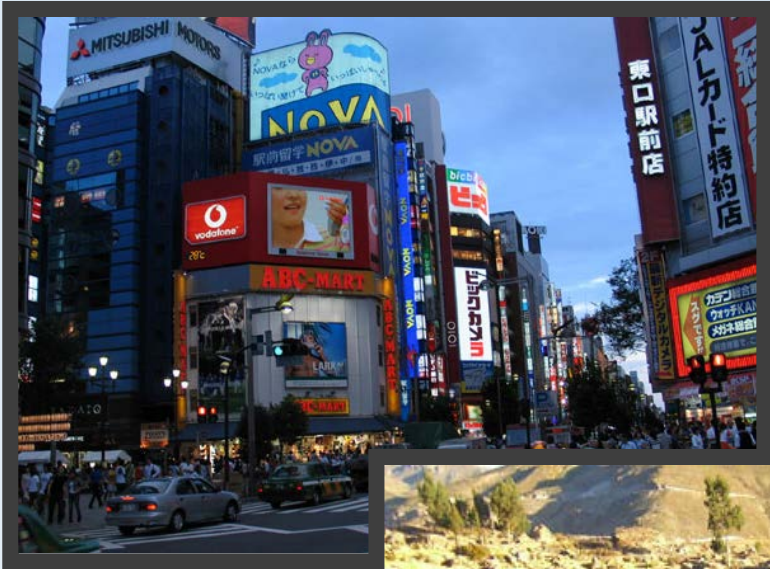# Infrastructure

Global Connect
University of California, Irvine

Standard of Living & Infrastructure
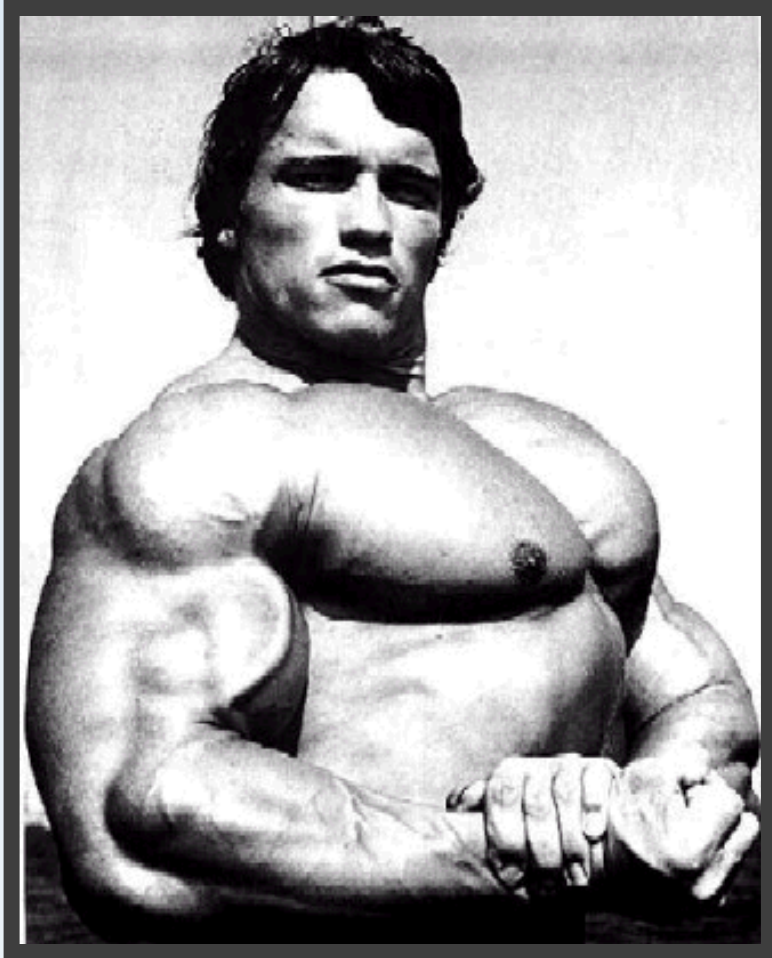
What is Infrastucture?

Infrastructure is the **FOUNDATION** upon which societies are built. The state of a nation's infrastructure determines what is **POSSIBLE** for that nation to achieve.

Infrastructure is:

• the basic physical and organizational structures needed for the operation of a society or enterprise

• the services and facilities necessary for an economy to function.

Two Types of Infrastructure

Physical

Non-physical

Physical Infrastructure

1. Transportation

2. Utilities

3. Communication technologies

Transportation

Land

Examples: Roads, Railways, Mass Transit

Air

Examples: Airports, Air navigational systems

Sea

Examples: Canals, Harbors, Seaports

Importance of Transportation Infrastructure

Trade: Moving people and goods

- Example: Kazungula Ferry: Zambian/Botswana border

Security/Disaster Relief

- The US interstate highway system's official name is the Dwight D. Eisenhower National System of Interstate and Defense Highways

- Paris was planned to help the French government deal with frequent insurrections

Utilities

Energy

Examples: electrical power grids, powerplants (wind, solar, coal, nuclear, water), gas and petroleum pipelines, refineries

Water

Examples: wastewater treatment plants, water reservoirs.

Waste Disposal

Examples: sewage system, garbage disposal

Importance of Utilities

1.1 billion people in developing countries have inadequate access to water, and 2.6 billion lack basic sanitation.

This means that:
3.5 million people die each year from water-related disease; 84% are children.

Millions of women and children spend hours every day collecting water. This is time not spent working at an income-generating job, caring for family members or attending school.

443 million school days are lost each year due to water-related illness.

Communications

- Telephones (land lines, mobile networks, etc.)

- Television

- Internet

- Satellites

- Postal Service

Non-physical Infrastructure

Legal

Financial

Healthcare

Education

Social Welfare

Legal System

Establishes the Rule of Law:

People need to believe that the law matters and are enforced

Examples:

- Courts

- Correctional system

- Law Enforcement

Healthcare System

Clinics, Hospitals (Physical)

Personnel (Non-physical)
- Doctors
- Nurses
- Health practitioners

Health technology
- MRI
- CT Scans
- Pharmaceuticals

Financial System

- Banking System

- Monetary System

Educational System

School Buildings (physical)

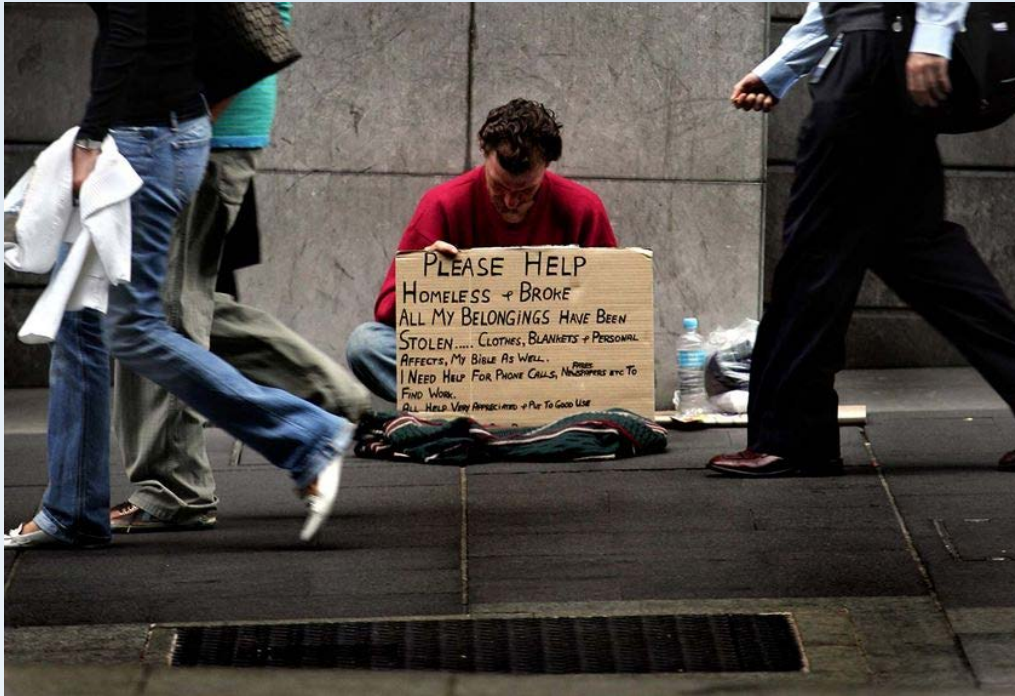Personnel (non-physical)
- Teachers, Administrators

Instructional needs
- Textbooks, Computers, Boards, Paper

Social Welfare System

Welfare Services
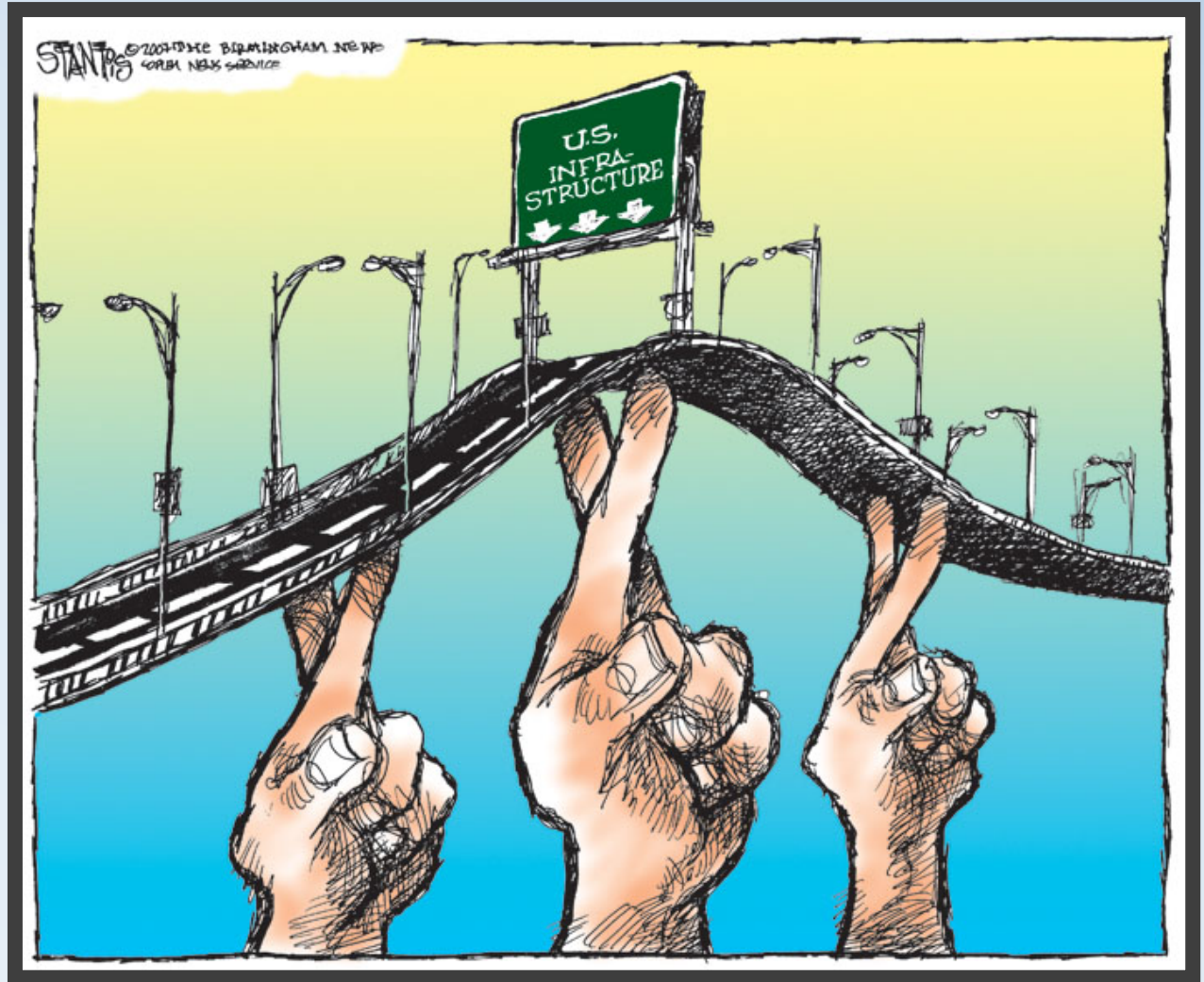
Unemployment Benefits

Difficult Decisions

- Scarcity: There is a limited amount of money and resources that can be allocated

- Countries must prioritize its infrastructure needs

- What happens when a country doesn't keep investing in its infrastructure?

American Infrastructure

What do you think this image means?
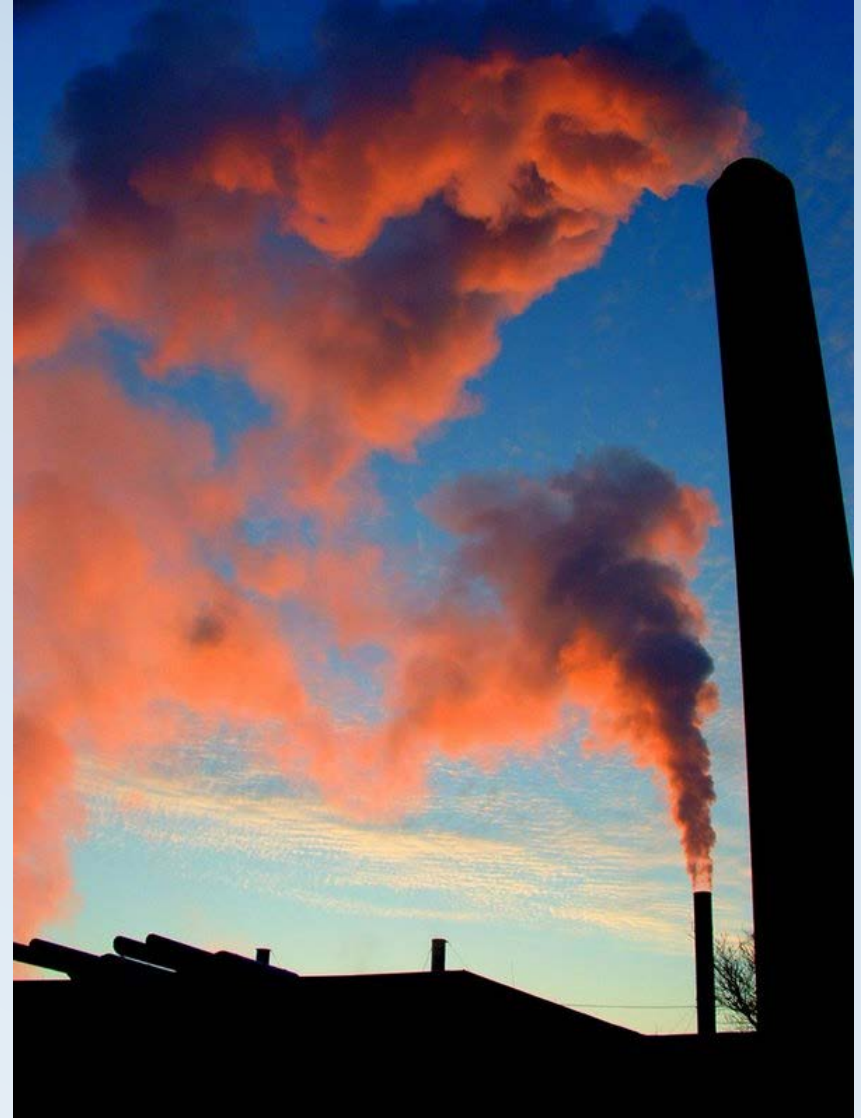
2017 Report Card

- The American Society of Civil Engineers (ASCE) gave American infrastructure a D+ in their annual report card

- What if you brought home a D+ on your report card?

Changing Infrastructure for Changing Societies

What would change infrastructure needs?

1. Technological innovation

2. Population growth

3. Changes in the economy (sectoral shifts, industrialization)

Shanghai, China 2017

Shanghai, China 1990

Orange County, California

1967

2017

Orange County, California

When did these Orange County locations become incorporated?

- 1886: Santa Ana

- 1906: Newport Beach

- 1953: Estancia

- 1965: UC Irvine

- 1971: Irvine

- 1991: Laguna Hills

Orange County Population:

1960: 703,925   2015: 3.17 million

O.C. population