Infrastructure

Global Connect | University of California, Irvine
What is Infrastructure?

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
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?
2013 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?

Grade Sheet: Previous Grades

The concept of a report card to grade the nation’s infrastructure originated in 1988 with the congressionally chartered National Council on Public Works Improvement report, Fragile Foundations: A Report on America’s Public Works. When the federal government indicated they would not be updating the report after a decade, ASCE used the approach and methodology to publish the first Report Card on America’s Infrastructure in 1998. With each new report in 2001, 2005, 2009, and now 2013, the methodology of the Report Card has been rigorously assessed so as to take into consideration all of the changing elements that affect America’s infrastructure.

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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 2010
Shanghai, China 1990
Orange County, California

When did these Orange County cities become incorporated?

- 1886: Santa Ana
- 1906: Newport Beach
- 1953: Estancia
- 1964: UC Irvine
- 1971: Irvine
- 1991: Laguna Hills

Orange County Population:

1960: 703,925    2012: 3,055,745