CPH601 Chapter 8 Human Settlement and Urbanization

David M. Mannino
Human Settlement and Urbanization

David Mannino, M.D.
Odds and Ends

- Spring break
- Mannino’s Schedule
- Izzy’s Schedule
- Outline
Change One Woman's Life: Fistula Foundation
Saturday, March 9, 2013 12:00 PM - Saturday, March 9, 2013 2:00 PM

**Cost**
$10

**Categories**
Fundraising

**Location**
E. S. Good Barn
1451 University Dr
Lexington, Kentucky

**Room:** Gorham Hall

**Website:**
Change One Woman's Life: Fistula Foundation on Facebook

**Event Contact Info**
HaReG
Email:
heba222@uky.edu
Sponsor:
SNDA

**About Event**
Enjoy delicious food from various countries and performances by talented individuals, while supporting a great cause. While mourning the loss of their unborn babies, these women are often abandoned by their husbands and ostracized by their communities because of their inability to have children. A fistula surgery is only $450. Just that amount can literally change a woman’s life and future. Please join us for this special event.

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**Map**

[Map of the location]
Outline

• Human Settlements
• Housing and Health
• Urbanization
• Urbanization and Health Issues
• “Healthy Homes” and “Healthy Cities”
• Environmental Justice
Human Settlement

- Basic Ecosystem Needs
  - Water
  - Vegetation/Trees/Food Source
  - Soil Preservation
  - Sustainable conditions for Wildlife
  - Infrastructure for Human Survival, economic development, etc.

- Healthy Urban Ecosystem needs:
  - Human health
  - Social health
  - Quality environments: built & natural
  - Biotic health: diversity
  - Ecological footprint
Calculate your ecological footprint.

Many animals build homes:

- Paper wasps
- Prairie dog towns
- Chimpanzee leaf-and-stick shelters
Human Settlement

• The Natural Environment
  • Air
  • Water
  • Soil
  • Vegetation
  • Wildlife

• The Built Environment
  • Housing
  • Water supply
  • Transportation
  • Sewage system
  • Other facilities
Shelter requirements

• Protection from dangers
  • hot, cold, rain/snow, wind, wild animals, etc.
  • natural disasters: hurricanes, monsoons, tidal waves, sandstorms, tornadoes, blizzards, earthquakes, etc.
• Safe and permanent supply of water and food
• Household energy: cooking, heating, lighting, etc.
• Waste management: sewage, solid wastes
• Community developments
  • clean and safe ambient environments
  • transportations
  • other civic amenities: education, health care
“Traditional” or “Vernacular” Housing

• **Advantages**
  - Local materials
  - Built by owners
  - Low energy costs
  - Well adapted to specific environment
  - Smaller environmental impact

• **Disadvantages**
  - Can be pest ridden (more open than modern homes)
  - Some natural materials decay quickly
  - Low status
Problems of Modern Buildings

- “Sick Building Syndrome”
  - Inadequate ventilation
  - Modern construction materials
  - Toxins in the home
    - Home employment
    - Cleaning agents
    - Hobbies
  - Shared air space
    - “Dry” cleaners, Second hand smoke
Sick Building Syndrome (SBS)

- Nasal and Sinus problems ("allergies")
- Headaches
- Fatigue/drowsiness
- Eye Irritation
- Asthma/Chest tightness
- Rashes
Poor Housing and Communicable Diseases

- overcrowding
  - easy transmission of contagious diseases, e.g. TB
  - repeated exposure
- inadequate sunlight and ventilation
  - higher concentrations of pathogens
- un-hygienic, poor-quality housing
  - breeding grounds for many insect vectors carrying diseases
Housing and Accidents & Toxic Exposures

- house poorly designed/maintained
  - easily collapse under environmental influences
  - houses in poor repair are especially dangerous for children and elders: un-safe stairs, uneven floors, unprotected fireplaces, etc.

- fire & smoke hazards
  - poor designed fireplaces, lack of ventilation
  - pollutants: CO, particular matters, VOCs, etc.

- toxicants:
  - paint (lead)
  - household cleaning chemicals not stored properly
  - toxic construction materials and furnishings, e.g. formaldehyde, asbestos

- cigarette smoking
- home industries
Poor Housing and Psychosocial Stress

- Crowding
- Poverty
- Unsafe neighborhoods
- Lack of green space
- Noise and urban pollution
In 1851, a boy born in inner Liverpool had a life expectancy of only 26 years, compared with a boy born in the small market town...who could expect to live to 57.

London's 'Great Stink': The Sour Smell of Success By Professor Martin Daunton
Features of Housing that Prevent Disease

- Safe water
- Sanitation
  - Excreta
  - Trash
- Adequate ventilation
- Screening
- Food Storage
- Fire control
- Adequate space

- Typhoid, Cholera
- E. Coli, Salmonella
- Metals, toxics
- Respiratory disease
- Malaria
- Malnutrition
- Burns
- Tuberculosis, Meningitis
Assess Quality of Housing – The DPSEEA Model

- **Driving force**
- **Pressure**
- **State**
- **Exposure**
- **Effect**
- **Action**

- **War – migration**
- **Crowding**
- **Contamination of water**
- **Cholera**
- **Diarrhea/Dehydration**
- **Improve water sources, sanitary facilities, & education**
Urbanization

Figure 8.1 Urban population growth, 1950–2025. From UNDP, 1995, with permission.
Urbanization Pressures

• “Pull”
  • Jobs
  • Education
  • Higher living standards

• “Push”
  • War
  • Famine
  • Natural disasters
  • Environmental crisis
Disadvantages in Rural Settlements

• Dependence on Primary Industries
  • agriculture
  • resource industries: mining, forestry, fishing
  • seasonal
  • economic instable
• Less developed & less convenient
• Social unrest related to the tension between land owners and resident farmers
• Conservative/Traditional Values
  • young people seeking change
• Preservation of environment VS making money from resource industries
Proportion of population living in an urban area (%) in 2010

50.1% of the global population was living in an urban area in 2009, up from 33% in 1960.

86% of the countries studied improved their overall under-five mortality rates in urban areas between 1990–1999 and 2000–2007.
Megacities - 2002
Urban “Slums”

828 million

urban residents live in slum conditions worldwide
“Sub”-Urbanization Pressures

- **Benefits**
  - Jobs
  - Better Quality of Life
  - “Family Friendly”

- **Problems**
  - Commuting
  - “Urban Decay”
“Re”-Urbanization/Gentrification

• Benefits
  • Repopulating inner cities
  • Urban renewal

• Problems
  • Displacement of “Urban Poor Communities”
  • Housing in Prior “Industrial” sites
    • Contamination
    • “Brownfields”
Urbanization and Health Issues

• Crowding
• Land Use/Zoning
• Waste Management
• Air Pollution
  • Motor Vehicle Traffic
• Traffic Accidents/Trauma
• Conflicts / crimes
• Noise and Nuisance
• Inactivity / Obesity
Healthy Homes

• Goals of a “House”
  • Regulate Temperature
  • Keep out Insects/Rodents/Pests
  • Protect from Rain/Snow/Sun
  • Protect from predators/hostile outsiders
  • Provide haven for safe social interactions
Homes – Potential Problems

- Infestations (rodents/insects)
- Deterioration (leaking roofs, etc)
- Toxins (lead, smoke, chemicals)
- Molds/dusts/allergens
- Temperature or humidity problems
- Catastrophic collapse (floods, tornadoes, fires, earthquakes)
Healthy Cities

• 12 key objectives for healthy urban planning
  • healthy exercise
  • social cohesion
  • housing quality
  • access to employment opportunities
  • accessibility to social and market facilities
  • local low-impact food production and distribution
  • community and road safety
  • equity and the reduction of poverty
  • good air quality and protection from excessive noise
  • good water and sanitation quality
  • conservation and decontamination of land
  • climate stability

Determinants of health and well-being in settlements

Fig. 1: Human ecology model of a settlement. 
*Source: Barton and Grant (2006).*
Healthy City Actions

• Actions for equity
  • access to a healthy physical environment
  • socioeconomic inequity

• Actions for supportive environments and sustainability
  • promote community interactions
  • green energy & energy conservation
  • city zoning / green space

• Actions for community involvement
  • community activities

• Actions for reorienting health services
  • improve health care facilities
  • education and self-help group facilitation
The Basics of Environmental Health

• Clean Air
• Safe and Sufficient Water
• Safe and Adequate Food
• Safe and Peaceful Settlements
• Stable Global Environment
Environmental Justice:

- Recent, since about 1980
- Convergence of civil rights movement and environmental movement
- Social and political movement
- Expanding, not going away
- Not always easy to define
Environmental Justice:

A social and political movement that attempts to identify, prevent, and remedy disproportionate impacts of exposures upon vulnerable subpopulations, especially among those characterized by race, ethnicity, income, tribal status, socioeconomic class, power status, and language.
EPA Definition of Environmental Justice:

Fair treatment and meaningful involvement of all people, regardless of race, color, national origin or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

-- 2008 RFP State E.J. Cooperative Agreement Program
Geographic placement of and proximity to environmentally degrading facilities and waste:

- Toxic waste sites
- Landfills, incinerators, sewage treatment plants
- Polluting industries
- CAFOs
Examples of environmentally degrading sources:

- Noise
- Hog farms
- Odor (CAFOs)
- Groundwater contamination
- Pesticide drift
- Ugliness: Mountaintop removal
- Surface mining: a.k.a. “strip mining”
- Or just about anything “NIMBY”
Not just disproportionate *exposure*, but rather, disproportionate *impacts*
CAFOs: An Issue of Environmental Justice

Consider:

- Geology, especially karst (limestone caverns, sinkholes, springs)
- Growth of “factory farms” producing animals, rather than small family farms
- Regulatory climate: setbacks, lagoon structure, nutrient management
RPI, Troy and PCBs

• RPI is a small, technical University in Troy, NY
  – It is a private school located on the top of a hill
• At the bottom of the hill are the citizens of Troy, NY
  – The citizens tend to be much less educated, poor and/or disabled
  – If the river floods they tend to be affected first
  – In addition, they typically cannot afford their healthcare
Environmental (In)Justice

- RPI called the “Castle on the Hill”
- RPI has NO buildings on the waterfront
- RPI is a transient population and most professors live either up the hill or in Albany
- RPI students tend to believe the neighborhood is “dangerous”
- RPI is not very involved in the surrounding neighborhood
Impacts and Responsibility

- When the citizens of Troy are exposed many cannot afford their healthcare
- Many suffer much more then if someone from RPI were exposed at the same level
  - A Troy citizen tends to enter into the healthcare system later (due to poverty and/or education)
- Should RPI have some responsibility for continually purchasing land that could have been used as homes?
  - Note, many opportunities such as Section 7 housing is located “down the hill” and would have been where RPI has been purchasing land for new buildings.