Urbanization and Sustainable Cities (Key to the Future?)

Urbanization – an increasing concentration of the population in cities and a transformation of land use and society to a metropolitan pattern of organization

Population in cities is increasing rapidly – growing at twice the rate as the total world population – with 90% of population growth expected to occur in less-developed countries, that’s a lot of people to add to already crowded, overtaxed infrastructures

- 1850 2% lived in cities
- 2000 half the world’s population lived in cities
- 2200 80% of world’s population
- 1900 = 13 cities had a population of more than 1 million, 2000 = 241, by 2050 = 500? With 75% of those in the developing world
- China expects to build 400 new cities, each with at least half a million people, in the next 20 years

Cities grow by
- natural increase (births) and
- Migration – push and pull factors
  - People move into the city both because they are “pushed” out of rural areas and because
  - They are “pulled” in by the advantages and opportunities of the city
    - Ex. China – Progress and growing middle class is only occurring in urban areas, rural areas still have not changed much

Crisis and an opportunity – if further urbanization is done well, cities may be healthy, enjoyable, even sustainable places to live. If not, if it is done carelessly and without planning, cities could cause greater environmental degradation than ever before

Why does this matter? Cities are both good and bad

Good
In cities, people can share water, energy, and waste management systems. If the 3 billion urban residents were spread out across the globe, their impact on water, wildlife, and soil would likely be far greater than it is today.
  - exchange of ideas
  - Women are more likely to be educated – helps to slow growth

Bad

For the Developing world
Huge, rapidly growing cities in the developing world often have appalling environmental conditions. Among the worst
  1) Air pollution
60% of Calcutta’s residents suffer from respiratory diseases linked to air pollution

- Lung cancer in Shanghai is 4-7 X higher than rates in the countryside
- Mexico City has the highest level of smog in the world

2) Inadequate or nonexistent sewers and waste disposal systems – Developing world rivers are often open sewers, big problem when you have a high concentration of people
   a. Only 35% of urban residents in developing world have satisfactory sanitation services
   b. Latin America – Only 2% of urban sewage receives any treatment
   c. Cairo – sewage system built 50 years ago for 2 million people, now 10 times the acceptable level of fecal bacteria for drinking and 3500 times the limit for swimming
   d. < 10% of India’s 3000 towns and cities have any water or sewage treatment
   e. Columbia – 125 miles downstream from Bogota on Bogota River, still 700,000 times the acceptable level of fecal bacteria for drinking and 3500 times the limit for swimming

3) Water pollution – resulting from above issues

4) Housing shortages – many live in slums or shantytowns with frightful conditions
   a. 20% of world’s population live in crowded unsanitary slums of developed world cities
   b. Sao Paulo – 1 million street kids
   c. 75% of Addis Ababa residents are in squalor
      i. Our cook had a nice place – and it was nothing to write home about

5) Traffic congestion – overwhelming congestion in the third world
   a. Loss of time – 3-4 hours – bad infrastructure
      i. Chaos corner
   b. Pollution – 20% of fuel consumed standing still
      i. Older, less efficient, poorly maintained cars

For the Developed world
Problems are generally associated with urban sprawl around the outskirts of the cities and decay and blight at the core.

-Sprawl – no universally recognized def but includes

1) Unlimited expansion into rural areas – outward expansion
2) Low density residential and commercial development
3) Leapfrog development
4) Dominance of freeways and private autos
5) Fragmentation of power among many small units of government
6) Lack of coordinated land-use planning – no centralized planning
7) High dollars spent on new infrastructures instead of improving old

All lead to
1) Loss of farmlands and open space
2) Traffic congestion – av. American spends 443 hours behind the wheel yearly
- Urban areas – as much as 1/3 of all land is devoted to cars
3) Air and water pollution – 2/3 of oil consumption by cars and trucks
4) Numbingly uniform housing tracts and shopping centers

**Key to future success and sustainable cities**
1) Smart growth – acknowledges urban growth, aim is to direct growth, make pleasant places to live with natural spaces for all to enjoy
   a. Some ideas
      i. Homes closer together with large green spaces for all to enjoy
      ii. Range of housing for different income levels
      iii. Mixed Zoning – places residents closer to work and shopping → leads to less reliance on cars
      iv. Public Transportation
      v. Seeks to protect natural areas – limits land use
   b. Great example – Portland – rigorously enforced an outward boundary on expansion- requiring that in-fill development occur first
      i. 1970-1990 pop. grew by 50% but the city only grew by 2%
      ii. Property taxes declined 29% - shared resources
      iii. Vehicle miles driven up only 2%
      iv. Air pollution – down 86%
   c. Contrast – Atlanta
      i. Urban sprawl increased land area 3-fold
      ii. Property taxes up 22%
      iii. Vehicle miles up 17%
      iv. Air pollution up 5%

2) New urbanism – attempt to recapture a small-town neighborhood feel in new developments – build charming, walkable, integrated developments

   Some ideas
   a. Limit city sizes to 30-50000 to encourage a community feel
   b. Greenbelt of agricultural or recreational land around city
   c. Determine in advance where development will take place – recognizing unique historical or ecological areas
   d. Locate everyday shopping close to residents
   e. Offices and jobs integrated closeby
   f. Housing superblocks – more efficient use of space, large arterial roads with small inner avenues

While new urbanism has promoted livable, more environmentally friendly developments, they have still largely been Greenfield developments – projects built on previously undeveloped land

Also usually still far from work for most residents, which reduces car independence
3) Green urbanism – redevelop existing cities to promote ecologically sound practices

General Strategies
1) Brownfield development – building on reclaimed industrial or blighted land
2) High density, attractive, mixed income housing near the city centers or close to public transportation hubs
3) Incentives for alternate transportation – shared cars
4) Ecological building techniques – green roofs, passive solar energy, water conservation system, solar water heating, wind turbines, low energy appliances
5) Co-housing with shared green spaces, childcare, gardening, etc.
6) Recycle

Examples
b. European cities have particularly embraced this approach – small satellite hubs connected to the city through commuter rail
c. Germany requires that half of new projects by “vegetated”
   Popular strategy is “green roofs” – absorb rain water, provide bird and butterfly habitat and provide insulation

4) Conservation development – no checkerboard layouts with spaces too large to mow but too small to farm”
   Cluster housing with at least half the development space preserved as woodland, meadow etc.

Most move to the country not to own vast tracts of acreage but to experience these things but do not have them nearby due to development

All of these concepts share many of the same basic principles
1) Transportation alternatives
2) Energy-efficient buildings
3) Conserving green space
4) Promoting mixed-use, mixed-income, walkable neighborhoods

- An excellent example of how these ideas can be applied to the developing world is Curitiba, Brazil