Chapter 14 Land

Section 2: Urban Land Use

E.Q.: ***What is the urban land crisis and how can we plan for land use?***

SEV5. Students will recognize that human beings are part of the global ecosystem and will evaluate the effects of human activities and technology on ecosystems.

c. Explain how human activities affect global and local sustainability.

d. Describe the actual and potential effects of habitat destruction, erosion, and depletion of soil fertility associated with human activities.

Objectives:

- **Describe the urban crisis, and explain what people are doing to deal with it.**
- **Explain how urban sprawl affects the environment.**
- **Explain how open spaces provide urban areas with environmental benefits.**
- **Explain the heat-island effect.**
- **Describe how people use the geographic information system as a tool for land-use planning.**

Urbanization:

- **Urbanization is an increase in the ratio or density of people living in urban areas rather than in rural areas. People usually leave rural areas for more plentiful and better paying jobs in towns and cities.**
- **In developed countries, urbanization slowed in the second half of the 20th century.**
- **As urban populations have grown, many small towns have grown together and formed large urban areas called metropolitan areas. An example would be Washington D.C.-Baltimore.**
- **Urban areas that have grown slowly are often relatively pleasant places to live, in part because roads and public transportation have been built to handle the growth allowing traffic to flow freely.**
- **Buildings, roads, and parking lots are mixed with green spaces that provide these urban areas with much needed ecosystem services such as moderation of temperature, infiltration of rainwater runoff, and aesthetic value.**

The Urban Crisis:

- **A rapidly growing population, however, can overwhelm the infrastructure, leading to traffic jams, substandard housing, and polluted air and water.**
- **Infrastructure is the basic facilities of a country or region, such as roads, bridges, sewers, and railroads.**
- **When more people live in a city than its infrastructure can support, the living conditions deteriorate. This growth problem has become so widespread throughout the world that the term *urban crisis* was coined to describe it.**

BEGINNING OF ARTICLE

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World Water Day update: Urban public health crisis

22 March 2011

Lack of basic services for growing urban populations causing huge public health crisis.

With a rapidly growing urban population lacking clean water and toilets, the developing world is facing a massive public health crisis this World Water Day.

With the majority of people now living in urban centers rather than rural areas, water and sanitation-related diseases such as diarrhea and cholera are rife within urban slums. These are often unplanned, very densely populated and unserved by even the most basic water and sanitation infrastructure.

To mark World Water Day and its theme this year of Water for Cities, WaterAid is calling on governments to put the highest political priority on the provision of water and

sanitation services for the urban poor.

"One of the biggest challenges facing the developing world is the rate of urbanization," said Margaret Batty, WaterAid's Director of Policy and Campaigns.

"Where there is no safe water supply, people either collect from polluted sources or rely on vendors selling expensive water of dubious and unverified origin. A lack of sanitation facilities means that streets are turned into sites of open defecation and drainage channels become full of untreated waste. This poses a serious health risk, and disease is rampant in many urban slums."

Populations in developing nations are set to triple over the next 30 years with urban areas expected to see the biggest growth. By 2030 around 60% of all the people in the world will be urban dwellers.

884 million people in the world do not have access to safe water, while a staggering 2.6 billion do not have somewhere safe to go to the toilet.

It is estimated that between 30 and 60% of the urban population of sub-Saharan Africa has no access to the municipal water supply. In most developing countries of Africa and Asia, national laws discourage the provision of piped water supply to people without land tenure rights – landless, informal settlement dwellers.

Women living in slum communities, ashamed of having to defecate in public in daylight hours, wait until night time, and can suffer stomach problems as a consequence. Night time excursions to a latrine are frightening and dangerous

because they run the risk of assault or rape.

The impact of having no access to water and sanitation is immense:

- ***Diarrhea caused by unsafe water, inadequate sanitation and insufficient hygiene kill 4,000 children every day.***
- ***Half of all hospital beds in the developing world are full with people suffering from water and sanitation related diseases.***
- ***443 million school days are lost each year in the developing world due to water-related diseases.***
- ***Lack of safe water and sanitation costs sub-Saharan Africa around 5% of its Gross Domestic Product each year***

"Urgent action must be taken," concluded Batty. "We cannot stand by and see more children die, more girls out of school and economic opportunities lost in the ever-growing urban slums. The urban population is growing rapidly, and governments around the world must act to halt this expanding health crisis."

For more World Water Day information please contact the WaterAid media team on 020 7793 4537 or email pressoffice@wateraid.org. END OF ARTICLE

Urban Sprawl:

- **Urban sprawl is the rapid spread of a city into adjoining suburbs and rural areas.**
- **Much of this growth results in the building of suburbs, or housing and associated commercial buildings on the boundary of a larger town.**

- **Many of these suburbs are built on land that was previously used for food production. In fact, each year suburbs spread over another 1 million hectares (2.5 million acres) of land in the United States.**

Development on Marginal Lands:

- **Many cities were first built where there was little room for expansion. As the cities grew, suburbs were often built on marginal land, or land that is poorly suited for building.**
- **For example, Los Angeles was built in a basin, and has expanded onto slopes that are prone to landslides.**
- **Structures built on marginal land can become difficult or impossible to repair and can be expensive to insure.**

mudslide, located near Ventura, about 70 miles west of Los Angeles

mudslide, located near Ventura, CA about 70 miles west of Los Angeles

Other Impacts of Urbanization:

- **Environmental conditions in the center of a city are different from those of the surrounding countryside, as cities both generate and trap more heat.**
- **Heat island is an area in which the air temperature is generally higher than the temperature of surrounding rural areas.**
- **Heat is generated by the infrastructure that makes a city run. Roads and buildings absorb and retain heat longer then vegetation does.**
- **Scientists are beginning to see that heat islands can affect local weather patterns. Hot air rises over a city, cooling as it rises, and eventually produces rain clouds.**
- **In Atlanta, Georgia, and many other cities, increased rainfall is a side effect of the heat island effect.**
- **The heat-island effect may be moderated by planting trees for shade and by installing rooftops that reflect rather than retain heat.**

Urban Planning:

- **Land-use planning is a set of policies and activities related to potential uses of land that is put in place before an area is developed.**
- **The federal government requires developers to prepare detailed reports assessing the environmental impact of many projects, and the public has a right to comment on these reports.**
- **Developers, city governments, local businesses, and citizens often disagree about land-use plans.**

Intelligent Design:

- **Land-use planners have sophisticated methods and tools available to them today.**
- **The most important technological tools for land-use planning involve using the geographic information system.**
- **A geographical information system (GIS) is an automated system for capturing, storing, retrieving, analyzing, manipulating, and displaying geographic data.**
- **GIS software allows a user to enter different types of data about an area, such as the locations of sewer lines, roads, and parks, and then create maps with the data.**
- **Each image corresponds to a different combination of information.**

- **The power of GIS is that it allows a user to display layers of information about an area and to overlay these layers, like overhead transparencies, on top of one another.**

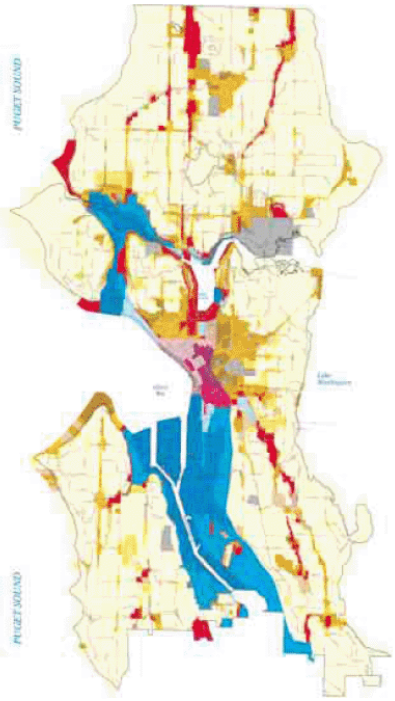
Transportation:

- **Most cities in the United States are difficult to travel in without a car.**
- **Most cities in the United States were constructed after the invention of the automobile. In addition, availability of land was not a limiting issue, so many American cities sprawl over large areas.**
- **By contrast, most cities in Europe were built before cars, and are compact with narrow roads.**
- **In many cities, mass transit systems were constructed in order to get people where they wanted to go. Mass transit systems use buses and trains to move many people at one time.**
- **Mass transit systems save energy, limit the loss of land to roadways and parking lots, reduce highway congestion, and reduce air pollution.**
- **Where the construction of mass transit systems is not reasonable, carpooling is an important alternative.**

Open Space:

- **Open space is land within urban areas that is set aside for scenic and recreational enjoyment. It also has many environmental benefits and provides valuable functions.**
- **Open spaces include parks, public gardens, and bicycle and hiking trails.**
- **Open spaces left in their natural conditions are often called greenbelts. These greenbelts provide important ecological services.**
- **The plants in open spaces absorb carbon dioxide, produce oxygen, filter out pollutants from air and water, and help keep a city cooler in the summer.**
- **Open spaces, especially those with vegetation, also reduce drainage problems by absorbing more of the rainwater runoff from building roofs, asphalt, and concrete resulting in less flooding.**
- **These open spaces also proved urban dwellers with much-needed places for exercise and relaxation.**

GIS Views of Seattle, Washington:



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