International Workshop on
Sustainable City Region

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Urban/Peri-urban Agriculture in Asia

Issues, Potential and Challenges

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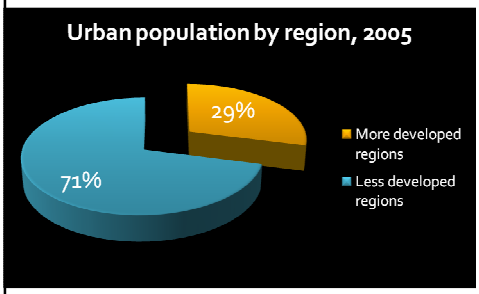
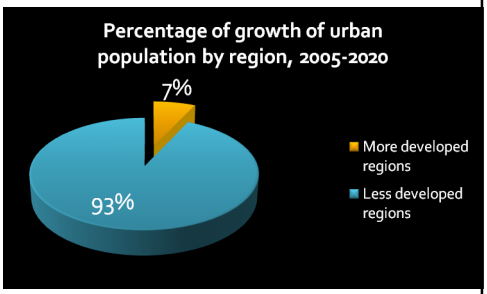
Urbanization: a turning point

- **2007**: Urban population exceeds rural population
- Urbanization – a developing country's affair



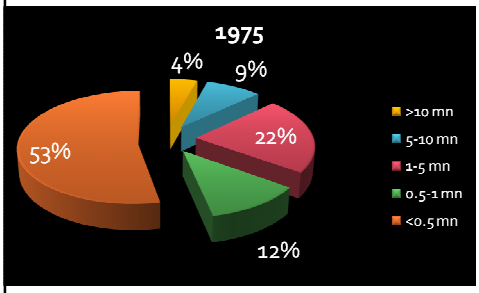


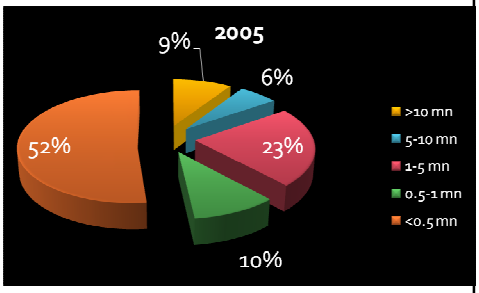
The most significant urban growth factors:

- Natural population increase
- Reclassification of rural areas as urban areas
- Rural-to-urban migration

Trends in Urbanization

- Global urbanization will rise to **70**% in next 40 years
- More than half of the world urban population lives in cities of less than 500,000





Cities in developing countries

- **3** million people per week added to cities in developing countries
- For next **40** years, **95**% of global urban population growth will be absorbed by cities in developing countries.
- Cities of developing countries:
  2.3 billion (2008) → **5.3** billion (2050)

Cities in developing countries

Urbanization, 2008:

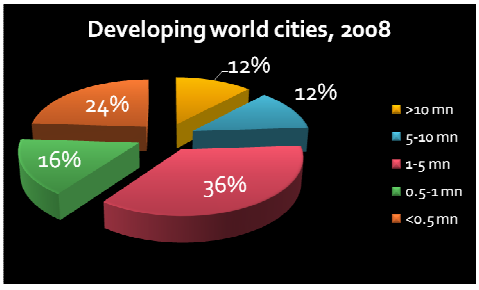
Asia – 39%
Africa – 41%
Europe & Americas – 70%

Urban growth rate and slum growth rate are almost same in some regions

	Urban growth	Slum growth
Sub-Saharan Africa	4.6	4.5
South Asia	2.9	2.2
West Asia	2.9	2.7

Cities in developing countries

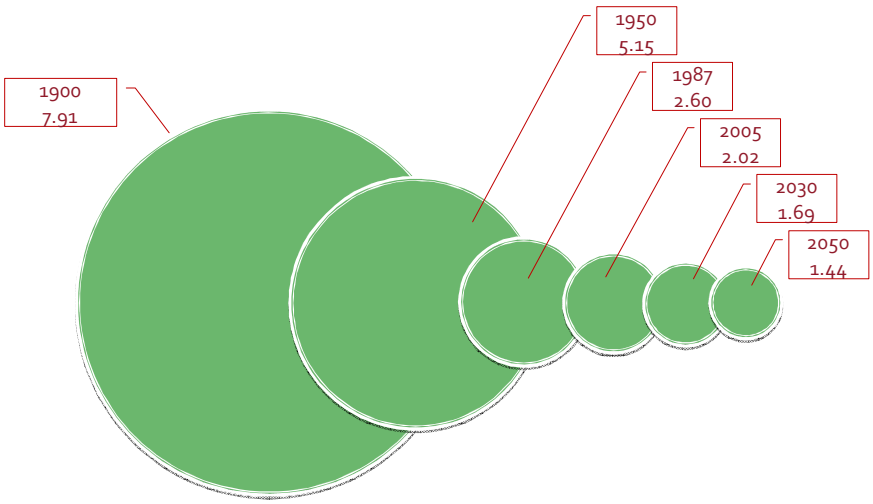
Developing-world cities are large (**60%** >1 million)



Montgomery, M. R. (2008). Science

2020: Asia will have **17** of the world's **27** mega cities (>10 million)
2050: Asia will be accommodating **63%** of global urban population

Our *shrinking* earth



Hectares of land per capita

Cities & Sustainability

- Cities have large ecological footprint → **2.2** ha per person, which is **21%** greater than earth's biocapacity (**1.8** ha)
- It is now required to know how wealthy cities can justify their large footprint?
- Traditionally, the size of a city is closely related to the food it is able to procure.
- Large cities have become vulnerable: As more countries are unable to feed themselves and fewer countries produce exportable surpluses.

Cities and Agriculture

- Cropland represents **25**% of the total world's ecological footprint.
- Food insecurity is bringing more people in growing cities of developing countries to practice urban agriculture
- Urban and Peri-urban agriculture can help solve major food and ecological problems
- UA/PA provided food for around **25**% of world's urban population in 2005

- In half of the developing countries' largest cities, households spend **50-80**% of their income on food.
- For urban poor, food is a very expensive commodity

Peri-urban

Characteristics of Peri-urban Area

- A mosaic type of agriculture, housing areas and industry
- Strong development dynamics
- Ongoing urbanization and increasing land prices
- Direct access by residents to goods and services
- More than 50% of households receiving their major income from industrial and urban employment
- Semi-commercial and commercial agriculture
- Opportunities for sustainable development and mutual benefits

Peri-urban agriculture:
Semi-intensive mode of agriculture

Characteristics:

Rural area: Concentrated agril activities – extensively requiring natural resources; Subsistence

Urban area: Concentrated business/economic activities – extensively requiring technology, infrastructure, 'brightness', sophistication, …

Peri-urban area: Bridge to the two concentrations; Moderately requiring advancement and nature; Semi-intensive agriculture

Peri-urban agriculture:
Semi-intensive mode of agriculture

Role:

- Stores bulk of agril products (cereals, grains) in warehouses → reduces food-miles, lessens urban traffic by avoiding large trucks to cities
- Hosts packaging, processing industry → adds value to raw agril product
- Supplies perishable items, fruits, vegetables to urban area
- Functional food, organic food production → Export oriented

Peri-urban agriculture:
Semi-intensive mode of agriculture

Interaction:

With rural area:

- Receives bulk of raw agril products
- Agril residues for energy generation

With urban area:

- Urban organic waste
- Supplies food
- Export

Urban agriculture:
Intensive mode of agriculture

Micro (building / colony) level recycling

Production of agricultural / aquatic / animal produce for self-reliance

Rooftop agriculture

Green roofs

Benefits: Production, Environment, Social interaction, Hobby

Issues

- The challenge of rapid urbanization
- Migration of poverty to urban areas
- The aging world
- Environmental pollution, health risks and decline in quality life of urban tenants

Potential (1)

- Growth of agricultural markets in cities: growing urban demand for crop and animal products
- Increased urban awareness of organic products and functional food
- Growing importance of intensive urban agriculture for self-provisioning of poor families living in cities who are struggling for adequate nutrition and are victim of double-health risks
- Off-season vegetable/fruit production

Potential (2)

- Potential to use renewable energy sources – including solar, wind, biogas
- Potential to run on recirculating/recycling resource systems
- Agricultural or non-agricultural use of urban biological wastes
- Enhance urban sustainability
- Addition of social and economic values to urban natural and physical resources

Challenges (1)

- Urban resources recognition and use
- Needs skilled workforce
- Policy, infrastructure design and city planning issues
- Insufficient production capacity to meet year-long needs of building residents
- Complicated setup and expensive maintenance
- Energy intensive farming

Challenges (2)

- UA receives little or no research attention and is frequently ignored by municipal authorities
- Widespreading different types of UA systems that exist, their contribution to livelihood and the environmental and health risks and benefits they bring


Thank you