

Welcome

Health & Well-being in Urban Environment



How long is a piece of string?



Health and Well being



- Not the same
- Health is not the absence of disease
-
- WHO definition of health 1948 -WHO Constitution
 - a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity

Physical environment and health:

Your health is determined by where you are

- Postcode lottery at birth.....determines your life
- Outdoor exposures
- Indoor exposure
- Medical geography
- Exposures
- Access to community
- Access to exercise
- “Your zip code is a better predictor of your health than your genetic code.”
 - Melody Goodman, Harvard

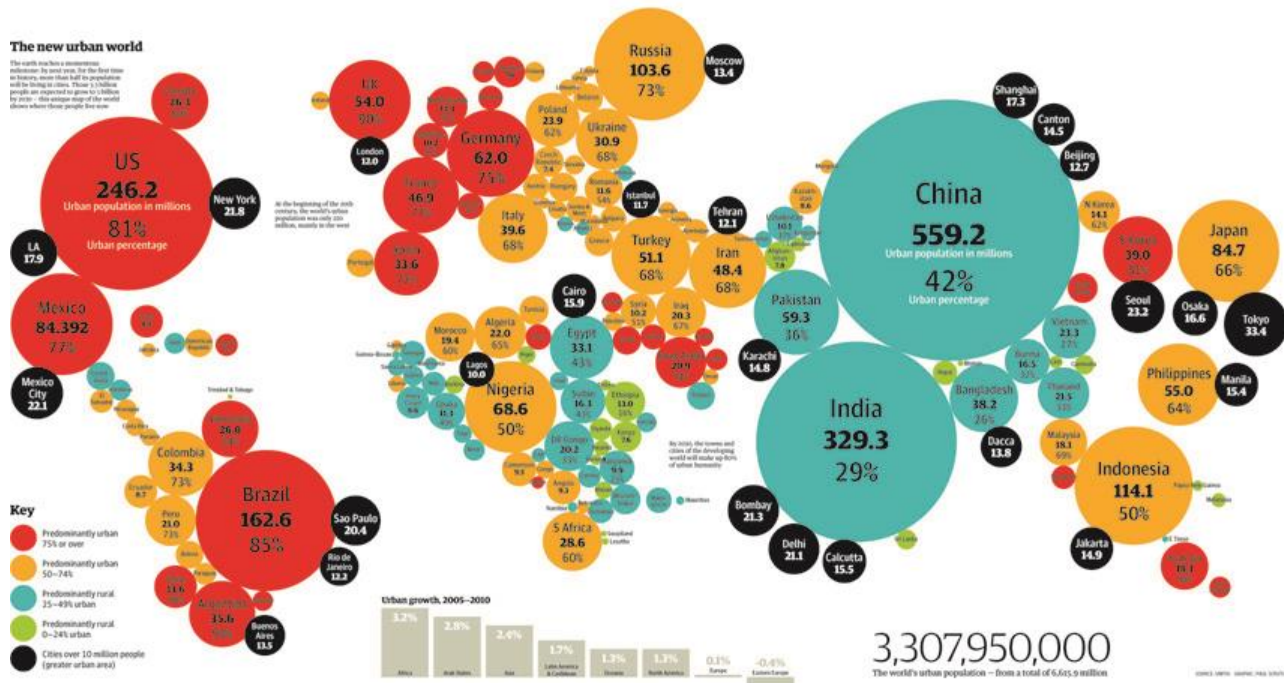


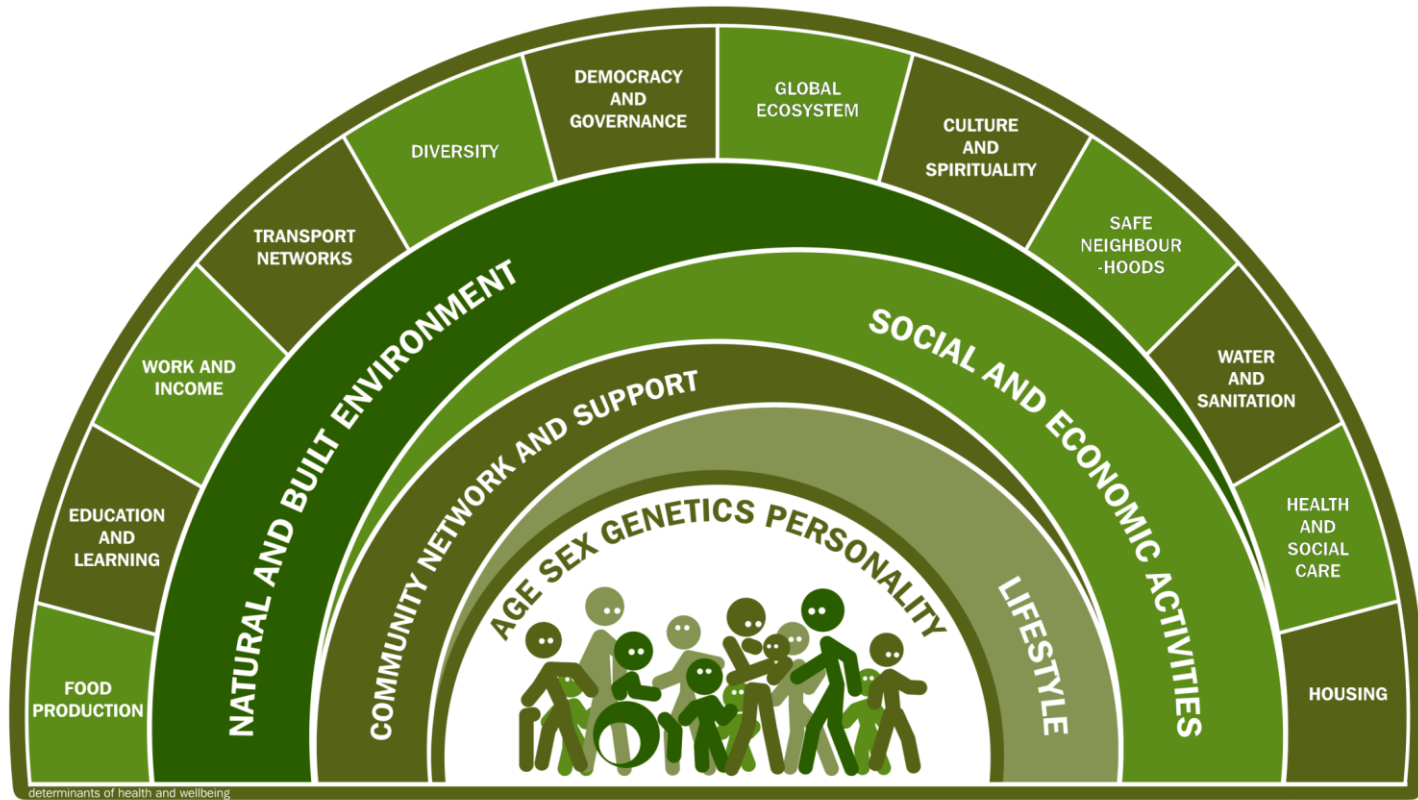
<https://www.hsph.harvard.edu/news/features/zip-code-better-predictor-of-health-than-genetic-code/>

The Lens of Climate Change and Urbanisation

- More people
- New arrivals
- May not keep pace with infrastructure
- Hotter/ or wetter/drier climate or both?
- Displacement of people : food, water, employment, cultural
- Noncommunicable diseases versus infectious diseases

Urban versus rural





Where worlds population lives....

- 50.5% of the world's population now residing in urban environments
- Department of Economic and Social Affairs. Population Distribution, Urbanization, Internal Migration and Development: An International Perspective. In: Population Division, ed. New York, NY, USA: United Nations, 2011.



**Urbanization Will Change The
(Developing) World**

Forbes Feb 24, 2015

Urbanisation

Urbanisation for:

- Better employment opportunities
- Better access to education and health services, etc.
- Search for a mate

It is estimated that by 2050, 67% of the world's population will be urban dwellers

UNDESA, World Urbanization Prospects: The 2011 Revision, Technical Report. United Nations, Department of Economic and Social Affairs, New York, 2012

Challenge is to balance urban sprawl with urban densification

**With increasing urban density,
there is increasing demand for green space.**

Galea, S., Vlahov, D. (2005) Urban health: Evidence, Challenges and directions. *Annu Res Public Health*, 26:341-65.



Urbanisation and health

- Benefits
 - ready access to healthcare
 - Sanitation
 - secure nutrition
- Drawbacks
 - Overcrowding
 - Pollution
 - social deprivation
 - stress-related illness
- In less economically developed countries – “Western” disease

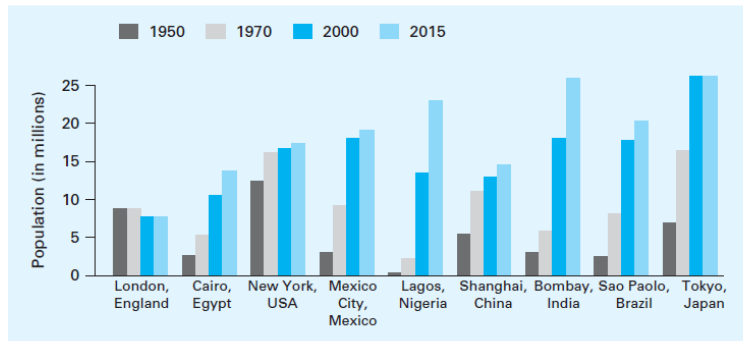
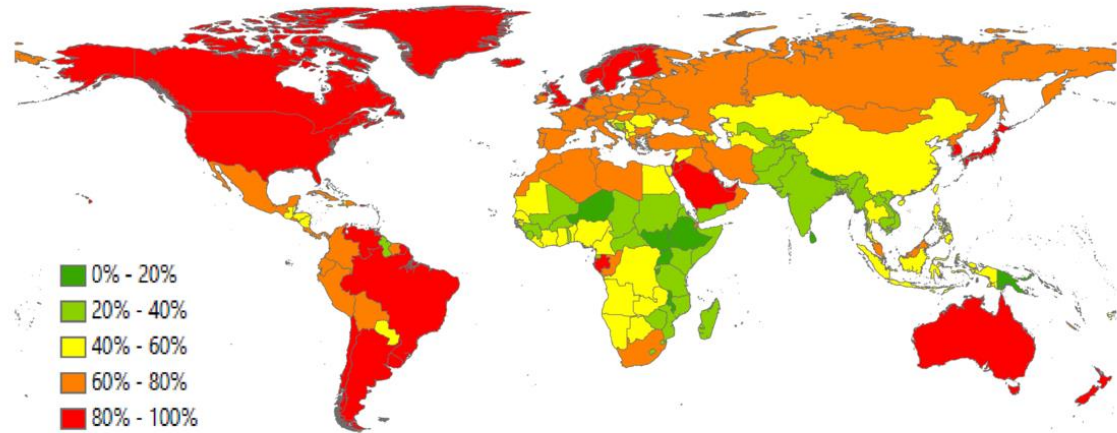


Fig 1. Growth of urban agglomerations, 1950-2015 (from Ref 2).

Godfrey and Julien,
Clinical Medicine
Vol 5 No 2 2005

Increasing population

- Natural environments change
- Demand for resources
- Proportion in variety of built environments changes = urbanisation



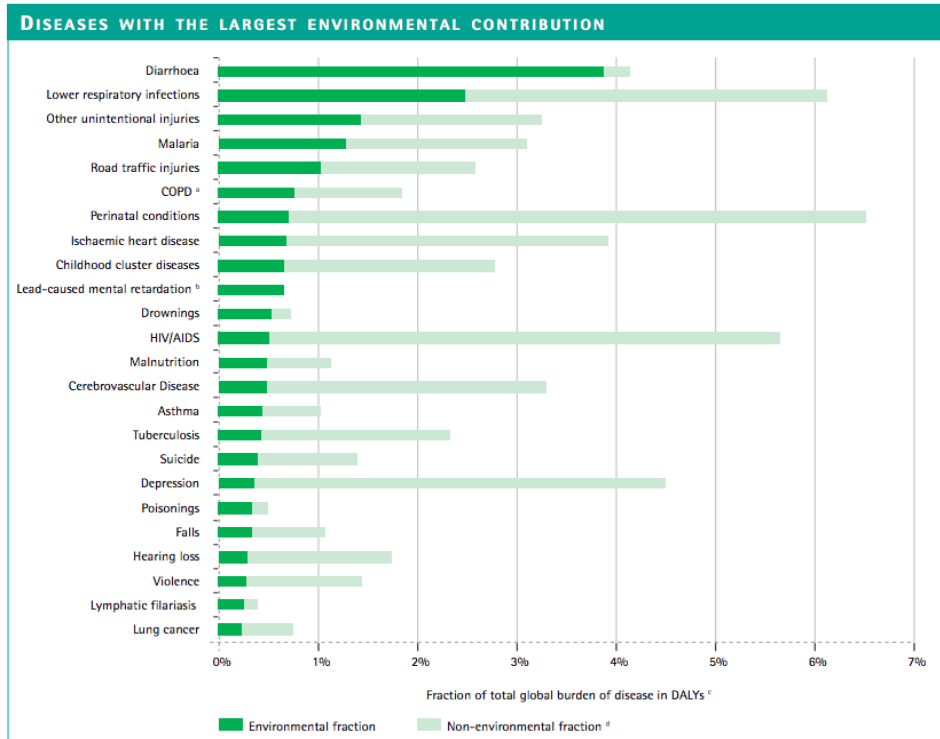
Rise of noncommunicable diseases and reduction of infectious disease

- Remembering its not just a rural / urban divide
- Growth of peri – urban areas (good and bad of urban environments)

Urban Health risks

- Certain infectious diseases that thrive when people in crowded living conditions
- Acute and chronic respiratory diseases from industrial pollution exposure
- Urban lifestyles (behavioural?)
 - Physical inactivity, unhealthy diet, tobacco and alcohol
- Injury
 - Motor vehicle collisions, violence and crime

Almost a quarter of all disease caused by environmental exposure



WHO, 2006

^a Abbreviations: COPD = Chronic obstructive pulmonary disease.

^b Lead-caused mental retardation is defined in the WHO list of diseases for 2002, accessed at: www.who.int/evidence.

^c DALYs represents a weighted measure of death, illness and disability.

^d For each disease the fraction attributable to environmental risks is shown in dark green. Light green plus dark green represents the total burden of disease.

Low to Middle Income Countries differs from High Income Countries

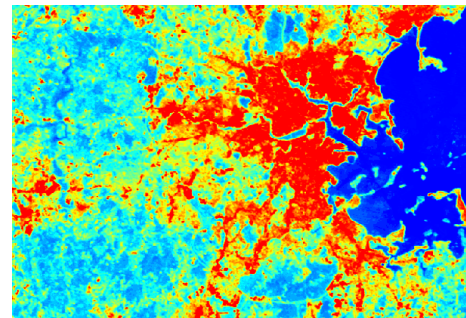
- **Unsafe water**, and poor sanitation.
- **Indoor smoke** –solid fuels in domestic cooking and heating
- **Malaria** kills over **1.2 million** people annually (but no longer in Sri Lanka)
- **Urban air pollution** generated by vehicles, industries, and energy production kills **800 000**
- **Road traffic** injuries are responsible for **1.2 million** deaths annually
- **Sanitation** - billions defecate in the open
- **Lead exposure** causes cognitive effects in one third of all children globally – **230,000**
- **Climate change** impacts – including more extreme weather events, changed patterns of disease and effects on agricultural production **150 000**
- **Unintentional poisonings** excessive exposure to, and inappropriate use of, toxic chemicals and pesticides **355 000**
- **Suicide** – one third of completed suicides world wide are via consumption of agrochemicals – **220,000**

What is a healthy ecology?

- Water
- Air
- Climate change
- temperature
- weather events > fires, dust and floods
- Plant growth
- Ocean productivity
- Wilderness regions > wild animal as reservoirs of zoonotic infectious diseases
- Population growth

Heat and Health

- Heat island effect = city dwellers
- Workers out of doors
- Factory workers in hot climates in less industrialised work
- Field workers/subsistence farmers (combined with poor water quality and chronic kidney disease)
- Sri Lanka and Meso-America
- Bushfires – firefighters and population respiratory health
- Increase rainfall – flooding and health outcomes



Boston, Massachusetts. Surface temperature, 2009. Source :
Camilo Pérez Arrau, 2010

- Urban Heat Island (UHI) Effect
- Faster temperature increases in urban areas, especially minimum temperatures.
- Greater heat wave & high temp health impact
- Mitigation potential
 - Green Spaces/Green roofs
 - Better Building Design
 - Orient Buildings – wind
 - Avoid ‘Wall effect’ – access to sea breeze for coastal cities



Infectious disease

- Population density changes the risk of disease
- Changes the types of disease
- 70% of new or emerging diseases are zoonotic (animal origin-jumping species barrier)
- Increased by exposure to animals (that may be unhealthy)
 - Reduction in wild animal reserves (urban encroachment)
 - Animal monoculture to feed large populations
 - One Health concept: animal human and ecosystem
 - Use of wild animals as protein source
 - Dogs/monkeys in cities

Noncommunicable Disease

- Exposure to air, water and food
- The big five:
 - Cancer
 - Asthma
 - Heart disease
 - Mental health
 - Diabetes
- Complex diseases with genetic, environmental and behavioural risk factors



Walkability



Frank et al., 2003 Health and Community Design

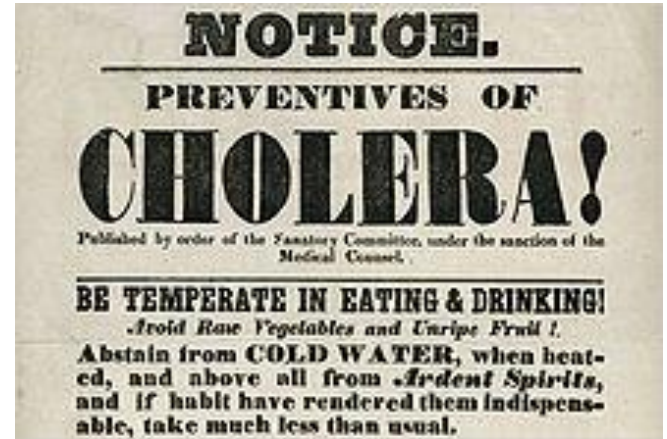
Ecological Health - Ecosystems approach

– dealing with the complexity

- Advantages - Traditional paradigm too simplistic
- Cholera
 - Handle of the Broad Street pump 1854 verses cholera pandemic since 1961
 - Due to population size and connectedness, inability to supply clean water, urban infrastructure
- DDT
 - Removed mosquitoes
 - resistant mosquitoes, plus insect/bird imbalance, depletion wetland for fish

“Complex problems need complex solutions”

- Disadvantages
- Human centric
- Timing – 30 year cycles
- What is normal?
- “healthy ecosystems must be economically viable”
- disease and parasitism are normal in pre-industrial nature



Co-benefits

- Cycling and carbon
- Public transport and mental health
- Green space:
 - mental health and social connectiveness
 - obesity: asthma/cancer/cardiac disease/diabetes - Space to exercise
 - exposure to a range of bacteria – healthy immune system and inflammogenic environment

Co-benefits – green space

- Reduces
 - Flooding
 - Noise
 - CO₂ and dust
 - Urban heat islands
- Ecological connectivity = valuing nature

"We cannot win this battle to save species and environments without forging an emotional bond between ourselves and nature as well – for we will not fight to save what we do not love."

- Stephen J Gould – Eight Little Piggies 1993

Benefits of Urban Trees



Planning and Design for Health

- 1) Existing conditions of health and well-being in India: Linkages with current planning of cities and design of buildings
- 2) Approach to designing or planning sustainable cities or habitat to promote well-being and better occupant health
- 3) Projects which have explored the subject or posed possible solutions

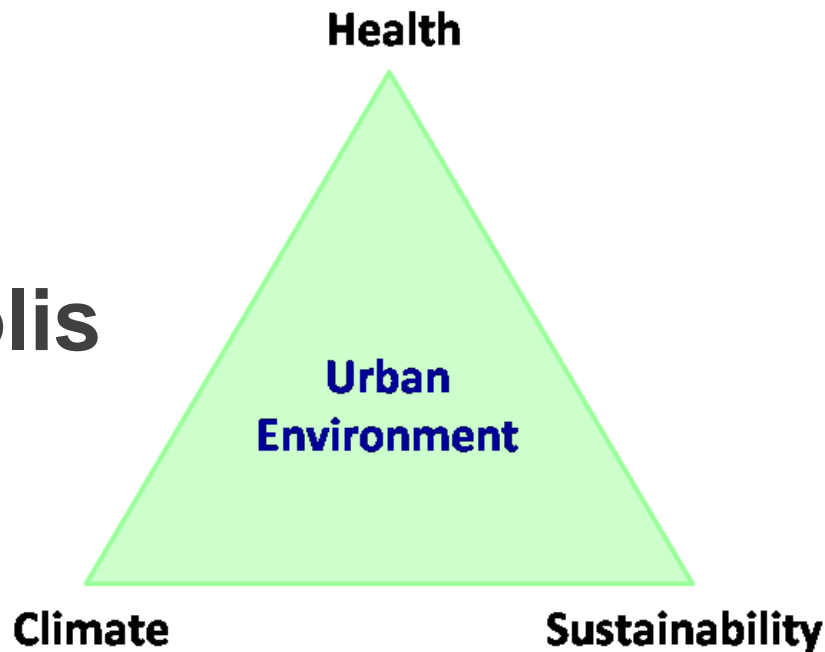
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HealthyPolis

@healthypolis



<https://sites.google.com/site/healthypolisnetwork/>

Health & Well-being in Urban Environment





Optimal position for Faculty\School\Unit name

Main heading - Arial font

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