

Health and Wellbeing in the Urban Environment: A Systems Analysis Approach

an ICSU interdisciplinary science program
*report by Suzanne Bennett Johnson for the
ICSU Planning Group*

ICSU's Strategic Plan

- ❖ Human health was identified as a new research priority in ICSU's Strategic Plan 2006-2011
- ❖ A Scoping Group was established in 2006 to more clearly define how ICSU might contribute to the science of human health
- ❖ The Scoping Group selected the following topic for further development: A systems analysis approach to health and wellbeing in the changing urban environment
- ❖ A new Planning Group was established in 2008 to develop the science plan

Why urban health? percent of population living in urban environments

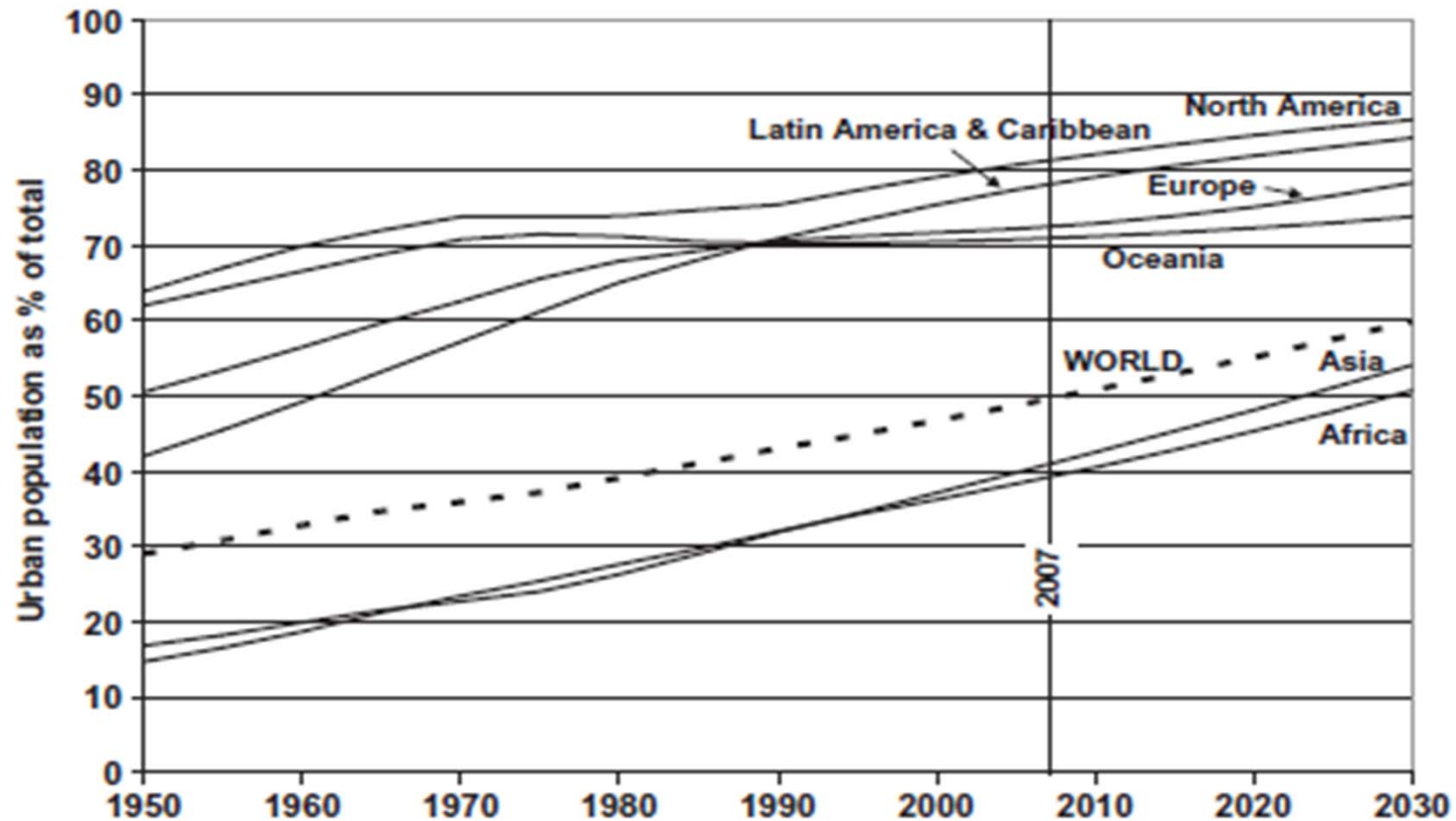


Figure 1 Trends and projections in urban population as a percentage of total population by world region

ICSU's Health and Wellbeing Science Plan: Why Urban Health?



- ❖ Urbanization presents both opportunities and risks
 - ❖ urbanization can improve health by providing sanitation, clean water, access to health care, education, employment to large numbers of people
 - ❖ while reducing deaths from infectious disease, urbanization is associated with increasing numbers of people suffering from chronic disease
 - ❖ when urban areas are overwhelmed by rapid population growth, slums develop which are associated with high mortality rates from infectious disease – essentially eliminating the health advantage normally seen in urban environments

Child Mortality Rates by Percent of Population in Urban Environments (2005)

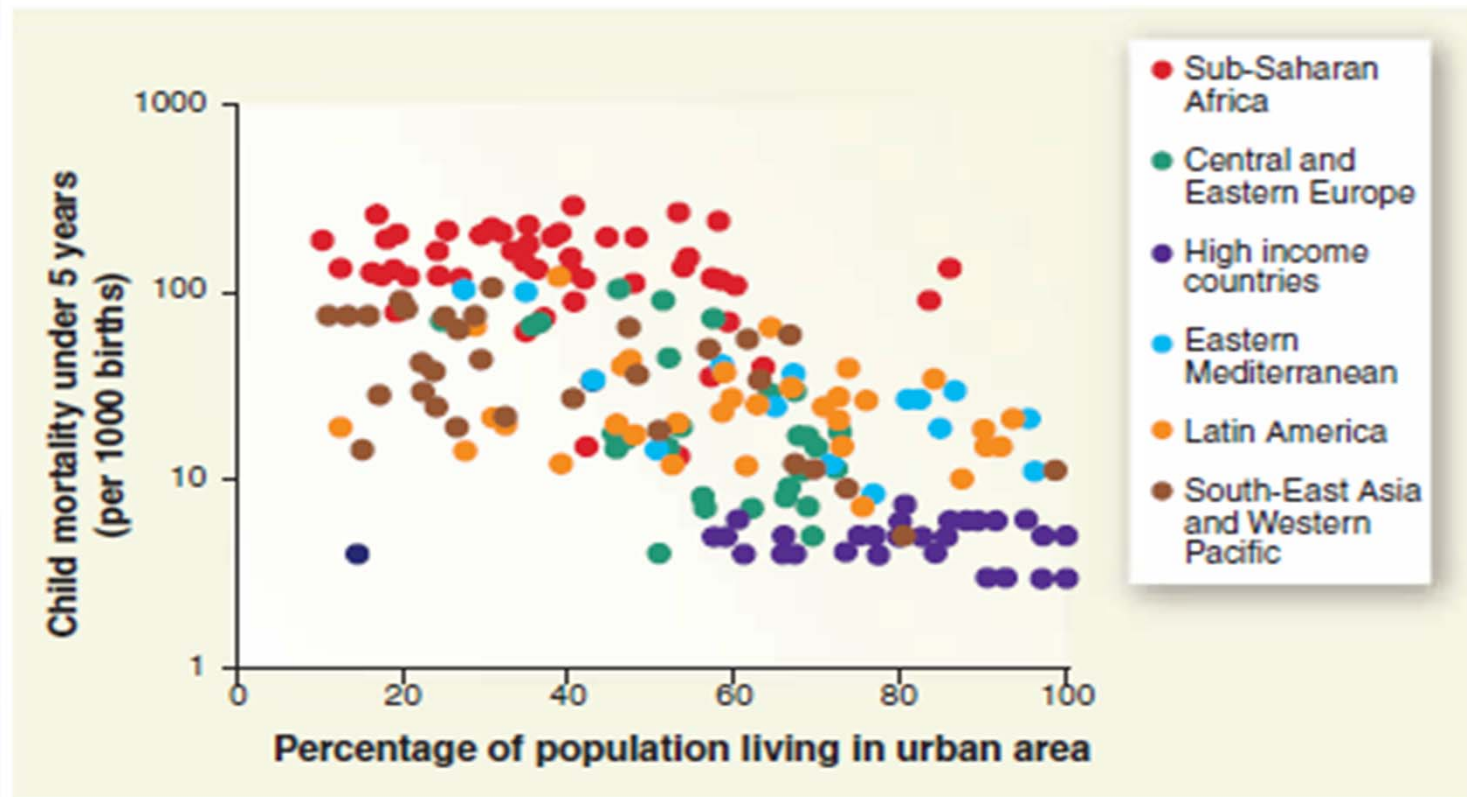
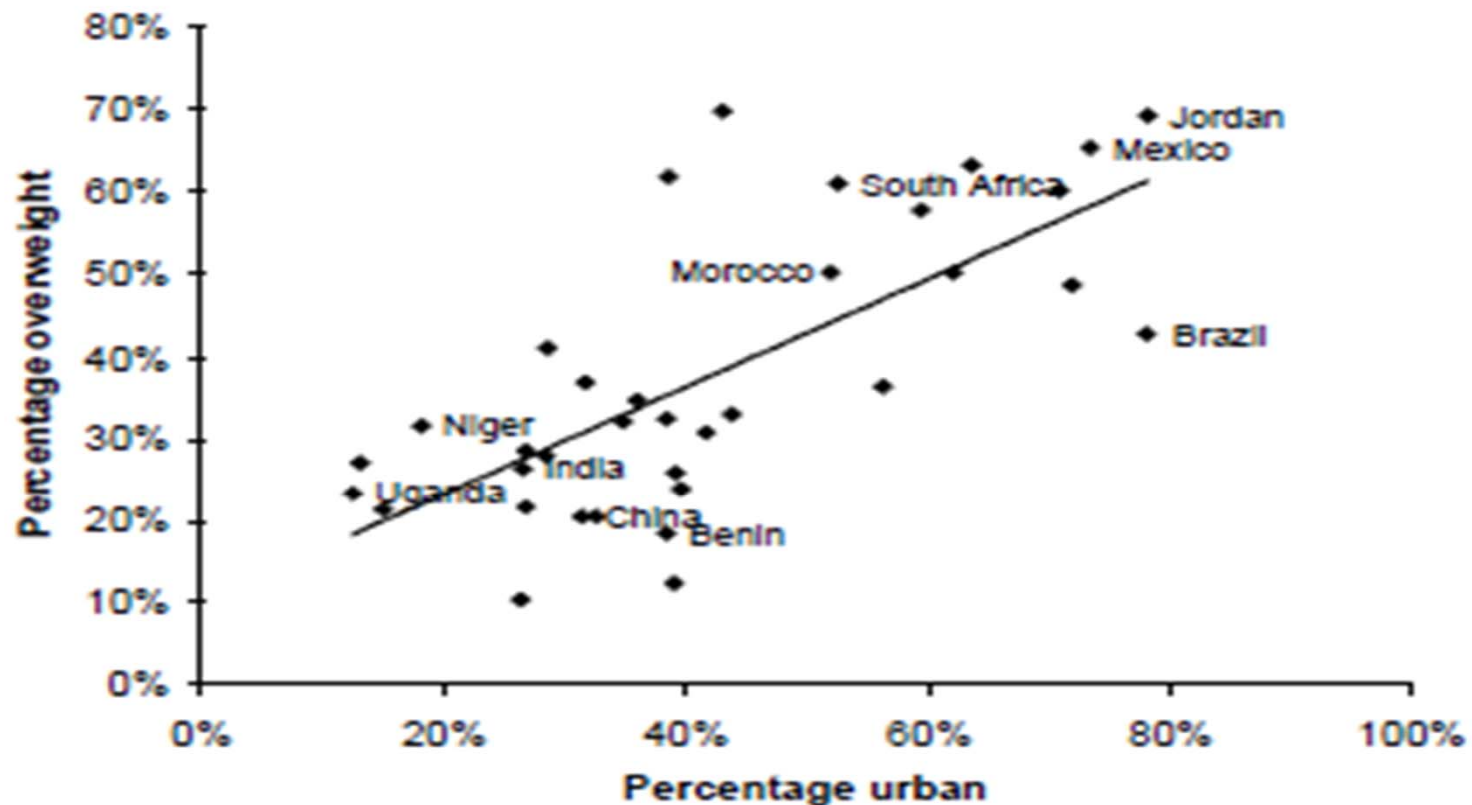


Fig. 3. Mortality rates of children under 5 years are lower in countries that are more urbanized, but mainly through differences between rather than within regions. Data are for 2005 (15, 16).

Worldwide, Urbanization is Associated with an Increased Prevalence of Overweight

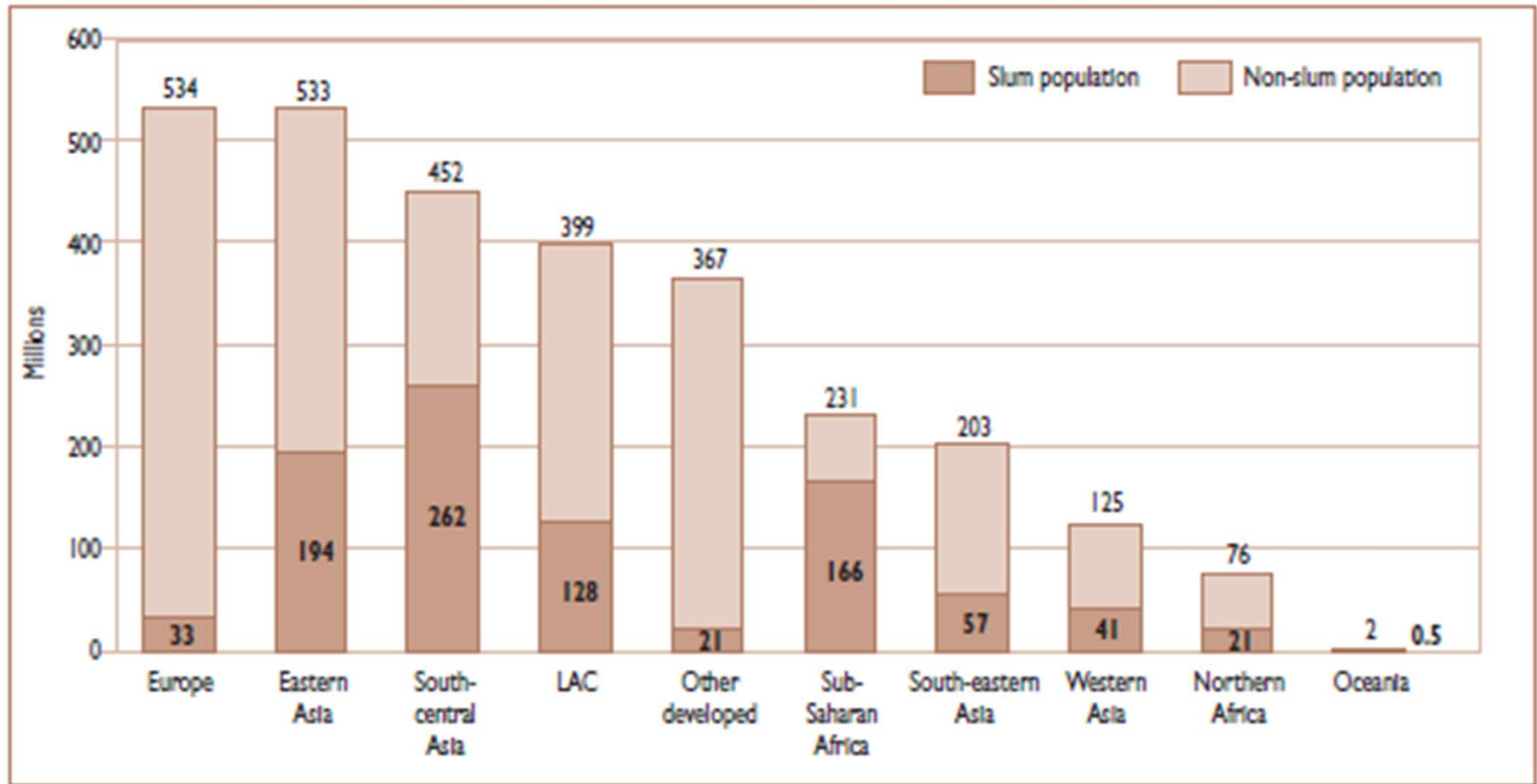


A. Overweight Prevalence in Urban Areas vs. Urbanization



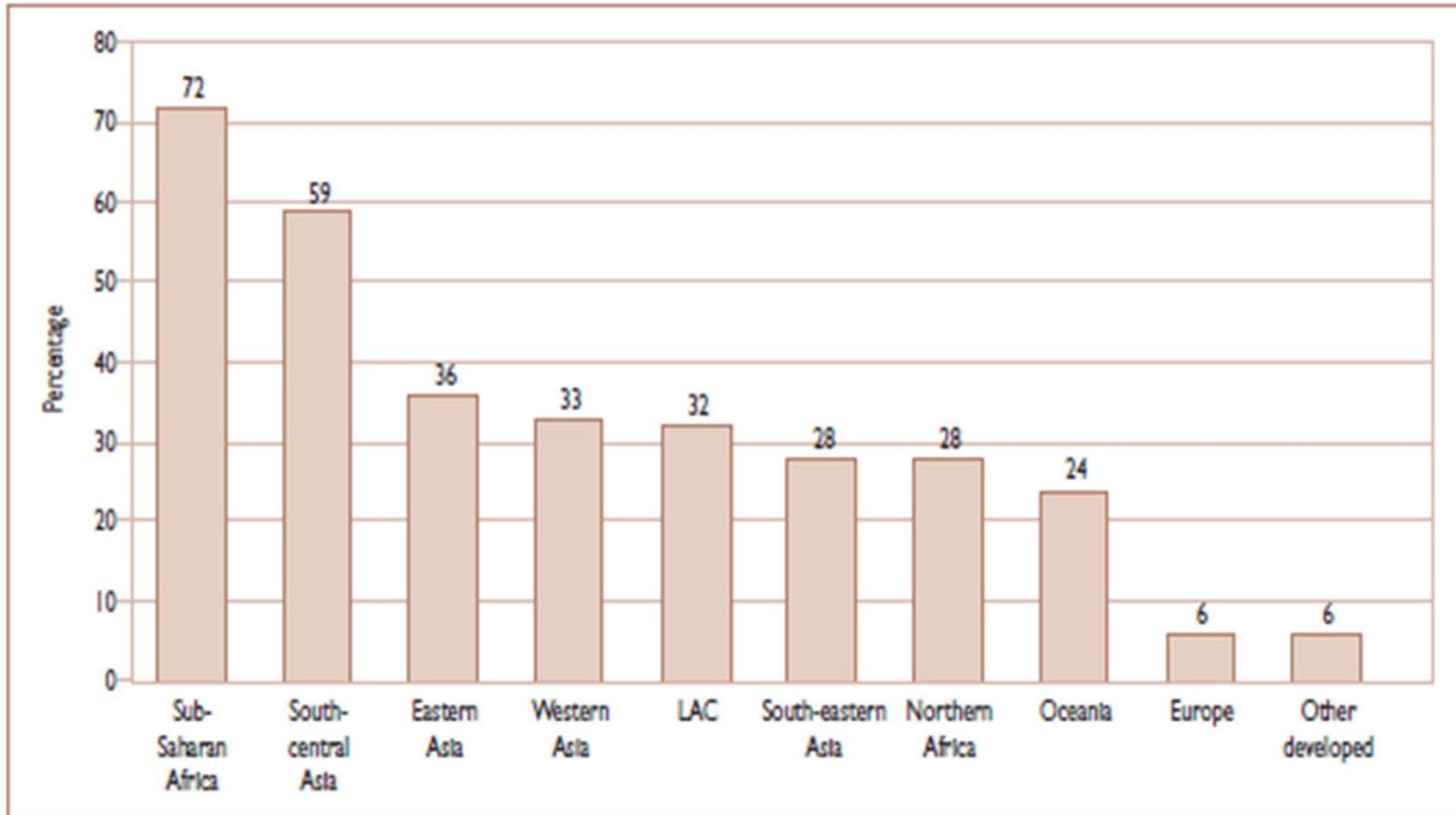
Mendez & Popkin. Globalization, Urbanization, and Nutritional Change in the Developing World. *J of Agriculture and Development Economics*, 2004

If Urbanization is Too Rapid, Cities Can Become Overwhelmed: Slum and Non-Slum Urban Dwellers by Region (2001)



UNHABITAT, 2003

Percent of Urban Dwellers Living in Slums by Region (2001)



UNHABITAT, 2003

Urban Slum Dwelling is Associated with High Mortality Rates from Communicable Disease



Table 2: Top ten causes of premature mortality among children under the age of five years ranked by percentage contribution to the total YLL in the Nairobi DSS 2003–2005

Causes	YLL	% YLL	Rank
Pneumonia	3463	22.8	1
Diarrhoeal Diseases	2969	19.5	2
Stillbirths	2480	16.3	3
Malnutrition and Anaemia	1275	8.4	4
Birth Injury and/or Asphyxia	661	4.3	5
AIDS and TB	609	4.0	6
Malaria	537	3.5	7
Prematurity and or Low Birth Weight	529	3.5	8
Acute Febrile Illness	434	2.9	9
Measles	304	2.0	10

Causes of Death Among Nairobi Slum Dwellers 5 Years or Older



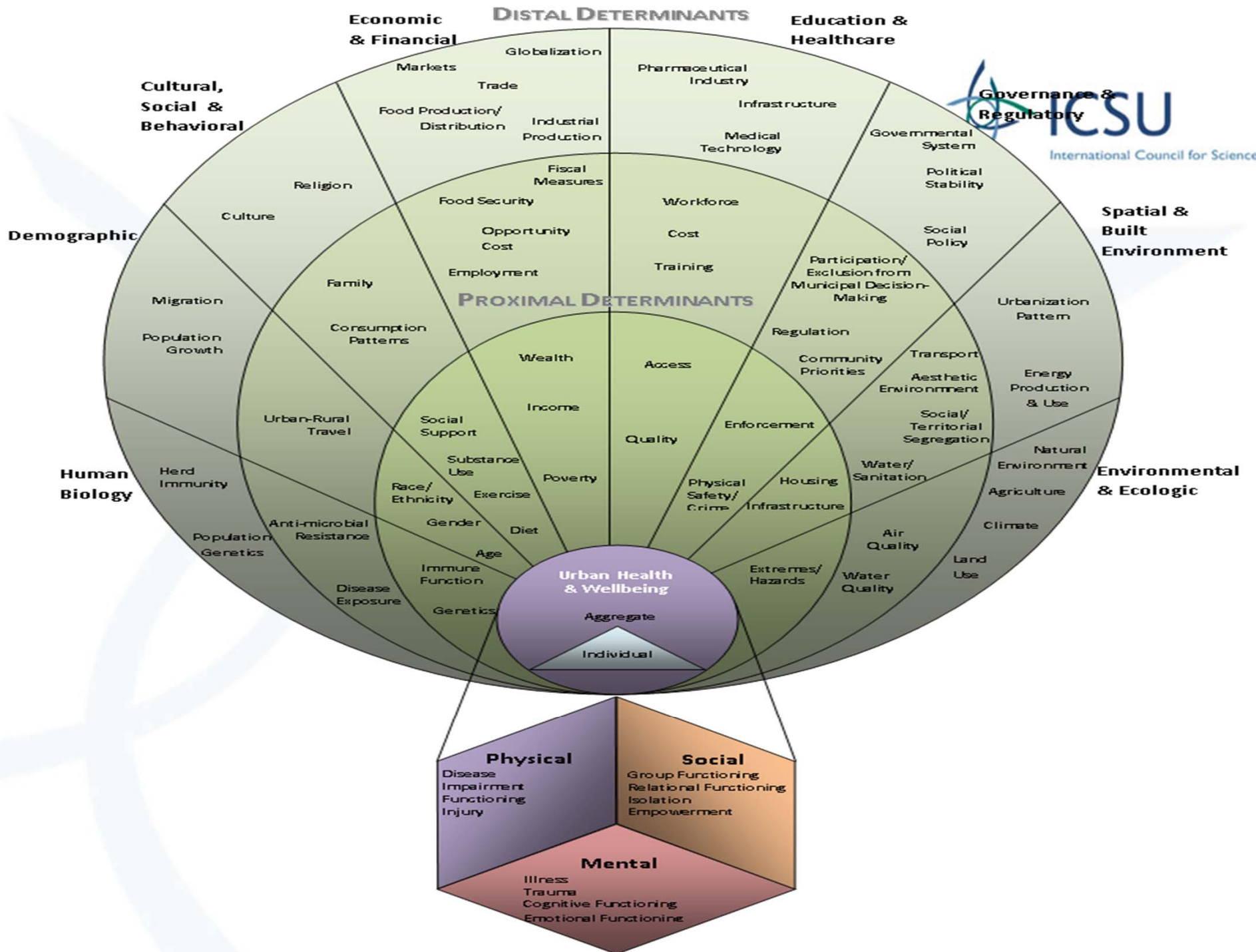
Table 3: Top ten causes of premature mortality among the population aged five years and above ranked by percentage contribution to total YLL in the Nairobi DSS, 2003 – 2005

Causes	YLL	% YLL	YLL Rank
AIDS and Tuberculosis	11252	49.9	1
Interpersonal Violence Injuries	2719	12.1	2
Road Traffic Accidents	1302	5.8	3
Meningitis	781	3.5	4
Direct Maternal Causes	755	3.3	5
Pneumonia	524	2.3	6
Malaria	418	1.9	7
Cancer of the Gastrointestinal Tract	374	1.7	8
Renal Disorders	362	1.6	9
Malnutrition and Anaemia	305	1.4	10

ICSU's Health and Wellbeing Science Plan: Why Systems Analysis?



- ❖ **Permits mathematical modeling of a complex system**
- ❖ **Maps processes and relationships and their effect on measurable end points**
- ❖ **Can integrate existing (and new) data and information, leading to new insights as well as the identification of gaps in current knowledge**
- ❖ **Enables analysis & allows predictions when data are sparse**
- ❖ **Enables predictions that can be tested and refined experimentally**



Science Program Criteria

- **Inter-disciplinary approach,**
- **Collaborative with key stakeholders**
- **Systems analysis methodology**
- **Multiple determinants of health and wellbeing**
- **Needed data are obtainable**
- **Projects should actively involve decision or policy-makers**

Products/outcomes:

- **Useful narratives for decision or policy-makers**
- **Sustainable partnerships between scientists and stakeholders**
- **New shared data bases.**

Science Program Vision

To generate policy-relevant knowledge that will improve health, reduce health inequalities, and enhance the wellbeing of urban populations

Science Program Objectives

- ❖ Promoting and coordinating research projects
- ❖ Developing methodologies and identifying data needs
- ❖ Building and strengthening capacity
- ❖ Communicating new knowledge: promotion and outreach

Science Program's Research Objectives

- ❖ To generate high-impact scholarly outputs
- ❖ To enable better-informed decision-making ,
re urban health and wellbeing
- ❖ To establish this approach as a thriving and
relevant area of interdisciplinary research

Science Program's Methodology and Data Objectives

- ❖ To develop innovative systems analysis methodologies and approaches
- ❖ To identify data needs and inform observation and monitoring initiatives
- ❖ To reveal and/or generate new data that will be made fully and openly available

Science Program's Capacity Enhancement Objectives



- ❖ Build capacity and interdisciplinary platforms for urban health research using systems analysis
- ❖ Enhance capacity of policy-makers and practitioners, re use of systems analysis information
- ❖ Expand the number of young scientists in this area

Science Program's Communication Objectives

- ❖ Create a virtual forum as a point of reference for scientists and other stakeholders
- ❖ Promote trans-disciplinary exchange and collaboration via conferences and workshops
- ❖ Make results available to multiple stakeholders in relevant formats

Science Program's Current Status



- ❖ Approved by ICSU's Committee on Scientific Planning and Review
- ❖ Approved by the ICSU Executive Board
- ❖ ICSU General Assembly will be asked to approved in late September
- ❖ Report is being prepared for publication
 - ❖ if you would like a draft pdf, email me at suzanne.johnson@med.fsu.edu
- ❖ ICSU seeks nominees for scientific committee to oversee program's implementation