

Joint session between UGEC and GECHS: Emerging urban vulnerabilities under climate change; Implications for health and human security

Organizers: Michail Fragkias¹ and Linda Sygna²

Chair:

¹ Urbanization and Global Environmental Change (UGEC), Arizona State University, USA

² Global Environmental Change and Human Security (GECHS), University of Oslo, Norway

Climate change is becoming increasingly more understood as a threat to global public health (Campbell-Lendrum and Corvalán, 2007). Climate change is connected to a series of stressors on urban systems such as heat waves, extreme drought, flooding, and natural disasters, its effects are not experienced evenly across the board but affect at a greater degree the poor, and in particular children and elderly. Increased instances of heat stroke and other heat-related medical conditions are being reported in hospitals across the world for both the elderly and children and deaths from heat-related factors are on the rise. As the climate and weather patterns change, extremes of both heat and cold can cause immediate fatalities. Chicago's 1995 heat wave killed over 700 people - most of the victims were elderly. More than 30,000 people died as a result of the record heat wave that scorched Europe in August 2003 (WHO, 2005), while recently in Nepal in January 2006, a cold front killed 17 citizens. Temperature and precipitation changes can reduce supplies of freshwater and increase the risk of malnutrition as well as increase the vulnerabilities to water-borne diseases. The Earth's warming climate is currently estimated to contribute to more than 150,000 deaths and 5 million illnesses each year, according to the WHO - numbers that could potentially double by 2030 (Eilperin, 2005).

This session identifies the new emerging and pressing vulnerabilities to the impacts of global environmental change on young and elderly populations in cities. Complex interactions among climate change and factors ranging from a coastal zone location, urban heat island effects, air pollution, urban density and sanitation may increase vulnerabilities of the young and old population. A reduced ability for adaptation for particular urban population groups threatens human security and brings about the potential for detrimental impacts. The participants of the session are asked to present case studies and offer suggestions for means of strengthening worldwide human security by designs and implementation of adaptation strategies to the adverse health effects of climate change (such as heat health warning/alert systems).

Accepted Abstracts (as of Dec. 20th, 2007):

Barriers to adaptation: Vulnerability of the elderly to the impacts of heat waves

Johanna Wolf, Neil Adger and Irene Lorenzoni
Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, UK

The recent heat waves in Europe have sparked research into better understanding the excess death rates occurring during such events. Much of this research indicates that elderly people are particularly vulnerable to the health impacts of heat and that mortality among this group is high during heat waves. However, it has been argued that exposure to extreme heat alone is not a reliable indicator of heat-related morbidity and mortality. Social dimensions, including the level of individuals' social activity and resultant social capital, are important in determining health outcomes. Particularly relevant are elderly people's perceptions of heat, of their own vulnerability to the effects of heat, and their relationship with their carers. This paper draws on qualitative interviews with UK elderly over 75 years of age exploring how their perceptions of vulnerability may act as barriers to adaptation to heat events. We suggest that this relatively vulnerable group of people fails to recognise this vulnerability. Knowledge about causes of heat stress, and possible preventative measures to adapt to extreme hot spells, are found lacking among most elderly and their carers alike; even when present these do not necessarily translate into actual behavioural change. This research finds that reliance on poorly informed carers can add to rather than prevent effects of heat waves on elderly. These results challenge the conception that high social capital leads unidirectionally to reduced vulnerability. We find that the interaction between understanding of risk and the empowerment of individuals in making their own decisions is crucial to outcomes.

Health and Livelihoods – Struggling for Survival in a South Indian Megacity

Patrick Sakdapolrak
Department of Geography, University of Bonn, Germany

Processes of global change are influencing human health in manifold ways often leading to severe health and livelihood crisis. The paper will address this topic by presenting the results of the project "Adaptation behaviour and negotiation processes. How the vulnerable cope with water related health risks in the megacity Chennai, South India". It is the objective of the project to uncover the relation between health and livelihoods of slum dwellers living under the condition of water stress in the rapidly urbanising megacity Chennai. Thereby the projects focuses on concrete livelihood strategies and the negotiation processes aiming at securing human health. Starting from the assumption that health is both essential and instrumental to human security the project uses the livelihoods framework as a structure for analysis and embed health at the core of it. In doing so, health is on the one hand considered as an outcome, that means a dependent variable influenced by risk exposure, asset endowment, structural context and the coping and adaptation strategies. On the other hand health is considered as an independent variable, which has an impact on the livelihoods of the vulnerable itself. The paper will present the results of a household panel survey which was conducted during the summer and monsoon season 2007. In this manner seasonal variation of the slum dwellers' health burden, their health related behaviour, the impact of ill-health on their livelihood and the coping and adaptation strategies that are utilised will be discussed.

Desakota systems and the vulnerability of water

Mark Pelling
Department of Geography, King's College London

Urbanisation processes reach far beyond urban administrative boundaries. This is especially true for the relationship between cities and ecosystem services associated with water. Existing research has focussed on the vulnerability to urban residents brought about by variability in supply and increasing demand generated by economic growth and demographic change. Many, in some cities the majority, of residents are already made vulnerable through limited access to potable water.

This paper builds on the existing literature to examine the ways in which water resources on the fringes of urban systems are being modified by the urbanisation process. In these places rural livelihoods and practices are being brought into the urban economy. This provides opportunities as well as challenges for sustainable management of ecosystem services. A model of urbanisation called 'desakota', first formulated to describe rapid rural urbanisation in Southeast Asia is used to frame analysis which draws on the findings of a project funded by UK Department for International Development and Natural Environment Research Council.