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Urban Governance for Risk Reduction and Climate Change Resilience - considerations with special attention to Southeast Asia and India

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Abstract

Urbanisation, climate change and development combine some of the major challenges for the 21st century. One aim of this paper is to identify key intervention areas to address climate change with special reference to Southeast Asia and a focus on India. Another concomitant aim is to point out where the currently prevalent approaches to urban climate change resilience are still blind. Thus in the beginning the nexus of urbanization and climate change is briefly outlined by describing the current state and implications. This is followed by discussing issues of intervention and, deducting from that, key themes for an action-oriented approach to urban climate change resilience. In the conclusion, however, several blind spots of the current approach highlight the needs for further research and rethinking at policy level.

Keywords: Climate Change and Urbanisation, Disaster Response, Urban Governance Frameworks, Urban Planning, South/Southeast Asia

Introduction: The Need for Urban Climate Change Resilience

Climate change is now accepted as a reality originating from the actions of humankind. A global consensus has been reached on the fact of the direct cause and effect relationship between the way humans use and consume resources. In a series of reports published by the Intergovernmental Panel on Climate Change (IPCC), scientists and scholars from many different disciplines demonstrate our responsibility for accelerated melting of ice caps in the Polar Regions and on mountains, rising sea water levels, heat waves and torrential rains, and many other malfunctions of the global climate. A number of international organizations, first among them the UN, have recently published their reports exclusively focusing on climate change, the latest being the Human Settlements Report 2011 (UN-Habitat 2011).

This revitalized recognition of climate change coincides with another significant global event: for the first time in history the majority of the global population lives in urban settlements (UNFPA 2009). Rapid and accelerated growth of urban areas has resulted in manifold demands on the economy, society, and last not least the environment. Many parts of cities have become unhealthy, unsafe and are utilizing natural assets (land, water, air) without considering the consequences. A considerable proportion of city dwellers are also forced to live in inappropriate conditions in congested and substandard low-income housing areas.[1] Frequently, the thus created multiple hazards result in excessive environmental risks and a low quality of life. Consequently, towns, cities, megalopolises, and urban corridors will be pivotal in combating the impact of climate change and in developing strategies for adaptation and mitigation. On the way to an adequate response to this challenge, the policy recommendations and areas of intervention identified for concerted global action must be

1 The Global Report on Human Settlements 2003 reports: "The total number of slum dwellers in the world stood at about 924 million people in 2001. This represents about 32 per cent of the world's total urban population. At that time, 43 per cent of the combined urban populations of all developing regions lived in slums, while 78.2 per cent of the urban population in least developed countries were slum dwellers."

down-scaled onto the national and local levels. Only with a spirit similar to the Local Agenda 21 can we attain measurable impact and results.

In this scenario the Asia region - particularly China, Southeast and South Asia - assumes great importance, for this region combines several 'urban superlatives'. It does not only comprise the world's largest urban population, but also nearly half of the world's largest and fastest-growing cities - in the period 1950-2000 - are located in Asia (Satterthwaite 2007). Projections of urban growth for Asia are staggering as well. By 2050, the urban population of the developing world will reach 5.3 billion; Asia alone will host 63 percent of the world's urban population, or 3.3 billion people, while Africa, with an urban population of 1.2 billion, will be home to nearly a quarter of the world urban population (UN-Habitat 2008). An additional burden or challenge respectively, is posed by the slum population. According to 2005 estimates (UNFPA 2009), India inhabited worldwide the highest total number of more than 100 m. Slum dwellers who make approximately 35 percent of the total urban population of the country. With nearly 44 percent, the share of slum dwellers as to the urban population is even higher in the Philippines.

A central objective of this essay is to demonstrate, on the one hand, the existing links of disaster risks with climate change, and on the other hand, move beyond a mere discussion of the major issues towards a hands-on approach indicating avenues of intervention with a focus on governance frameworks. The data presented here are based chiefly on a review of existing recent literature in these fields and complemented by empirical research on risk governance and communication conducted by the author in India.

Linking and Synergising

Significantly, the 2009 Global Assessment Report on Disaster Risk Reduction (ISDR 2009) found that little progress is being made in the mainstreaming of disaster risk reduction into economic, social, urban, rural, environmental, and infrastructure planning. This means, with climate change as another cross-cutting issue to be incorporated into urban planning, the aim must be to generate meaningful links and synergies between existing activities. In my opinion, these concerns particularly the three areas of sustainable urban development, risk management/prevention and climate change resilience, which is also touched upon by the IPCC (2007a: 820-32).

Since the 1990s sustainable urban development has been promoted to reduce the urban ecological footprint, the regeneration and use of resources and the amelioration of poverty particularly in cities in the developing world. However, ecological sustainability is only one among a set of 'sustainability dimensions' that is linked to social sustainability, economic sustainability, physical sustainability, and eventually political sustainability (DPU 2002). The last mentioned sustainability dimension is concerned with the quality of governance systems guiding the relationship and actions of different actors among the four other dimensions. It thus suggests that the governance approach may provide the suitable framework in assisting local governments to tackle the challenge of complex issues in rapidly expanding urban agglomerations.

From this perspective, I would argue, that currently climate change has 're-taken' the global agenda with a focus on these same issues (environmental degradation, sustainability, disaster management), again stressing the rapid urbanization and the resulting consequences if action is not taken. Apparently, in many countries, natural disaster management programmes

operate often isolated from other development agendas. Hence there is an urgent need to build on experiences from, for example, the Local Agenda 21, to connect ongoing initiatives, projects and programmes in order to synergise the development efforts. Thus, in Revi's (2008) assessment for India, a great missed opportunity since the early 1990s was to connect and integrate the official climate change adaptation agenda with the fast developing field of disaster risk management and mitigation capacity, particularly after several major disasters.

Hence the objective is to bring the urban agenda of climate change resilience and risk management under the umbrella of sustainable development in a more strategic manner. Such an effort will not only utilise lessons learned and build on best practices, but will equally use scarce resources – manpower, funds, time – more efficiently. Inherent in international development is an attitude by which all too often a "new" topic diverts attention and resources away from ongoing activities instead of developing these further. More than ever it is essential that we think in terms of "integrate and develop" rather than "segregate and develop". The challenge of climate change will demand this kind of integral thinking from humanity at large, from policy makers, politicians, civil society and ordinary people.
Hamilton (2007: 165-67) writes in this respect that humans have to redefine structures and concludes

> "[…] we will have to start redefining relationships so we can approach this monumental task in a new way. In fact we could start with redefining our relationships with the Earth itself. Effectively this means that we must transcend and include our current behaviours and the structures that emanate from them. This would start with recalibrating our underlying values of unrestrained expansion, our competitive but destructive relationships and our assumption of rights without responsibilities in the world. *We must shift into a systemic mindset where rights, responsibilities and structures become aligned*" (emphasis added).

Urbanisation, Disaster Risks and Risk Management

The Global Report on Human Settlements 2007 (UN-Habitat 2007) notes that by comparison, Asia is the most disaster-prone region. As a consequence of the high density population the number of people affected and mortality is highest in this region for almost all disaster types. In South Asia, a middle- to low-income sub-region, urbanization is variable, with many large cities and megacities, but also with substantial numbers of intermediate and small settlements. Over the last three decades, natural and human-made disasters have claimed millions of lives and caused huge economic losses globally. Cities, where much of the world's assets are concentrated, are fast becoming the locus for much of this destruction and loss from both technical and natural disasters (UN-Habitat 2007: 170). Rapid urbanization, coupled with global environmental change, is turning an increasing number of human settlements into potential hotspots for disaster risk. Evidence from Asia and other developing regions demonstrates how drivers such as urbanization, environmental change and territorial occupation are fundamentally shaping the geography and evolution of extensive risk (ISDR 2009: 72).

The Indian subcontinent is among the most vulnerable regions in the world on account of its unique geo-climatic conditions. Natural hazards comprise drought, floods, cyclones and earthquakes, each having various impacts on the country and the people. Among the 31 States and Union Territories, 22 are disaster prone. This vulnerability to natural disasters is compounded by frequent occurrences of manmade disasters like fires, epidemics, etc.

Between 1988 and 1997, disasters killed more than 5,000 people and affected 24.79 million every year. Due to the changing topography on account of environmental degradation, the vulnerability of the country has also increased, for instance, in 1988, 11.2 percent of total land area was flood prone, but in 1998 floods inundated 37 percent geographical area (Ministry of Home Affairs and UNDP 2002, Sharma 1999: 2). By and large, around 57 percent of the land in India is vulnerable to earthquakes, 28 percent to droughts, 12 percent to floods and 8 percent to cyclones (Sinha, 2003). Sinha (2003: 45) also points out a significant link:

> "The Indian subcontinent has been exposed to disasters from time immemorial. The increase in the vulnerability in recent years has been a serious threat to the overall development of the country. Subsequently, the development process itself has been a contributing factor to this susceptibility. Coupled with lack of information and communication channels, this had been a serious impediment in the path of progress."

In addition, the Ministry of Home Affairs (2004: 63) in a recent Status Report on disaster management recognises the important fact that "the extent to which a population is affected by a calamity does not purely lie in the physical components of vulnerability, but is contextual also to the prevailing social and economic conditions and it's consequential effect on human activities within a given society." For example, research in areas affected by earthquakes would indicate that single parent families, women, handicapped people, children and the aged are particularly vulnerable social groups; hence the geophysical setting with unplanned and inadequate developmental activity is a cause for increased losses during disasters. In the case of India, this factor sometimes tends to be as important as physical vulnerability attributed to geography and infrastructure.

Within the South Asia region, India's role in disaster risk management and its response to climate change will be eyed by its neighbours. There is another reason for India's weight, that is, it combines the second largest urban population in the world amounting to more than 300 million. One remarkable characteristic of the urbanisation process is the continuing trend of metropolitanisation, and extreme concentration of population would surely subject cities to greater risk of damage of life and property in the event of disaster. Delhi, Mumbai and Kolkata are considered to be among the most vulnerable cities in the world. Typically, a major proportion of the populations in the three cities live in slum and squatter settlements, facing multiple risks of health hazards, fire, flood, earthquake, road accidents, riots, and eviction. All these dangers are compounded by the extreme densities in these settlements (DMI et al. 2002:75).

Furthermore, it is now well known that the system of modern physical planning with master planning and Town Planning Acts has contributed to the marginalisation of the poor and forced them to live in unauthorised settlements (Verma 2002). The by now well known constraints of a 'modernist' planning culture and the need for a much more differentiated perspective on responding to the urban conditions in developing countries was recently also propagated by UN-Habitat (2009). Urban planning in India is exercised by State Governments through Town and Country Planning Departments. In the wake of projected growth rates new urban areas will have to be developed to accommodate urban population and to provide them with basic facilities. This growth threatens to make cities unsustainable, because

i. The authorities have difficulties to ensure adequate provision of civic amenities.
ii. Demand for land has led to the use of unsuitable areas, which are unhygienic and prone to natural hazards, and
iii. Rapidly growing cities contain an increasing number of poorly constructed buildings (Murthy 2004: 174).

City case studies demonstrate the complexity and multitude of occurring risks, as well as the high exposure of poor citizens, thus demonstrating that a perspective which focuses merely on natural disasters is insufficient in the long run. Thus in a study on Ahmadabad I propose to look at risks from a social constructivist perspective that stresses the intersection of people's perception, non-linear interdependencies between causes and effects, as well as low probability, high and sudden impact disasters versus high probability, accumulating and (s)low impact disasters (Woiwode, 2007, 2008, 2009). By virtue of this approach the boundaries of human induced and natural disasters are blurred to such an extent that this distinction becomes almost inadequate. As a result of this analysis, we also need to find other ways of response. One such option that resulted from my own research will be discussed with respect to risk governance in section 6.

Nonetheless, in spite of the International Decade for Natural Disaster Reduction (IDNDR) and the ongoing International Strategy for Disaster Reduction (ISDR) since the 1990s, the awareness and political willingness is low to invest in preventive risk mitigation measures at the local urban level. However, there is an optimistic trend, as it seems: "During recent years, however, the value of investing in risk reduction is being recognized and reflected in international and national funding for disaster-related interventions. This is partly due to evidence illustrating significant cuts in the economic, social and environmental costs of disaster where a risk reduction approach is adopted" (UN-Habitat 2007: 43).

The Multi-dimensional inter-linkages between Urbanisation and Climate Change Risks

Clearly, it is entirely insufficient to tackle climate change without recognizing its intrinsic connectedness with disaster risks. Similar to disaster risk management, we need to ask a few central questions: How to Measure what? Who is to blame? And who will take responsibility? Risks are socially constructed (Beck 1999, Douglas 1992, Lupton 1999), and so has been the global consensus that climate change is real. As especially the recent debate about errors and misleading data in the IPCC reports illustrated, knowledge as such is not absolute yet extremely fragile. We have to acknowledge that knowledge particularly in this field is highly contested, and at times comes close to what one believes, which 'myth of nature' one adheres to (Adams 1995: 34). Therefore the following question is difficult to answer: what is the impact of climate change on cities, and vice versa, to what extent do cities impact or cause climate change? Yet the answer to this question will fundamentally influence the type and extent of action taken by urban local bodies and citizens to address the risks of climate change.[2] There are two distinct, polarising perspectives; one identifies cities as the "badies", the other one as the "goodies".

On the one side, cities and their inhabitants are highly vulnerable to the effects of climate change, but one argument goes they are also the main culprits causing changes in the climate:

2 This issue of measurability and responsibilities is discussed more in detail in the latest UN-Habitat Report, especially in Chapter 3.

> "Climate change has far reaching consequences for the incidence and impacts of disasters in cities. Cities are particularly vulnerable to the impacts of climate change, as this is where much of the population growth over the next two decades will take place and where a large and growing proportion of those most at risk from climate change reside. […] While cities remain vulnerable to the effects of climate change, they are also key contributors to global warming. Cities are responsible for 80 per cent of the carbon emissions that cause climate change through energy generation, vehicles, industry and the burning of fossil fuels and biomass in household and industrial energy consumption" (UN-Habitat 2007: 186).

Opposing the above statement is the following:

> "Cities are often blamed for contributing disproportionately to global climate change. For instance, many sources including United Nations agencies and the Clinton Climate Initiative, state that cities account for 75 to 80 per cent of all greenhouse gases from human activities. But the actual figure seems to be around 40 per cent. Of the 60 per cent of emissions generated outside of cities, a large part comes from agriculture and deforestation, with much of the rest coming from heavy industry, fossil-fuelled power stations and wealthy high-consumption people who live in rural areas or urban centres too small to be classified as cities" (Satterthwaite 2008: 12).

The latter argument takes on a more differentiated perspective. It is not cities that are responsible for greenhouse gas emissions, but particular activities. Inventories of activities can allocate these between cities, other urban centres and rural areas. Some cities have surprisingly low per capita emissions, because the electricity they import does not come from fossil-fuelled power stations. Moreover, greenhouse gas emissions used in producing goods or services can be allocated either to production or consumption. Obviously, assigning these emissions has enormous significance for how responsibilities are assigned in addressing them between cities. Yet "seeing cities as 'the problem' draws attention away from the fact that the driver of most emissions is the consumption patterns of middle- and upper-income groups in wealthier nations" (Satterthwaite 2008: 12).

The conclusions from such debates are at least twofold:

i. Climate change is a complex issue characterized by multi-causal interdependencies; therefore the search for clear-cut relationships is futile.
ii. At the same time climate change involves differentials of many kinds like rich versus poor, North versus South, urban versus rural, high versus low consumption groups, and so on.

In the same vein of contested knowledge appear the probable impacts of climate change on cities in terms of affected territorial area as well the intensity and severity. As always, results of projections depend on which data are taken as base information. At this point I do not intend to repeat all the probable impacts on cities, since they have been described in numerous other studies. I therefore treat them summarily and then focus on one particular projection in India.

For cities, the most obvious increased risk from climate change comes from the increased number and intensity of such extreme weather events as heavy rainstorms, cyclones and hurricanes. The cities most at risk are those where these events are already common – although there is some evidence that the geographic range of some extreme weather events is expanding. For any city, the scale of the risk is much influenced by the quality of housing and infrastructure and the level of preparation of the city's population and key emergency services (IIED 2007).

Urban population is highly at risk in coastal zones. The population in the near-coastal zone (i.e., within 100 m elevation and 100 km distance of the coast) has been calculated at between 600 million and 1.2 billion; 10% to 23% of the world's population (IPCC 2007a: 333; 372). A study undertaken by Greenpeace (Rajan 2008) on climate change and migrants in South Asia estimates that if global temperatures rise by about 4-5^{o}C in the course of the century, as they are projected to under the business-as-usual growth in greenhouse gas emission, the region could face a wave of migrants displaced. Bangladesh, Pakistan and India, sharing one coastal line, currently combine nearly 130 million people in what is known as the Low Elevation Coastal Zone (LECZ), which comprises the coastal zone below 10 meters above average sea level. Worldwide, the LECZ represents 2 per cent of the world's land area but contains 10 per cent of its total population (i.e. over 600 million people) and 13 per cent of its urban population (around 360 million people). Almost two-thirds of the world's cities with more than 5 million inhabitants fall at least partly within this zone. Population concentrations in this zone also appear to be increasing in most nations. Low-income and lower-middle income nations have a higher proportion of their urban population in this zone than high-income nations. One estimate suggests that some 10 million people are currently affected each year by coastal flooding and that this number will increase under all the climate change scenarios (IIED 2007).

India, with more than 30 million people living in the low elevation coastal zone, concentrates the second largest population worldwide after China. Large coastal cities in India such as Mumbai and Kolkata are at average elevations of 2-10 meters. Rajan (2008) suggests that major population movement from these and other coastal mega cities like Chennai are likely to occur to other large urban settlements in the interior of the country rather than to smaller cities on the coastline. If this is true, and we cannot be certain about it since in India small and mid-size towns have at times witnessed faster growth through in-migration than megacities, then already burdened cities such as Delhi, Bangalore, Ahmadabad, Pune and Hyderabad, which will have serious resource constraints of their own by the middle of the century, will have to be prepared to accommodate enormous numbers of migrants from the coasts. Historical evidence of migration from regions affected by ecological or other stress indicates that population movements tend to take place in waves, often towards regions that are seen as being attractive in terms of job opportunities, existing family ties or cultural affinity.

However, the bulk of the region's LECZ population (about 97%) lives in Bangladesh and India almost in equal share. While in Bangladesh the most vulnerable population is rural (75%), in India it is almost equally split between both rural and urban population (see table 1).

Table 1: Summary of Low Elevation Coastal Zone (LECZ) Statistics for 3 Countries in South Asia

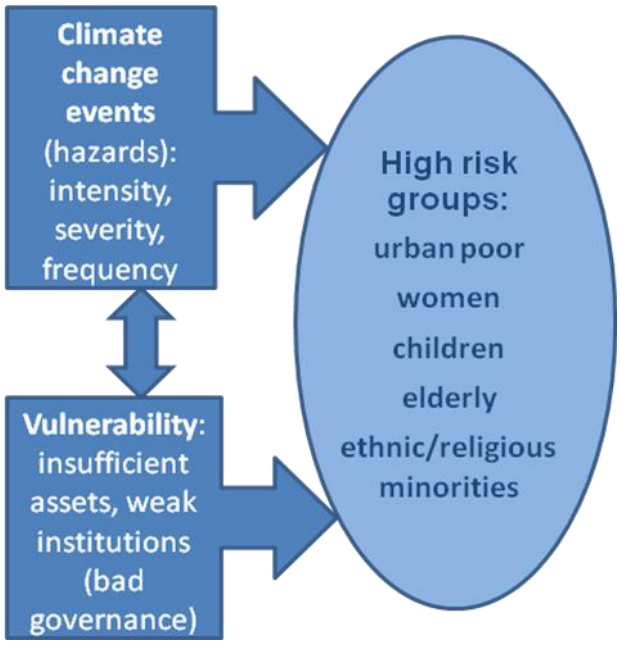
	Area of LECZ (sq.km)	Population in LECZ	Urban Population in LECZ	Fraction of Urban Population in LECZ in Cities Exceeding 5 Mill.
Bangladesh	54,461	65,524,048	15,428,668	33%
India	81,805	63,188,208	31,515,286	58%
Pakistan	22,197	4,157,045	2,227,118	92%

Source: Rajan 2008, based on SEDAC.CIESIN.ORG

The majority of those flooded due to sea level rise will be in South Asia, mainly in India and Bangladesh. A one meter sea level rise would result in nearly 6000 square kilometers in India being flooded, including parts of Mumbai, Kolkata and Chennai. The impacts, however, will vary by location depending on morphology and human modification. Yet clearly urbanization has led to the enlargement of natural coastal inlets, port facilities and pipelines, all of which exacerbate saltwater intrusion into surface and ground waters. Thus built up areas are more vulnerable than those protected by mangroves, and deltas, corral islands, beaches and barrier islands are especially at risk (Rajan, 2008).

At another level, urban areas will feel the impact of droughts and water scarcity. Other risks from climate change are less dramatic but nonetheless serious, especially for low-income groups. Many cities will get less precipitation, and may need to adapt water supply systems. At least 14 African nations are already facing water stress or water scarcity, and many more are likely to join this list in the next 10–20 years. Around half of Africa's urban population lack adequate provision for water and sanitation, although this has far more to do with inadequate governance than with water shortages (IIED 2007). According to Rajan (2008), in India, drought prone areas are mostly interior, as compared to coastal zone migrants, and predominantly rural, agricultural zones (Western Rajasthan, southern Gujarat, Madhya Pradesh, Maharashtra, northern Karnataka, northern Andhra Pradesh, and northern Bihar). Accordingly, the least resilient communities in this case will probably be landless agricultural workers and tenant farmers of which most will also move towards urban areas.
Usually, people most at risk in affected areas are those who are:

i. Least able to avoid the direct or indirect impacts (e.g. by having good quality homes and drainage systems that prevent flooding; by moving to places with less risk; or by changing jobs if climate change threatens their livelihoods);
ii. Likely to be most affected by them (for instance, infants and older groups less able to cope with heat waves); and
iii. Least able to cope with the illness, injury, premature death, or loss of income, livelihood or property caused by the impacts.



These insights about the vulnerability of at-risk groups have been investigated in detail in the context of disaster risk management. Lack of resources in terms of natural (e.g. land, water), social and political (e.g. family, social networks), human (e.g. knowledge, skills) and physical assets (e.g. roads, clinics) increases the vulnerability of poor communities. Also, by relocating them, the destruction of social networks and/or loss of jobs cause further hardship for poorer people. Unsurprisingly, vulnerability adds to the conceptualisation of poverty and extends the understanding of the process by which people become and remain poor (Chambers 1989). In view of this, multiple dimensions of urban poverty overlap with the concept of livelihood risk assessment especially in terms of the security deficits of the urban poor population. This comprises of income, employment, personal, and natural risks as well as informal and formal insurance systems (GTZ, 2003). Assets such as human investment in health and education, productive assets such as houses and domestic equipment, or access to community infrastructure, patrons and the government for resources in times of need are seen to be closely linked to the concept of poverty (Wratten, 1995). By virtue of this statement these assets must be viewed as the crucial means in times of need. They determine how fast and in which way households recover from disasters or can manage everyday risks.

Issues of Climate Change Intervention

As highlighted, there is a clear link between the environmental and developmental agenda, which converged in the notion of sustainability in the 1990s. Simultaneously, this decade was declared the International Decade for Natural Disaster Reduction (IDNDR). It may be expected that the current decade will be dominated by the debate on climate change risks and how they can be addressed. This emergent continuum of topical issues has to be kept in mind in order to integrate the various focus areas.

Balancing mitigation and adaptation: The need for city governments to reduce emissions is well established – and many city governments in Europe and North America are already acting on this. But the need to adapt to climate change by reducing the associated risks is receiving attention only for the past few years. Discussions of how to address climate change have focused far more on mitigation (reducing greenhouse gas emissions) than adaptation (coping with the storms, floods, sea-level rise and other impacts that climate change will

bring) (Satterthwaite *et al.* 2007). The need for adaptation has been much increased by the failure of high-income nations to reduce greenhouse gas emissions. There is also the worrying time lag between the reduction in emissions and the effect on climate change. However unfair this is, action is still needed everywhere to reduce emissions and to adapt to reduce risks. And action is needed in each locality, tailored to the specifics of that locality – which means a need for local governments to have the knowledge, capacity and legitimacy to act effectively. If the need to reduce greenhouse gas emissions was less pressing, there would be a strong case for saying that this was entirely the responsibility of the rich world. But one of the key determinants of future greenhouse gas emissions is how cities develop in the more prosperous low- and middle-income nations (IIED, 2007).

The Role of Local Urban Governance: All studies on climate change emphasise the inevitability of good governance mechanisms and inclusion of risk reduction and climate change adaptation in decision-making processes of local authorities. The quality of government at both national and local (district or municipal) level strongly influences the level of risk faced by those with limited incomes or assets. Government influences the quality of provision for infrastructure, for disaster preparedness and for disaster response. The potential "co-benefits" from investments to improve living conditions and to reduce risks from climate change are obvious (IIED, 2007).

Nonetheless, current governance structures and the institutional culture of most cities are inadequate to address the challenge of climate change adaptation and mitigation (Revi, 2008). Furthermore, speaking about the South Asia region it appears an awareness campaign is urgently needed: "The fact that climate change currently remains a low priority for most policy makers and is virtually unknown among the general public is merely a reflection of the poor state of knowledge about its dangers, combined with a general bias towards 'short-termism' in current political and policy discourse" (Rajan, 2008).

This discussion also points to the importance of a strong local information base and local governance systems that allow voice and influence to poorer groups. A few years ago a World Bank Report (2003: 107) concluded that urban governance relates directly to risk reduction and the communication of risks, if informed constituencies are built to anticipate risks. An appropriate sharing of responsibility and coordination across stakeholders, wide participation in strategic planning and networking among involved actors are considered essential features of the institutional environment. Particularly informal, tacit knowledge, which is important to social relationships, thrives on face-to-face contacts. Also mobilizing for action to solve problems (such as urban risks) requires that the stakeholder groups gain access to credible information on consequences, costs and benefits and that they perceive a common interest in finding a solution. Evidently, building an effective constituency is often more difficult where the impacts are uncertain and infrequent, as in disaster risk mitigation. Therefore, before times of crisis, it should be an objective of institutions to motivate action and share the costs and benefits of preventive measures among citizens in a fair manner.

So there is an obvious urban agenda focusing on more competent and accountable city and municipal governments, with adaptation built into development plans. But there is little evidence of national governments and international agencies responding to this. The authors of a recent study on urban governance and climate change in ten Asian cities point out:

> "The exposure of these [risk] conditions and human-induced vulnerabilities is providing motivation for integrating climate adaptation into city planning, though while desire and a degree of awareness seem to be evident, real progress is severely limited in most of the cities studied. [...] *Deeper investigation and analysis are required to understand the extent to which good urban governance and climate resilient urban planning and development can be linked to deliver pro-poor climate adaptation through achieving risk reduction for the most vulnerable populations.* Governance arrangements must be able to address infrastructure, services and housing provisions for marginalized communities and in-migrant populations and therefore must form a core component of any climate resilience governance framework and a core consideration of further vulnerability assessments within each of the cities" (Tanner *et al*. 2008: 33, emphasis added).

And further,

> "...a balance must be struck between the need to build climate resilience rapidly and the need to avoid maladaptation by ensuring marginalized voices and climate science agencies contribute to the process of decision-making, planning and implementation" (Tanner *et al*. 2008: 33-34).

Urban planning and land use management: There is frequently a failure to prevent new development in areas at risk of flooding; to provide alternative, safer sites for low-income groups; and to protect areas that should be left undeveloped because they help buffer flooding risks (for example, wetlands). Urban growth needs to be managed to take account of climate change risks, as well as addressing the needs of low-income groups. This will not be done by the market, and can only be done by governments working with, and accountable to, those who are most at risk (IIED 2007). Yet in reality:

> "Most of the urbanization challenges are still the result of a lack of integrated environmental and urban planning. Policies for more sustainable patterns of urbanization are frequently not implemented. Short-sighted concessions for economic gain, weak institutions and corruption are major factors in the proliferation of planning "oversights," "exceptions" and other forms of inappropriate development in urban areas" (UNEP 2007: 342).

Improved urban planning and provision of public services and infrastructure is crucial for both development and the building of climate change resilient cities. However, most local urban governments are not equipped to deal with these tasks in a systematic manner due to the lack of proper awareness and training which highlights the connectedness between urban development and climate change. In its report on managing cities, the Asian Development Bank concluded that

> "Asian city regions are neither as competitive nor as efficient as they should be. They are socially excluding and many Asian cities are damaging the environment. City management must address these problems in a practical way and it must build capacity to do so" (ADB 2008).

Planning practices and procedures have to be revised in order to incorporate decisions on disaster risks, climate risks, and connect them to the citizens, especially the poor urban population. Urban planners are required to acquire skills that go beyond mere technical

knowledge of drafting plans, utilising GIS, and formulating master plans. They need to be trained as facilitators in community driven development, action planning and institutional change. Likewise, there is a need for politicians to recognise and appreciate the potentials and opportunities of public consultation processes, and to consider these as both an integral part of urban planning and for building and expanding their constituencies.

Capacity for integrating climate risk reduction into city development plans is influenced by levels of awareness and understanding of climate risks and levels of motivation among elected representatives and government departments. Access to resources is also significant particularly in those cities with substantial financial autonomy. Accountability mechanisms in city planning and the participation of city residents in planning processes provide further indicators of the city's capacity to implement meaningful and pro-poor climate adaptation programmes (Tanner *et al.* 2008).

Nevertheless, there is a feeling that more involvement is needed of the communities or people who are to be most affected. Particularly at local level, currently climate change related issues are only being discussed by academics and officials. Yet risk adaptation and mitigation measures need to address particular populations and elements in city regions/agglomerations to be effective in responding to a heterogeneous field of constraints and opportunities. Decentralised adaptive management strategies that engage with political, policy and implementation continuum from neighbourhoods, city and region to national level appear to be more effective than centralised top-down interventions. It requires new structures of governance and urban management that link short-run priorities with long-run strategic actions – a major shift in the current urban management paradigm (Revi, 2008).

Poverty alleviation and economic opportunities: As pointed out earlier, the highest risk groups include low-income urban dwellers, socially marginalised and other highly vulnerable groups like women, children, and coastal population. The implications here are far-reaching as they comprise issues of equity, empowerment, as well justice and fairness in terms of processes (planning, project implementation, target groups) and distribution (of resources, of risks).

> "The urban poor, particularly those in informal settlements, are more at risk from climate shocks and stresses than other groups within urban populations. There are clear indications that building social resilience to climate change in an urban context requires robust governance structures that effectively target the needs and well-being of poor and marginalized groups. [...] Climate change resilient governance has much in common with pro-poor urban governance. [...] A balance must also be struck between focusing on risks directly associated with climate change impacts, and broader human-induced development problems that affect vulnerability" (Pollack et al. 2007, emphasis added).

One such broader human-induced development problem is the interdependence of poverty and environmental burdens in cities. This has been widely acknowledged and documented, but is far from being resolved (see e.g. Hardoy *et al*. 2001; Mc Granahan, 2001). A recent publication of the Canadian International Development and Research Centre states that

> "[t]he urban poor suffer disproportionately from environmental burdens as a result of their poverty. Environmental burdens include lack of basic

> environmental services, environmental degradation caused by pollution or over-pumping of water, and vulnerability to natural disasters" (IDRC, 2005:8).

Once more, the authors conclude even when national government policy is pro-poor and accompanied by appropriate de-centralization of authority, it is rarely accompanied by the resources or governance mechanisms required to partner with poor communities to achieve supportive national policies.

Key Themes for an action-oriented Approach to Urban Climate change Resilience

According to the previous discussion it may be argued that good urban governance is one of the most critical factors to reduce risks to disasters in a strategic, systemic manner, to both mitigate and build resilience for climate change. It has been highlighted that this needs specific managerial skills, but beyond this it requires profound rethinking and attitudinal changes in urban development practice. For this reason, organizational and institutional development of all those actors with a stake in urban development and climate change resilience is urgently needed. However, within this group - which is broadly conceived as public institutions (ULBs, utility agencies, etc.), private sector, and the civil society sector – one specifically targeted focus group are urban local governments since they are the authorities at the local level and should therefore be equipped to take on the lead role in the process.

Such an approach has manifold advantages and implications for a broader outreach, because by developing the capacities of urban authorities to tackle climate change risks, the much wider issue of urban planning practices in terms of the general development agenda of cities, particularly the concept of sustainability, public participation and inclusion of the underprivileged groups is taken into account as well.

At this stage I identify four main related topical components which inform action towards this end:

i. Urban governance for risk reduction and climate change resilience;
ii. Social inclusion and community participation;
iii. Urban management and planning - capacities for urban local bodies;
iv. Moulding alliances and building networks.

Urban governance for risk reduction and climate change resilience: The Institute for Development Studies' research asserts the following,

> "Climate change has the ability to spring surprises, whether in the emergence of new problems or in the impact of disasters, which may occur with a greater frequency or higher severity than the city has previously experienced. Accordingly, a city requires flexible agencies and management systems, suited to responding to and anticipating these surprises. Evidence suggests that an inter-agency, cross-government body dedicated to tackling the potential and actual impacts of climate change is desirable, and one which bases planning and programming on climate change scenarios" (Tanner *et al.* 2008).

A result of this study is an analytical framework that promotes urban governance for climate change resilience. It comprises five conceptual areas:

i. Decentralisation and autonomy: This encapsulates the ability and capacity of municipal governments to make decisions and implement across a range of responsibilities and services. These include in particular finance, urban planning, and disaster management. Autonomy focuses in particular on the relationship with other levels of government and other interest groups, as well as financial independence and managerial capacity of municipal authorities.
ii. Transparency and accountability: Delivery of climate resilient urban development relies on a municipal system that maintains a relationship of accountability to its citizens, and is open in terms of financial management, information on the use of funds and adherence to legal and administrative policies.
iii. Responsiveness and flexibility: Resilience in the face of uncertain climate shocks and stresses relies upon a governance system that can respond rapidly to a range of different scenarios and communicated needs. This category can draw in particular on studies of the components of flexible and adaptive decision-making.
iv. Participation and inclusion: Participation and inclusion refers to the governance arrangements that enhance or preclude the participation of all citizens in decision-making, monitoring and evaluation. This refers in particular to the groups of citizens most vulnerable to prevailing climate shocks and stresses (including those in informal settlements).
v. Experience and support: A resilient urban system will build on existing experience in planning and successful implementation of climate-related risks targeting vulnerable groups. Such experience will depend on technical and implementation support to enable the successful implementation of adaptation strategies, including in the NGO / civil society sector, as well as technical and academic institutions.

Inclusion and community participation: This component is essential for the success of risk reduction measures and climate change resilience. It might prove valuable to connect to the Local Agenda 21 process begun in the 1990s, which has a strong emphasis on local, participatory involvement of urban citizens who are seen as the driver of the process. The significance of this component lies in the fact that

> "[...] the impact of climate change in urban areas is likely to disproportionately affect the poorest and most vulnerable first and most severely, their integration in decision-making and policy processes is crucial for building climate resilience. *This characteristic is necessarily tied to citizens' rights to information, as without information disclosure, meaningful participation and inclusion is not possible.* Additionally, the quality of participation and inclusion can be somewhat difficult to ascertain (from tokenism and 'politicised consultations' on the one hand to citizen-led processes on the other), but climate resilience must be a product of balancing citizen-led processes with timely and efficient implementation." (Tanner *et al*. 2008: 34, emphasis added).

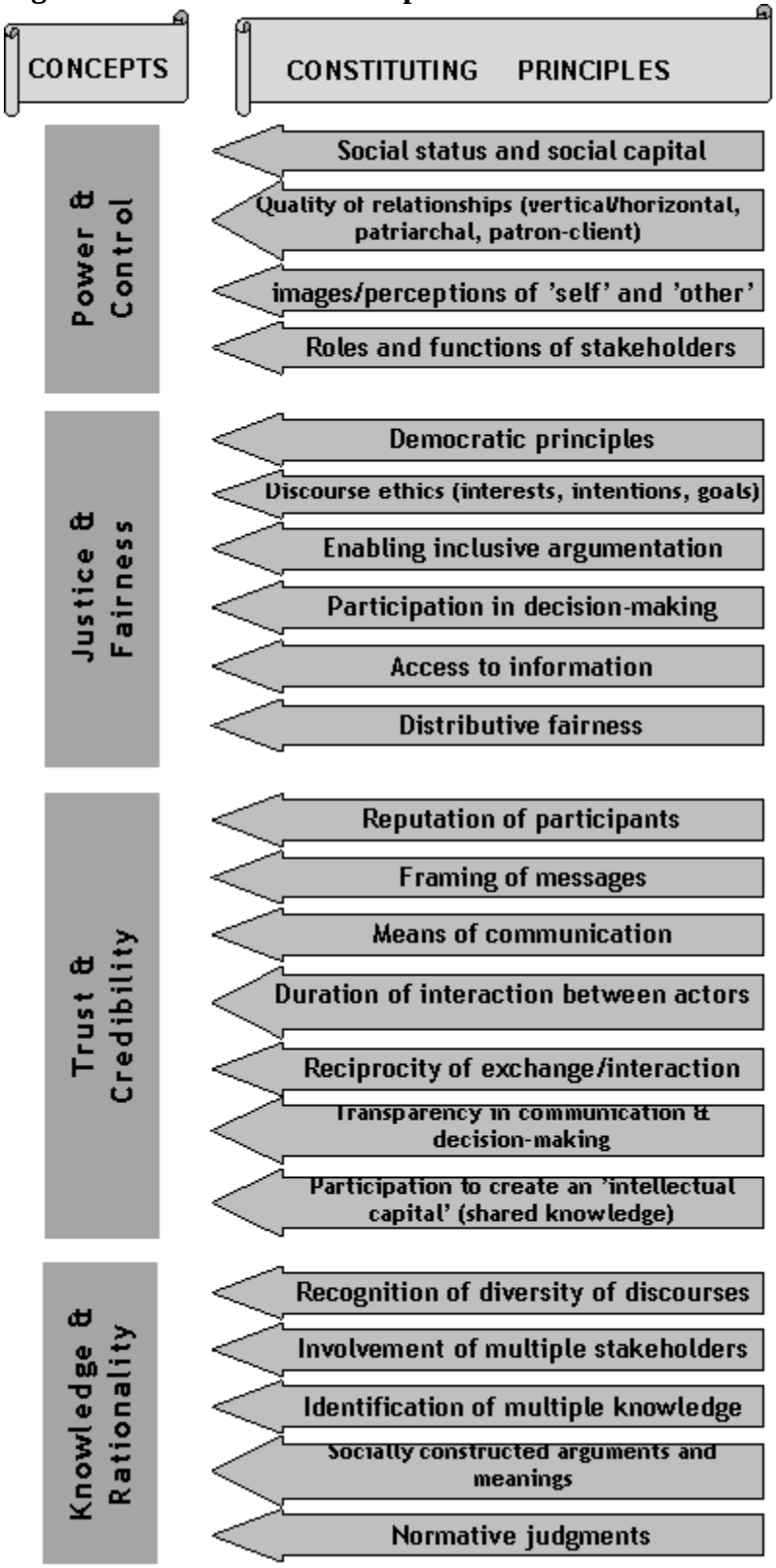
The UN-Habitat Report 2007 stresses the lack poorer countries and urban authorities display in the necessary skills and resources to undertake risk assessments. A lack of data to complement assessment techniques, such as census data, poses an additional challenge to risk assessment. Participatory approaches present opportunities for overcoming some of these challenges by enabling communities to assume greater control over information and interventions, thereby enhancing their resilience. In a similar vain this report contends that although significant gains have been made in collating scientific information on approaching

risks and hazards, communicating this information to risk managers in a timely and appropriate manner has not been easy. It is also important that information flows are transparent and clear and help to build trust between those communicating and receiving the information. Where information on imminent hazards has not been available or failed to be communicated, potentially avoidable losses have been magnified unnecessarily. Evidence suggests that the more localized early warning and response knowledge can be, the more resilient these systems are in times of disaster.

In this respect, other governance frameworks have been proposed, one of which may be particularly useful for consideration, as it focuses on risk communication as an interactive-discursive dimension of urban governance processes (see Woiwode, 2008 and 2009). This framework can be combined with the above outlined to generate the desired synergies. It also proposes four twin concepts. The twin concepts – power and control, justice and fairness, trust and credibility, knowledge and rationality - form the explicit conceptual interface between risk and communication, which have been brought together under the umbrella of urban governance (see figure below):

i. Power and control: Social status and social capital of the respective actors, the quality of the relationship and their interaction, the external and internal identity of the groups as well as their roles and functions are the main concern. Power and control have been identified as significant determinants in both the distribution of risks and interactive (communicative) relationships.
ii. Justice and fairness: Social justice has emerged as one of the major concepts within urban governance and communication. In terms of communication it refers to the deployment of fair and accepted methods of social interaction, based on what is judged as right or wrong by the stakeholders. Hence the twin of justice and fairness relates in particular to the practices of democratic principles, the use of discourse ethics, to what extent inclusive argumentation and participation in decision-making are practiced, and lastly the access to information and distributive fairness of risks.
iii. Trust and credibility: Trust is perhaps the most crucial dimension in communication processes, there is virtually no publication in this area that does not highlight its importance. Six major principles constitute this twin concept, namely the reputation of participants, the framing of messages, means of communication, duration of interaction between actors, reciprocity of exchange and transparency in communication.
iv. Knowledge and rationality: This is a critical and contested dimension in risk communication, for the nature of the phenomenon ‘risk’ forces us to admit all risk assessment is socially construed. It is a blending of science and judgement including psychological, social, cultural and political factors. Knowledge and rationality combines five principles, notably the recognition of the diversity of discourses, involvement of multiple stakeholders, and identification of multiple knowledge, socially constructed arguments and normative judgements. Recognition of the diversity of knowledge and rationalities, and listening to it is pivotal in communication for development.

Figure: The Four Twin Concepts in Risk Communication



Source: Woiwode, 2007

Urban management and planning - capacities for urban local bodies: The implications of creating a favourable environment to face natural disaster risks and climate change are great for urban management and planning, since

> "City governance involves multiple actors and boundary issues. This makes it difficult to develop consistent, coordinated citywide strategies and policies. The strategic environment for urban development in Asia that provides the context for city governance is often below standard and gives confusing signals. The institutions of city governance—mainly local governments and special purpose authorities—often have poorly developed capacity in leadership, processes, and systems, and in human and financial resources. This has led to poor strategic plans and policies and in problems of administration and implementation" (ADB 2008: 142).

To this, the authors of the case study from Chittagong add (Tanner *et al*. 2008):

> "Climate change is such an all-encompassing environmental problem that impacts most sectors in some way. Integrated planning and cooperation within and between agencies and institution is needed to tackle the problem and come up with a sustainable strategy for long-term climate resilience. Urban governance and the present activities need to be revised and reformed, taking into account climate change and its adverse impacts. [...] the 'mainstreaming' of climate risk assessments and climate scenario-based planning across sectors of the city government and in the development of projects, helps to build resilience."

Besides underscoring the need for capacity building, the quotes touch on the very issue of the planning profession and of how planning is conceived and practiced at present. Findings of a report published by Urban Age (2008), which promotes the concept of "integrated city making" in terms of governance, planning and transport, also document severe shortcomings in planning and the planning profession in India. According to responses of interviewed professionals, planning emerges as the most dominant key challenge in the four Indian cities studied[3]. Important to note is this statement: "As such, the planning challenge is *a problem relating to process* rather than content" (Urban Age India 2008: 5; emphasis added). The different aspects of planning challenge, which must be viewed as closely related to the governance challenge, are subsequently summarised (Urban Age, 2008: 5).

3 Mumbai, Delhi, Kolkata and Bangalore

Table 2: Different aspects of planning challenge

Pace of change	Growth overtakes planning Outdated plans and laws Reactive planning Incremental implementation
Implementation	Colonial legacy Weak enforcement Implementation deficit Planning agencies disconnected from implementation agencies Strong theory but weak practice
Planning capacity	Skills shortage in town planning Insufficient planning skills Diffusion of professional planning Consultancy services fill the void Lack of reliable data
Integrated planning	Inability to address informal developments Struggle to embrace mixed use Prescribing details without addressing urban design Insufficient participation and communication Master plan hypocrisy Insufficient tools for dynamic cities Inflexible and lengthy review periods Lack of strategic vision and future-oriented thinking
City shaping	Lacking land use and transport synchronisation Limited capacity for policy evaluation Mismatch of urban governance with urban growth Inflation of plans and strategy documents Uncoordinated revisions
Planning as politics	Confrontation of professional planners and elected officials Arbitrary planning assumptions Planning being seen as a universal tool Struggle to measure planning success

Source: Urban Age, 2008: 5

The ADB (2008) suggests a detailed approach to change management for urban development institutions, which may be tapped on. In India, the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) may be utilised as a vehicle to support activities related to climate change resilience. In conclusion, in terms of planning capabilities related to managing governance processes and urban planning exercises, it will be crucial to incorporate other dimensions of development planning which hitherto have been notoriously neglected: "Technical, purely economic or even institutional 'fixes' typically will fail to deliver results unless local democratic, political and socio-cultural processes are engaged with around the themes of equity, social transformation, local 'voice' and 'agency'. Given the 'distance' between these concerns and those of the global climate change debate, a rather different set of strategies should probably emerge in India than those currently envisaged" (Revi, 2008: 219). This assessment is precisely the requirement and challenge to the transformation of planning practices and the shift in skills needed by planning experts to steer, facilitate and guide such socio-political processes in urban development planning and thus must be addressed adequately.[4]

4 For instance, planning education in India is dominated by architects and engineers, only in the 1990s have social scientists (particularly geographers) moved into this field (see Kumar, Ashok, 2008, Capabilities, Identities and Justice for the Urban Poor, in ITPI Journal Vol. 5 No. 3, pp. 1-20).

Moulding alliances and building networks: In a global world, exchange of information and learning from others' experiences is both a necessity and opportunity. International organizations and existing networks need to be tapped in order to utilize their expertise, consultation offers and international outreach. Of course, it is not possible here to enumerate all ongoing activities in this respect. Two of the more prominent ones are briefly outlined.

ICLEI is one such network that pays attention to climate change at the local level in its Cities for Climate Protection (CCP) programme (see http://www.iclei.org). The Cities for Climate Protection (CCP) Campaign assists cities to adopt policies and implement quantifiable measures to reduce local greenhouse gas emissions, improve air quality, and enhance urban livability and sustainability. More than 800 local governments participate in the CCP, integrating climate change mitigation into their decision-making processes. ICLEI runs this campaign either regionally or nationally in Australia, Canada, Europe, Japan, Latin America, Mexico, New Zealand, South Africa, South Asia, Southeast Asia, and the United States. The campaign is based on an innovative performance framework structured around five milestones that local governments commit to undertake. In addition, ICLEI provides regionally specific tools and technical assistance to assist local governments in reducing their greenhouse gas emissions.

Another promising activity is the "Cities and Climate Change Initiative" of UN-Habitat, which was launched in March 2009: "[It] is designed to support local action. It focuses on supporting the efforts of government agencies and local authorities in adopting more holistic and participatory approaches to urban environmental planning and management, and the harnessing of ecologically sound technologies" (UN-Habitat 2009: 9). At present this initiative has significantly less outreach than the one above. The pilot phase comprises only four cities in Mozambique, Uganda, Philippines and Ecuador, and expansion is intended to other regions.

These and other initiatives are very important to put the global challenge into local, context specific perspective, and vice versa utilize the locally specific circumstances and experience as a reference point to their global effects. In this way it is 'globalization' in action.

Conclusions

At a most fundamental level, it is crucial to understand the salience of the "triangle**"** of urbanisation, development and climate change. These three areas are deeply intertwined, hence any action needs to recognise this and accommodate the implications. Similarly, without linking and synergising of directly climate change related issues, all efforts to respond to climate change risks will fail. It is particularly necessary in the fields of a) disaster risk prevention/management; b) urban sustainability and environmental planning; c) Local Agenda 21. Governance has been identified as one of the most critical elements to address climate change. So what role could urban governance play especially with respect to climate change resilience and disaster reduction? First and foremost, governance structures as informal relationships have the potential to be a) inclusive in terms of enabling broad participation in decision-making processes, and b) integrative in terms of enabling the inclusion of and generating synergies by taking into account cross-cutting, complex development issues. Apparently, each conceptual framework on urban governance emphasises specific aspects. Most governance frameworks however, include in some or the other way those elements presented in the first governance approach in this paper. In contrast

to this stands the second framework, which was developed particularly to address issues of urban risk communication under the presumptions that risks (including climate change threats) are socially constructed. Urban risk governance from this perspective may thus be even a vehicle to induce social change and institutional transformation in response to climate change (see Stren, 2001; Corubolo, 1999; WBGU, 2011). Eventually, such frameworks need to be further evaluated and their application needs to be tested and adapted to the specific local context.

Even though a lot of things are happening in the global discourse on climate change, some more questions need to be asked: of what kind might be the future perspectives in terms of global climate change? What is missing in the current debate about climate change? It is surprising, that the existential, spiritual dimension of climate change is widely neglected, even though the global progress has been very slow to negligible. Hence we must wonder "Has humanity really grasped the consequences of uncontrolled greenhouse gas emissions?" There are hitherto merely cautious and rare attempts to direct attention to this aspect of climate change (Chamiern, 2009, Homer-Dixon 2009, Woiwode, 2012); especially the relationship of humankind to nature, to environmental ethics and human rights does not find much attention. But which urban planner, engineer, transport or infrastructure expert is trained to think on such lines? Or how common is it that politicians and other decision-makers address this element of human existence? At least in the common approaches to international development and urban planning this is a "no-go area" (e.g. Ver Beek, 2000; Woiwode and Scholz, 2012).

Likewise, and of course connected to the above, climate change as a trigger of fundamental cultural transformation is not considered in the conventional approaches to urban development: that is, with the majority of humans being city dwellers, it refers to the transformation of urban life, a rethinking of what urban dwellers consider 'quality of life'. This relates to the deeply rooted values choices the societies around the globe have to make: for instance, in the course of their development in terms of the mode of urban transport: do we favour cars or promote other means of transport? In the changing food habits: as we 'develop' and become more affluent do we eat more meat or stay/become vegetarians? Obviously, most approaches to climate change response are of techno-bureaucratic nature, less addressing issues of human development. Recognising the transdisciplinary character of global climate change which goes beyond systems theory thinking and a corresponding response at the urban level has thus far been insufficiently explored, an exception is Bhaskar *et al.* (2010) and last year's policy report of the German Advisory Council on Global Change (WBGU, 2011)[5]. These are just a few examples of how our life is framed by values, beliefs and attitudes that are underpinning our actions and directly impact on climate change threat. Eventually, the *real* underlying implication of climate change risk is that our views of the world and the cosmos have to change in order to make the existence of our species truly sustainable. In other words, our 'cosmology' urgently needs a revision.

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5 A statement by this author on this pioneering report entitled "New Departures in Tackling Urban Climate Change: Transdisciplinarity for Social Transformation (a critical appraisal of the WBGU's 2011 Report)" will be published in the open access online journal Integral Review at the end of 2012.

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