

## Building Liveable Cities in Asia in the Twenty-First Century Research and Policy Challenges for the Urban Future of Asia

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### Abstract

*This article focuses on the central question of what kind of urban places need to be developed in Asia to satisfy the requirements of sustainability and livability over the next fifty years. The paper argues that the fact that Asia which contains almost 60 per cent of the world's population and is presently engaged in engaged in a rapid phase of the urban transition that will involve the addition of more than a billion people to urban places over the next fifty years means it imperative that urban policies be developed that will create urban places that are sustainable and livable. Yet there is at present there is a contradiction between the "developmentalist" "policies of many states that give priority at the is phase of development to the material and economic functions of urban places arguing that policies for sustainability and livability can be introduced at a later phase. The paper further argues that an increased understanding of the processes underlying urban trends in the 21st century suggests that it is not impossible for the "developmental" and "sustainability" visions to be introduced at the same time. This strategic vision rests upon the development of research that will increase the understanding of this process. Five main research clusters are identified that focus on (1) the understanding of the reconfiguration of extended urban spaces, (2) the increasing functional integration of extended urban spaces, (3) recognizing the importance of the urban fringes (desakota) in the ecosystems of extended urban spaces. (4) developing comparative research on the policy responses to the challenges of extended urban spaces and, (5) developing comparative research on the governance and management of extended urban spaces. The conclusion of the article suggests that in the light of the preceding discussion it is possible to imagine two very different futures for the cities of Asia.*

*Keywords: Livable cities, urban future, sustainable cities*

### Abstrak

Artikel ini menumpukan kepada persoalan utama iaitu apakah bentuk ruang bandar yang perlu dibangunkan di Asia untuk memuaskan tuntutan kelestarian dan dayahuni dalam jangkamasa lima puluh tahun mendatang. Artikel ini menghujahkan bahawa fakta yang menunjukkan Asia mengandungi hampir 60 peratus penduduk dunia yang kini berhadapan dengan fasa peralihan bandar yang pantas yang akan melibatkan lebih daripada satu billion manusia menuju ruang bandar dalam tempoh lima puluh tahun mendatang yang bermakna bahawa polisi bandar yang begitu penting dibangunkan yang akan membentuk ruang bandar yang lestari dan berdayahuni. Namun kini terdapat satu pertentangan di antara dasar "developmentalist" kebanyakan negara yang memberikan keutamaan pada fasa pembangunan ini terhadap fungsi material dan ekonomi ruang-ruang bandar yang menghujahkan bahawa polisi untuk kelestarian dan keberdayahunan boleh diperkenalkan pada fasa selanjutnya. Artikel ini selanjutnya menghujahkan bahawa dengan peningkatan pemahaman proses yang mendasari tren bandar dalam abad ke 21 ini mencadangkan bahawa adalah tidak mustahil untuk wawasan 'developmental' dan kelestarian diperkenalkan pada masa yang sama. Wawasan strategik ini tertumpu kepada pembangunan penyelidikan yang akan meningkatkan pemahaman tentang proses ini. Lima kelompok utama penyelidikan dikenalpasti yang menumpukan kepada 1) kefahaman konfigurasi semula ruang bandar diperluas 2) peningkatan integrasi fungsi ruang bandar diperluas 3) mengenalpasti kepentingan pinggir kota (desakota) dalam ekosistem ruang bandar diperluas 4) membangunkan penyelidikan bandingan ke atas tindakbalas polisi terhadap cabaran ruang bandar diperluas dan 5) membangunkan penyelidikan bandingan ke atas governans dan pengurusan ruang bandar diperluas. Kesimpulan artikel ini adalah mencadangkan bahawa secara jelasnya dapat menggambarkan dua masa depan yang sangat berbeza untuk bandar-bandar di Asia.

Katakunci: Dayahuni bandar, bandar masa depan, bandar lestari

"A few hundred square miles of the Himalayas are the source of all the major rivers of Asia, the Ganges, the Yellow River, the Yangtze where three billion people live. That's almost half of the world's population."

"... Governments have been slow to accept the awful truth that usable water is running out. Fresh rainfall is not enough to fill the underground water tables"

Lord Stern (Former Chief Economist, World Bank) Goldman Sachs "Top Five Risks Conference. May 2008. (1)

## INTRODUCTION

This rather hyperbolic statement captures the urgency that underlies the ideas that infuse this paper. I hope that you will regard this paper as an "ideas" piece to stimulate discussion during and after this meeting. It has been prepared after extensive consultation with colleagues based in New York, Tokyo and Vancouver. I have also drawn widely on research carried out by researchers in China, India, Nepal, Malaysia, Viet Nam and Indonesia. I have focused on the priority challenges for urban policy and research on sustainability and livability in the Asian region.

In my judgment the central question concerning the future of the cities of the Asian region can be rather simply posed as follows: what kinds of urban entities can be built to satisfy the requirements of sustainability and livability over the next fifty years. Let me hasten to make it clear that in using the word building I do not mean use the term narrowly in the sense of the construction of the built environment of cities but in a broader sense to mean the creation of urban institutions, work systems, life styles and consumption practices and cultures that are part of livable and sustainable urban places.

In the historical context most of Asia is in an era of urbanization similar to that which characterized Western Europe in the late 19th century but Asian policy makers are now much better positioned to create policies to deal with the rapid surge in urbanization. Initially I want to suggest to you that there are two contrasting visions about the kinds of cities that should prevail. First, what I would call the developmentalist vision of cities promoted by international organizations such as the World Bank as well as national and other levels of government often in coalitions with the private sector which are overwhelmingly concerned with improving the material conditions of cities which are seen as an essential requirement to make them more efficient "engines of growth". The imperatives of globalization that force governments to make their cities more competitive are another driving force.

A second vision of cities that is occurring in higher income highly urbanized countries in Europe, North America and Asia such as Taiwan, Japan. Korea and Singapore argues that the major policy challenges are to create cities that put people first living in life spaces that are convivial and local which I will label livability. This vision has been driven by a number of trends. First, the realization that the process of "climate change" are being driven, in part, by the developmentalist visions of cities. Thus it becomes necessary to develop policies designed to decrease these efforts that involve making cities greener by reducing carbon footprints, creating clean air and water, increasing the amount of green space and public parks, encouraging local food production, developing user-friendly public transport systems, cycling and walking paths, planning at the neighborhood level for community institutions, (libraries, health clinics schools, etc) increasing the residential densities of cities that support mixed-use residential areas. A second trend is demographic with the rapid ageing of city populations and slow down of urban growth. Finally a third trend is found in the ideas of "new urbanism" that find their roots in the work of such writers as Jane Jacobs and Lisa Peattie that seek to return the city to the people empowering the ideas of neighborhood, the importance of heritage, culture and the conservation of the natural environment. They wish to create an urban fabric at a human scale. (2)

Within Asia it is often argued that the second vision is an unrealistic one for many of their cities. They are growing much more rapidly and the volume of population that they have to absorb into urban areas is much greater in most countries than that experienced in the West at comparable periods of rapid growth. Secondly many of the cities have much larger proportions of their populations living in poverty than Western cities. Thirdly national and urban governments are faced with the twin challenges of providing urban infrastructure for their cities as well as developing their economic base increasing wealth and creating employment. For them is best accomplished through the "developmentalist" vision that implies a form of modernization "... via supermarkets, automobiles, shopping malls, gigantic gated housing estates and the world's tallest buildings." (Douglass, 2008: 7). So the option of "greening the city" is lower on the agenda. However I want to argue in this presentation that in fact there is no reason why the "developmentalist" and "livability" visions cannot be combined. In fact I would suggest that there is already some recognition of this on the part of agencies such as the World Bank and Asian Development Bank that the one of the main ways of increasing livability is by encouraging investment in basic infrastructure services that will permit more equitable access to water, sanitation,

trash collection, solid waste disposal and energy access especially by the poor of cities, (Wolfensohn, 1997; Kuroda, 2008). But it also must be recognized that this concern is driven primarily by the desire to create efficient and competitive cities that are part of the “developmentalist” vision. Clearly, the major challenge to creating “sustainable cities” is the need to find some strategic policy route that can combine the developmentalist and livability visions that I will call a sustainable development trajectory. I would argue that the most important entry point for such policy formation rests upon the clarification of the spatial impacts of urbanization.

Present urbanization policies are based upon a spatial understanding of the urbanization process that is formulated in a set of research discourses that occur at three levels of analysis. First, the global reading of these processes that is carried out by “global agencies” who utilize national or global data bases as their major source of information which is represented by the global data on urbanization collected and published every two years by the United Nations Department of Social and Economic Affairs. The second research discourse is at the national, or what I would label the “meso-level” that includes the use of both national data and scaled-up data from other levels of government such as provinces. This research thus provides the basic information for the construction of longitudinal databases that are used to measure processes such as global climate and environmental changes and changes in the urbanization trends. Finally there is a reading of these processes at the “local level” that include innumerable regional and case-studies that are scaled –up to “thicken” data assembled at the national and global level. These micro-studies are carried out at by many institutions and focus on the activities at many levels from the household up to the largest multi-national or international agency. They vary massively in terms of their geographic sites ranging from peripheral squatter settlements to the scale of cities. They provide the “meat” on the “bones” of the national and “global statistics” that reinforce the urgency of action. But they rarely attract the attention to force policy action.

But one of the major problems with these three levels of research discourses is that they do not recognize that the dominant component is the spatial spread from core cities beyond their city boundaries that create sprawling urban agglomerations that are often called metropolitan regions. In some countries these metropolitan regions are formally recognized for strategic planning purposes. But in most countries they represent a politically fragmented space in which overall responsibility for the management is weakly developed. Associated with this spread of urban activity there are often sharp distinctions in

the distribution of the poor and middle and upper income populations.

As one the major entry points for this ongoing research on urbanization I would argue that another level of analysis needs to be added to the global, national and local levels. This is not only at the level of the administratively defined urban areas but also include spreading urban activities that are occurring in the urban fringes that are often defined as rural areas. Spatially this form of urbanization often go beyond the boundaries of metropolitan areas extending along main transport routes from the city cores creating a Thus while the rich live in the core and well serviced enclaves in the other parts of the metropolitan regions the majority of the poor are forced to live into housing (often illegal) on the peripheries while the rich and middle income occupy the central and interstices of the extended urban space. The political administrative areas in which the rich live are able to develop a much larger tax base and provide the infrastructure services that are not so readily available on the periphery. Thus the poor are excluded from access to infrastructure, health and other services. Thus it is in the peripheries of these cities variety of urban forms where linear urbanization links urban nodes creating poly-nucleated urban forms. In this presentation I refer to this form of urbanization as extended urban spaces which while it is most ubiquitous in the mega-urban regions is also occurring in smaller urban places in the urban hierarchy.

However, this interpretation raises many issues. Most data on the urbanization process are derived from national data collection systems that are taken from national definitions of urban places often defined on the basis of administrative divisions such as cities or municipalities, cities or towns. These vary substantially at a national level but generally severely underestimate the spatial extent of urbanization beyond urban administrative boundaries. At a national level this is increasingly being recognized by the creation of larger statistical units such as the SMA in the USA (3). But this statistical “rethinking” is still falling short of measuring “true urbanization” as for instance measured by proportion of the work force engaged in “non-agricultural activities” or functionally integrated urban spaces. Even more important is the functional interdependence of urban and rural areas. In fact it is now generally recognized that “extended urban spaces” based upon one or more nodal urban places are an ubiquitous part of the contemporary urbanization process. This urban spread has been driven by the changes in transport technology (particularly motor vehicles and road systems,) communications, industrial, service and residential growth which while it is occurring at a different pace though out the globe is now a common

feature. This has created large zones of urban activity outside the city cores of many urban defined places that have been variously labeled peri-urban, urban fringe, etc.

My argument would be that prevailing urban definitions still fall short of capturing the full extent of "urban space" neglecting large and important zones of rural and non-rural activity that are part of the large extended urban spaces. There is a historical persistence in the belief in rural and urban definitions of space that is based upon existing rural and urban divisions and definitions in the last thirty years I have attempted to carry out research that has attempted to conceptually reconfigure the understanding of urban space (Mc Gee, 1991). Further, I would argue that in doing policy relevant research on these broad global processes we need "entry-points" that recognize the significant drivers of these processes that are shaping urban space. These "entry points" might be "global" and process driven (e.g. carbon emissions, sea-level rise), they could be "place-driven" (e.g. extended urban spaces"), government policy, or issue driven as for example in the case of "food security" or "urban poverty". However, I would argue that the complexity of these entry points suggests a need to focus the research on the "extended urban spaces" which are becoming more important as urbanization.

One other research issue remains. On which geographic region of the globe should this research be focused? This is where the quote from Lord Stern has resonance for it presents the overarching reality of the Asia's importance at a global level as the location of almost 66 per cent of the world's population but it also reminds us that non-insular part of Asia is linked to a regional eco-system that effects the whole region. Broadly defined as the geographic area stretching from Pakistan in the West to Japan in the East and from China in the North to Indonesia in the South. It is estimated that level of urbanization was 36 per cent in 2007; one of the lowest of any large region in the world, which means that the growth of urban population in the Asian region will be very large in the next five decades making-up, an estimated 80 per cent of all global urban population increase. The early post war economic growth of the NIC's of Japan, Korea, Hong Kong, Singapore and Taiwan has now been joined by other Asian countries particularly the two economic giants of India and China so that the region is beginning to become a third pivot of the global economy along with North America and Europe. If this region were to eventually to achieve the economic and consumption levels of the developed countries with the present vision of "developmentalism" it will present major challenges to the urban sustainability within the region but also globally. It is also important to emphasize that because of the very large population involved in the urban transition the number of mega-cities in Asia

will If this definition of urban areas is accepted then it is clear that the pace of global urbanization is much more rapid than is accepted by the use of the three previous levels of data analyses. This means that the current level of global urbanization (50 per cent) is almost certainly an underestimate and that the majority of the world's population is now urban and increasingly engaged in non-agricultural activities. It therefore follows that the lives of these urban dwellers are being shaped by their urban activities, consumption patterns, resource demands and the quality of the urban environments in which they live. These extended urban spaces are also the locations in which an increasing proportion of national GDP is generated. As the population and economic wealth of these extended urban spaces increase it can be argued that these demands on resources will increase as will effects of environmental change (unless adaptive strategies are adopted) thus placing greater pressure on local, national and global resources. This process increases the vulnerability of these extended urban spaces to growing global environmental, fiscal, social and political problems. (See for example Mc Granahan et.al 2007) This situation is illustrated by the case of the Province of Guangzhou in China which is presented as an Appendix to the paper. Despite the present global recession the emergence of the Asian region as a central pivot on which global economic recovery must rest suggest that the focus on urban sustainability in Asia along with Latin America is centrally needed both globally and nationally.

This introductory statement generates many research questions that have policy relevance but I would suggest that they five main research questions might be identified.

- a. How can "extended urban spaces" be defined and how can data collected at the level of "extended urban spaces" contribute to policy solutions?
- b. Why are these "extended urban spaces" of major importance in the investigation of processes of global, economic, and social change?
- c. What conceptual approach offers the most viable entry to the study of "extended urban spaces"?
- d. What is the vulnerability and resilience of "extended urban spaces" to the processes pf global, environmental, economic and social change?
- e. What are the policy implications of this research for the governance, management and planning of "adaptive" strategies in these "extended urban spaces" to the challenges outlined above?

These questions are enlarged in the following section.

## RESEARCH PRIORITIES FOR URBAN SUSTAINABILITY

This preceding section has identified a number of research questions that can be collapsed into five main research clusters.

### Research Cluster 1: Understanding the Reconfiguration of Extended Urban Spaces

Conventional approaches to the measurement of urbanization focus on the administrative definitions of urbanization. But the spread of urbanization outwards from urban cores into surrounding areas have created an “under-bounding or urbanization” This has been reinforced by the persistence of ideas of rural-urban difference that are breaking down under the impact of this spatial spread of urbanization. I have analyzed the reasons for this process of spatial spread in recent decades in terms of the concept of “telescoping transitions” developed by Peter Marcotullio et.al (2003) arguing that the current era of urbanization is characterized by faster urbanization and forces of change (technology, communications, globalization) that accelerate both urbanization and spatial spread of urbanization particularly in developing countries. This means that in most of the larger urban areas of developed countries we now have three spatial elements of the urban form:

- a. a city core(s) consisting of the built-up core areas of city,
- b. a peri-urban region that is made up of built-up extensions of the city in linked suburbs, industrial and commercial activity, and
- c. an extended urban region of diffusing urbanization that extends for up to 100 kilometres particularly along major arterial transportation routes into the hinterlands of these extended urban regions. Within the Asian context such extended urban regions often penetrate important agricultural regions that have developed dense rural populations and are important sources for food provision for the city core and periphery. In earlier work I have labeled these extended regions as “desakota” a coined word from the Indonesian language meaning “village’ and “town” designed to capture the mixture of rural and urban activities that occur in such zones. This use of this term has created considerable resonance in Asia where the high rural densities that characterize the major mega-urban regions of Asia present many environmental and economic challenges as urban activities expand. But they also offer many opportunities if the livability and sustainability visions of city regions were to be developed. (5)

These 3 zones of urban space form part of integrated urban regions the largest of which form extended urban regions of more than 10 million populations in size often called mega-urban regions. Almost 60 per cent of the world’s mega-urban regions are located in Asia dominated by the population giants of India and China. These mega-urban regions are generally argued to be the major engines of economic growth and centres of innovation in their countries and contribute an important component of the gross domestic product of their countries. The foundation for their economic wealth stems from their dual role within their national economies and their links with the global economy. Within the Asian context many of these mega-urban regions are located in the low-lying areas at the mouths of rivers that form part of the deltaic regions of major river systems. This places them at greater risk from climate hazards such as cyclones, flooding, coastal erosion and deposition and sea-level rise. As the population grows they are also exceptionally vulnerable to resource availability that are the result of water shortages food availability, energy provision (Figure 1).

### Research Cluster 2: Understanding the functional integration of extended urban spaces.

A second component of research should be a recognition that the extended urban spaces are functionally linked by “flows” that include transportation and communication systems that include the movement of goods people and information and the flows of energy, resources. These form overlapping networks that involve various densities of transactions. In another context this “flow network” has been labeled “transaction networks” and it is argued that their functionality is crucial to the economic performance of these mega-urban regions. (see Marton 2000). Within the Asian context the rural-urban linkages within these extended urban spaces are of major importance in the flows of food, commodities and people. In general it is true to say that most governments perceive these extended urban spaces as places where flows are congested and inefficient. The policy response of most governments that have the resources to invest in such developments is to rapidly increase investment in infrastructure (built environment, energy provision, transportation systems) to increase the efficiency of these “transaction networks”. This is one important driver of the spread of cities for the space demands of new industries and upper-income housing development can be provided more cheaply in the lower-cost land markets of the outer two zones of the mega-urban regions. This process of urban expansion thus involves a constant depletion of resources in the outer zones (now most marked in the “desakota zones”) that is leading to restructuring of the two-way flows of food, biomass, water,

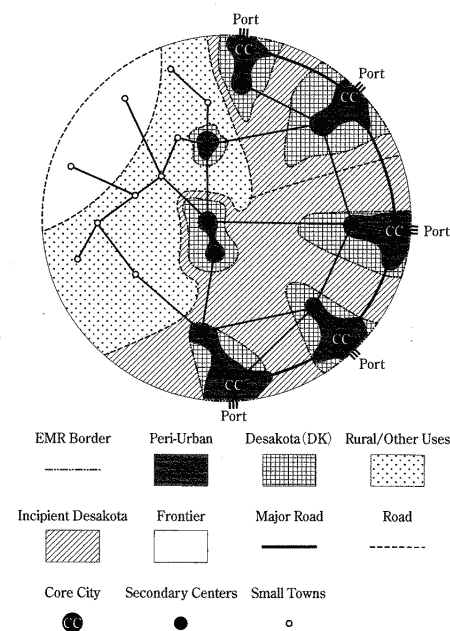


Figure 1: Spatial Configuration of Asian Country

energy, products, livelihoods products and services between the “desakota” and the two inner-urban zones of the mega-urban regions. Until recently while this situation presented many challenges to national and local governments (e.g. environmental pollution, etc) it was not regarded as a threat to the sustainability of the mega-urban regions because governments assumed they would be able to extend the reach of these flow networks both nationally and internationally. This process has already occurred for instance in Japan, South Korea, Taiwan and other Asian countries have benefited from becoming part of those countries’ extended “flow networks” as well as other international trading partners.

But this “development trajectory” is reliant upon cheap fossil energy that has fueled the extension and ubiquity of these networks. With the increasing volatility in the price of oil and gas questions are raised whether this “fossil-fuel-dependent development trajectory” is viable in the context of the developing countries. Therefore the challenge to Asian governments must be whether they can develop a more “sustainable urban development trajectory” that might be more appropriate involving engagement with alternative strategies of energy provision, food sourcing, resource utilization that involve greener systems of production and consumption. This raises issues of whether new spatial responses in urban form will emerge to such developments such as a policy push for more “compact” cities (see Marcotullio, 1991).

### Research Cluster 3: Establishing the strategic policy importance of “desakota” regions in sustainable urban development trajectories

In the Asian context I would argue that the “desakota” regions will have to be identified as crucial zones in which this new “sustainable development trajectory” will need to be implemented because of their resource base and proximity to mega-urban cores. (6) They also become pivotal areas in the “food security” policies that need to be restructured as a result of global volatility in gas and food prices in global markets. Desakota regions are often perceived to present negative challenges in the development of these strategies because the mixed character of economic activities in these regions places great pressures on the eco-systems and the management of these systems which involve new institutional responses to the management of joint resources by agricultural and non-agricultural users as well as the management of the flows between the urban cores and the desakota zones. On the other hand the adoption of new sustainable development trajectories means that local responses become more important and could lead to reemphasis of the agricultural activities in the desakota regions. This was recognized in Yokohari, Takeuchi, Watanabe and Yokota (2000) as a new ecological planning concept appropriate for Asian mega cities. This statement summarises their position.

“This planning concept is truly appropriate for Asian megacities since segmented patches of agricultural land have such ecological features as “ water retention capability, microclimate control,

conservation of visual quality and the supply of safe, fresh food" (Yokohari et. al 2000, p 170)

It must be pointed out that the arguments presented in the preceding section have also been made by many researchers on Asia have been making them for some years. (See Kelly 2000; Revi 2008; Gyawali 2008; Abdul Samad Hadi et al 2006a). I am particularly grateful to Dipak Gyawali for the ideas that drive this section. In a draft document he raises the question "What kind of science is needed to understand the relationship between ecosystem stress and livelihoods in the desakota regions?" (Dipak Gyawali. 2008: 10)

Utilising definitions used in the Millennium Ecosystem Assessment he points out that ecosystem services are benefits that people obtain and include

- Provisioning services such as food and water
- Regulating services including floods, droughts, land degradation and diseases as well as climate regulation
- Socio-cultural services such as aesthetic, spiritual recreational and other non-material benefits.

All these services are held in place by the supporting services of eco-systems such as soil formation and nutrient recycling, mitigation of climate events through floodplain inland water bodies storage mechanisms, mangrove buffering etc.

The key scientific question that this formulation of the eco-system raises is how "resilient" eco-systems are to the processes of population increase and increasing intensity of urban activity that is occurring in the "desakota" regions of extended urban spaces. The concept of ecosystem resilience has a well-established tradition in bio-systems research and is usually defined as the capacity of an ecosystem to tolerate disturbance. This is often broken into three components:

1. the amount of change a system can undergo can undergo and still retain some controls on function and structure,
2. the degree to which a system is capable of self-organization and,
3. the ability to build and increase the capacity for learning and self-organization

Thus a key component of this research would focus on developing a system of defining the resilience of ecosystems to these forces of change that are being driven by a combination of "drivers" within the bio-system and the societal system that occur at a number of scales; global, national, extended urban spaces and local.

It is important to separate the concept of resilience from "vulnerability". Vulnerability can be defined "... as the degree to which a system or unit is likely to

experience harm due to perturbations or stresses." (De Sherbinen et.al.2007.p 41) and has most frequently been applied in the research examining risks or hazards. But increasingly it is being realized that the concept of vulnerability needs to include the "... the responses of, and impacts on systems (social groups, ecosystems, places) exposed to such perturbations" (Ibid p41). In addition it is necessary to disentangle the relations between the macro-forces (e.g climate change) and the other systems levels on which they are impacting. "Different pressures across scales come together in various sequences to create unique "bundles" of stress that affect local systems. (Ibid p41). While it is often argued that the core regions are the most vulnerable to these stresses of these drivers I would argue that the desakota regions (outer fringes of extended urban spaces) deserve equal attention as urbanization accelerates.

Any study of the desakota region must see its local ecosystem which is part of a wider urban metabolic footprint (see Curtis, (2004). Four areas of interlinked rapid change are impacting it.

1. the overall political economy characterized by migration, urbanization, food supply, consumerism, restructuring of economic activity (particularly industrialization) and communication driven by foreign, national and local investment by both international, national and local firms and governmental and quasi-governmental agencies.
2. the policy environment in which these processes which particularly in governmental context is driven by the desire to achieve rapid modernization imitative of the developed countries of their own region and elsewhere.
3. the forces of global and environmental change in climate, water availability and quality, land degradation and loss of biodiversity, sea -level change etc.
4. the water-based eco-systems that are crucial components of the desakota zones that are under most pressure by the changes induced by the preceding three changes.

An important part of this research is the ongoing formation of databases of indicators of the health of the eco-system as well as socio-economic indicators that can be used as a basis for policy intervention. There is a need to ensure that this data reflects local conditions and priorities. More research is certainly needed in this area. While advances in data collection and analysis such as GIS undoubtedly facilitate this process the data needs to be collected at the scale of the eco-system or extended urban space. National governments who generally fund these data collection systems have been very slow to embrace the vision of either ecosystems or extended urban spaces as a territorial unit in which to collect data.

#### **Research Cluster 4: Developing research on policy responses to the challenges of "extended urban spaces" Towards policies of urban sustainability**

This research cluster focused on the policy implications of the research findings and the major policy challenges of "extended urban spaces" particularly the "desakota zones". The following priorities can be suggested.

(1) First it must be established that the desakota zones are regions that deserve priorities in policy development within "extended urban spaces". The developmentalist vision places emphasis upon the development of the infrastructure and economic base of cities. Policies for the desakota areas would be much more focused on sustainability and livability. As we have already suggested in a-priori terms it may be suggested that "sustainability" of desakota zones is of major importance because they are the locales of an increasing proportion of urban population and economic growth. These are also areas of significant national and international investment in which the breakdown of ecosystems would create major economic and social problems that have global national and local implications. They also offer the greatest opportunity for developing green strategies that can increase the overall "greening" of other parts of the extended urban space and this increase livability.

(2) Secondly, the contemporary challenges in the "fossil fuel energy" driven mode of urban expansion raise questions about the viability of these areas for the development strategies of governments. This situation is further compounded by the volatility in food prices driven by the international food system that create the need for governments to revisit issues of national food security. Since many of these "desakota" zones particularly in Asia that have been traditionally major "food baskets" of their countries that are now losing this role in the face of urban expansion there will be a need to revisit this role as part of revised national strategies of "sustainability". A potentially interesting concept is the idea of agropolitanism first developed by Friedmann and Douglass in the 1970's that introduced the idea of "agropolitan districts" that would devolve political power at the local level to enable more integrated development of agriculture and non-agricultural activity (Friedmann and Douglass, 1976). It is interesting to note that this term has become part of national strategies in the period since 2000 in both Indonesia and Malaysia. However the goal of this agropolitan strategy is primarily directed towards creating integrated agricultural production units that can increase agricultural productivity and diversity. But it may be possible to combine elements of these "old" and "new" approaches in the desakota areas. It

is also likely that "desakota zones" may be vulnerable to fluctuations in the international economy that may result in unemployment and increases in poverty in these regions. This would also involve new policy responses such policy shifts would inevitably suggest that there would have to be institutional and management and budgetary reconfigurations for which governments are ill positioned for the following reasons. First, at present it is clear that most "desakota" zones fall into some kind of institutional and management black box in which the institutions that do exist are ill-equipped to develop responses to the challenges to the resilience of the eco-systems of desakota regions. Secondly, because governments are only slowly developing responses to the extended urban spaces of which the desakota zones are part. This suggests that one important component of the policy framework should be concerned with the development of governance and management of "extended urban spaces".

#### **Research Cluster 5. Developing Research on Governance and Management Responses to Achieve Urban Sustainability**

Implicit in much of the previous discussion is that the development of viable strategic responses to the challenges of urban growth in Asia depends upon the political will and visions of Asian governments at all levels. Many researchers argue that the existing systems of governance and management that grew out of periods in which the idea of the "city" as opposed to the rural were paramount are no longer valid in the extended urban spaces of the contemporary urbanization process. The response to the new reality suggests that there is a need for the territorial reorganization of urban systems of governance and governance. This could be on the basis of definition of metropolitan regions that reflects the functional urban activities and extent of urban population in an urban region as is the case with the Greater London Authority or Metro Vancouver. An administrative definition of the extended urban space on the basis of the eco-system of which the extended urban space is part would be much more satisfactory in terms of the sustainability of the local environmental resources of the urban regions. (7) But it has to be recognized that there are substantial challenges in implementing an eco-system approach to governance. This is well summarized by Sarah Aziz and Hezri Adnan (2002) in their case study of the ecosystem of the Langat Basin. They say,

"Transition to an ecosystem approach will pose the problem of matching the scales of the bi-physical system and the management system- a scale mismatch between ecosystem interpretation and status quo administrative system or an institutional fit problem" (Sarah Aziz and Hezri p339).



The suggestion of changes to various levels of government within existing nation states is very challenging to upper tiers of government at national and state or provincial level for they perceive the creation of new levels of government as threatening their power base. Few national governments have permitted the formation of another tier for the governing of extended urban spaces. In most cases the formation of the larger urban units is carried out as a planning instrument designed to lie out the broad strategies for an extended urban spaces. This is an important step in creating an overall regional strategy but it needs political will to ensure that the goals are enforced. This suggests that the best way is to develop governance responses that rest upon the idea of collaboration between existing intra-urban governmental units, the private sector and civil society. There are many examples of such responses ranging from the highly legalistic system of Public Consortia set-up in Brazil that allows for the collaboration of municipalities in establishment and operation of infrastructure services such as the provision of water to a non-governmental organization such as the Fraser Basin Council whose territorial responsibility is defined as the five main regions of the Fraser River that is a central to the eco-system of Metro Vancouver and brings together 36 directors from various stakeholders, Federal, Provincial, Local government, First Nations, the private sector and civil society to advance the goals of the sustainability of the region. In effect they act as an advocacy organization for regional sustainability bringing together the major stakeholders in collaborative decisions through collaborative and consensual decision making processes. Since the process of creating sustainable urban trajectories ultimately rests upon political will one of the main research thrusts must be focused upon the development of local responses that are informed by international examples but ultimately grow out of local responses.

## CONCLUSION: TOWARDS ASIAN URBAN FUTURES

In conclusion let me emphasize that what happens to the urbanization process in Asia is central to the global urban future. Over the last thirty years while the global level of urbanization increased from 36.8 per cent to 50 per cent in 2008 Asia's urbanization level has increased by roughly the same amount from 23.4 per cent to 37.5 per cent in the same period. UN population estimates suggest that in the next 30 years this urbanization trend will continue at a global level reaching 60 per cent while Asia will increase to 51 per cent by 2030. Since Asia contained an estimated 60 per cent of the global population in 2000 this means that in the next 30 years some 1.3 billion people will be absorbed into urban areas while the population resident in rural areas remains virtually at the same

numerical level. (See, United Nations (2000; 2004) and UNPF (2007).

The numerical dimensions of these demographic trends are unique in the world experience of urbanization. For example in Western Europe it was estimated that in the nineteenth century the increase of urban levels to 40 per cent involved a shift of only about 50 million people whereas in Asia the number is an estimated 1.3 billion. Of course at the sub-regional and national level within Asia this demographic picture is dominated by the large developing Asian countries in excess of 100 million in population that include China, India, Pakistan, Bangladesh and Indonesia that will be joined by the Philippines and Viet Nam in the next thirty years. By 2030 these large countries (in excess of 100 million people) will make-up almost 80 per cent of Asia's population and 59 per cent of the global population. These numerical dimensions thus present a basic challenge to the management of a sustainable transition.

In the light of the preceding discussion it is possible to imagine two very different futures for the cities of Asia. An alarming scenario sees ongoing global environmental change increasing the vulnerability of these extended urban spaces within a framework on rampant globalization that depletes resources, destroys the ecosystems on which these extended urban spaces rely and presents major challenges to the sustainability of these urban forms. Another part of this scenario is the increasing social vulnerability of urban populations to an increasingly volatile global economy (most obvious in the current global financial crisis) that threatens local jobs and incomes and widens social divisions creating socially fragmented cities. This creates political tension that dominates the governance concerns of administration at all levels of the state.

Another more optimistic scenario suggests that as global awareness of these urban challenges is growing local urban governments in Asia are experiencing considerable expansions of power that enable locally elected leaders, whose roots are deeply embedded in the urban place and have much wider understanding of local civil society, to develop and implement policies that reflect the distinctiveness of different places in which the priorities are placed on creating more socially inclusive and sustainable cities. This will involve radical rethinking of the way urban spaces are managed, the mix of public and private transportation and local participation in the planning for urban change. While economic policies designed to increase the economic wealth generating capacities of cities cannot be discarded and are, in part, dependent upon the international trade and other flows that are part of globalization they must be set within the local context and priorities of creating "sustainable cities".

Central to this recognition is the understanding that global forces impact on an uneven terrain of culture, politics, economic conditions and power and that this leads to different responses. Despite the fact that globalization is heralded as the major generator of economic growth by many experts most economies are rooted in the "local" and it indeed the local economy which is the foundation of most communities. This means that the creation of sustainable extended urban spaces where systems that emphasize local production and consumption should be promoted rather than further integrating the local into the international. It should be emphasized that this statement is not an advocacy of self reliance or "autarchy" for all countries and local places within countries will rely upon "exports" and "imports" of goods, services, knowledge and people; but rather that the creation of sustainable cities involves the local people taking control of the efforts to create sustainable cities. I am sure that an audience such as this is only too aware of the many initiatives ranging from alternative energy sources and technologies to increasing the role of local food production and most of all developing a powerful commitment to "sustainability" throughout nations so I will not list them here. But, undoubtedly a powerful shift is needed in the way knowledge about sustainability becomes part of the common conscience of nations. This is necessary for the ongoing sustainability of all societies in the 21st century and it suggested a very different urban future. (8)

Opinion will differ on this but as I have attempted to argue in this paper one of the major locales to develop urban livability and sustainability must in the "desakota" outer zones of the extended urban spaces of Asia which because of their great population size, importance in the economies of countries and the fact that the "globalization path" on which most of them are embarked increases vulnerability and offers an increasingly unsustainable urban future. Also I would further argue that these sustainability policies must be embedded in the spatial realities of urban activities within existing eco-systems with emphasis upon remaining the resilience of existing eco-systems that would involve use of alternative energy systems, water conservation and place a major emphasis upon the development of public transportation. Although neo-liberal planners may not regard it as efficient the "desakota" regions of Asia need to be focus for such policies of urban sustainability (See Diaz-Chavez, R 2006). For example part of the policies of urban sustainability should be the efforts to increase food production in these areas as well as the conservation of the eco-system which is central to the functioning of the entire urban space. This would be based upon agri-ecological principles that involve the integrative study of the entire food system. But this would involve sustained investment in the margins of the

extended urban spaces that at present is secondary to policies that give priority to creating international competitive urban cores Obviously these policies the importance of the outer margins of extended urban spaces will have to be embedded in the local contexts of extended urban spaces but they should contain the following components:

1. effectiveness in contributing to sustainable economic growth
2. effectiveness in contributing to local and global sustainability
3. effectiveness in contributing to social inclusiveness, increasing employment and reducing urban poverty
4. effectiveness in producing a livable environment by increasing the provision of services such as education, health, education, access to housing and care for disadvantaged groups.
5. effectiveness in the adaptation to environmental challenges and the building of sustainable urban eco-systems.

Obviously this rather general discussion can only provide a preliminary research agenda for increasing our knowledge for building sustainable urban futures but I hope it has helped clarify the need to develop research that can provide information that will enable a sustainable urban trajectory to be developed for the future of Asia's cities.

#### NOTES.

1. I am only too well aware that Stern's reference to Asia excludes the insular and island part of Southeast Asia made-up of Malaysia, the Philippines, Singapore, Indonesia and Timor Leste where the major rivers are fed by rainfall run-off but the fluctuations in rainfall that are predicted as part of global warming, together with sea-level rises also threaten many of the major extended urban spaces in insular Southeast Asia such as Manila and Jakarta in the same manner as the largest urban agglomerations of mainland Asia.
2. I am grateful to Mike Douglass for drawing my attention to these two visions of the driving forces creating urban realities in the contemporary era. (See Douglass 2008)
3. See Montgomery et.al. (2003) for a discussion of the statistical challenges of measuring the spatial extent of urbanization.
4. See Mc Gee T.G 2007a and 2008b for an expansion of these arguments.
5. For this audience in Southeast Asia I have listed some of the more recent studies on extended urban spaces in Southeast Asia since 2000. Gregorio, Leisz and Vogler (2003),

- De Koninck (et.al) (2008) Hugo (2006) Jones (2006) Kelly (2003) King (2008) Leaf (2008) Mc Gee (2008), MalaqueIII and Yokohari (2007) Maneepong and Webster, D (2008) Nagagawa (2004) Spreitzhofer (2002), Waibel 2006.
6. See Mc Gee, T.G (1991) and Mc Gee et.al (2007) for a discussion of the concept of desakota as it applies to Asia. For case studies in Asia see: Ernani Rustadi, Setia Hadi, W Muttaqien Ahmad (eds.) (2006) for Indonesia, Zhou Yixing (1991) Lin (1997) Marton (2000) and Wang (1998) for China, Mc Gee, Salih and Young (1990) Brookfield, H.C., Abdul Samad Hadi, Zahrah Mahmud et al. (1991) for Malaysia, Kelly (2000) for the Philippines, De Gregorio, Leisz and Vogler (2003) Leaf (2008) for Vietnam and Hebbert (1994) for Japan.
  7. Some of the most interesting international work on the ecosystems of extended urban spaces is being carried out by LESTARI at Universiti Kebangsaan Malaysia. See Sarah Aziz and Hezri Adnan (2001), Abdul Samad Hadi, Shaharudin Idrus, Ahmad Fariz Mohamed and Abdul Hadi Harman Shah (2006a and b). See also Marcotullio and Boyle (2001) for a comprehensive report on defining an ecosystem approach to urban management and policy development.
  8. For a thought provoking discussion of these issues of urban sustainability particularly in the Japanese context see Makoto Maruyama (2006) In this paper I have paid little attention to the way that energy use and transportation technologies challenge the sustainability of cities in this paper but clearly there will have to be changes in the "fossil fuel" dependencies of the automobile dependent cities of Asia and North America. In this respect recent references to a major development of alternative fuel sources and changes in the present transportation technologies and types of transport that are being presented as part of what is "New Deal" by the Obama administration is also being linked to partnerships and the sharing of technology with India and China whose increasing reliance on imported oil and automobile dependent transport paths will be major user of oil in the future. See Nobrega, William (2009) "India, China and Obama's Oil Policy" Business Week, Jan 21.

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## Appendix

## THE CHALLENGES OF EXTENDED URBAN SPACES. A CASE STUDY OF THE PEARL RIVER DELTA IN GUANDONG PROVINCE, CHINA.

This case study is presented as an example of the kind of challenges that are emerging in the extended urban spaces of Asia.

Guandong Province is located in Southern China. In 2000 the national Census recorded a population permanent residents of 80 million and a migrant population of 30 million making a total population of some 120 million. Adjacent to the province are the Special Autonomous Regions of Macau and Hong Kong that make-up a combined population of some 8 million. Historically the core of the region was focused on Guangzhou and the adjacent counties that form part of the Zhujiang Delta (Pearl River Delta). This region has been developing over hundred of years as one of the main regions of rice growing in China and its rich alluvial soils provide a fertile foundation for multiple crops of rice, vegetables, tropical fruit, fish, pig and poultry production using an ecologically effective system of animals- ponds fertilizer – cropping cycles that was highly productive, labour intensive and sensitive to the ecological conditions of the delta.

Over the centuries this system was able to support increasing rural densities which had reached more than 300 people per square kilometre by the latter half of the 19th century. This despite the fact that the region had become one of the major centres of Chinese out-migration that fueled the Chinese diaspora throughout the world.

After the People's Republic of China was established in 1949 it continued its agricultural role including a considerable increase in exports to the colony of Hong Kong where the population has increased from 600,000 in 1949 to almost 7 million today. Since 1978 and the introduction of the Post Reform Era in China Guandong has become one of the first areas where China's new economic policies were put in place. In 1979 two special economic zones were established in Zhuhai next to the Portuguese colony of Macao and Shenzhen adjacent to Hong Kong. In 1984 Guandong was made an open city and in 1987 in which foreign direct investment was permitted. In the period between 1986 and 1995 FDI experienced an annual growth of 500 billion US a year. Most of this investment came from or through Hong Kong (70 per cent) and went into labour –intensive manufacturing (textiles, plastic toys electronic products etc) most of it based on the towns and villages that may be labeled rural-urbanization.

A major part of this investment occurred in the

intensely populated rural areas of the Pearl River delta made-up of 13 counties and six municipalities in an area of 17,092 square kilometers. By 1995 this region had become one of the most densely populated regions in China with a permanent population density of 743 ppsk compared to 378 for Guandong and 126 for China. Between 1980 and 1990 the population of the PRD increased by some 30 per cent. This was mostly due to in-migration that includes both illegal and legal migrants that it is estimated made-up some 75 per cent of the population increase over the period. This created a population density in the Delta of 1,173 per square kilometre much larger than many of the urban areas of the Western world.

Predictably this development resulted in a decline in cultivated land of some 34.6 per cent in the same period as the built environment of the townships was expanded and industrial factories sprouted among the rice fields. Total agricultural production did not decline greatly but rice production declined and more specialized and intensified production of livestock, vegetables and fruit were driven by the food demands of the growing population of both the PRD and Hong Kong. While this growth was reflected in a considerable growth of GDP in the region it also created a number of policy challenges to the ecosystem that arose from the competition for resources between rural and non-rural activities. First by the end of the 1990's serious problems had arisen with respect to the availability and quality of water. Most of the water for industrial, agricultural and domestic use came from the extensive river and canal system of the Delta that was becoming increasingly polluted by industrial discharges as well as household sewerage. Most of the water for domestic consumption comes from these water systems. By 2000 it was estimated that local authorities could only treat 21% of the water to potable standards (bacteria count/turbidity) despite the efforts of the Provincial Government to improve the situation that had fallen well behind the planned investment goals. This was partly due to inadequate budgetary provision and partly because of the administrative fragmentation of water supply as sewerage disposal, wastewater disposal and water supply and treatment are often handled by different authorities. Similar problems exist with respect to air pollution and waste disposal in the politically fragmented areas outside the country cities.

In the period since the late 1990's these problems have continued and become exacerbated by climatic events such as droughts and floods that occurred before but a have a much greater impact because

of the greater demand for water and intensity of land-use particularly in the peri-urban and extended urban fringes. Other problems have emerged as well. The most important has been the SARs epidemic which seems to have begun in November 2002 was traced to in an illegal food market in the Foshan one of the county centres in the PRD (the heart of the "desakota") only 50 kilometres from Guangzhou. Most people who have any interest in this topic do not need to have a lengthy account of how rapidly the epidemic spread both within China and globally eventually affecting 8400 people in 29 countries, killing 10 per cent of the victims and 50 per cent over 60 years of age. But far more important from the point of view of the earlier arguments concerning the need to develop policies for local eco-systems was the impact it had particularly on the economy of the surrounding regions. It is estimated that SAR's crisis had a significant impact on the Asian regional economy resulting in major losses to the travel industry, tourism and the retail sector. One authority estimates which as a consequence of the crisis there was a 0.6 per cent drop in real GDP and 15-30 billion US loss in 2003. While this may seem insignificant in the current fiscal crisis at the time it was a major problem.

The Chinese Government is not unaware of the environmental, public health and eco-systems problems that are emerging from the growth of extended urban spaces in their country. One of their major responses has been to engage in an administrative process of incorporating the surrounding hinterlands of mixed economic activity and ecological threat under the administrative control of the central cities. This has occurred in the case of Guangzhou. Foshan and Dongguan the three largest cities of the PRD that have more than doubled their populations in the period since 1998. The growth of the special economic zones of Zhuhai and particularly Shenzhen have also contributed to an overall increase in the level of urbanization in Guangdong to almost 50 per cent by 2007; the highest in China. In theory this should lead to a more centralized approach to the problems of uncontrolled development, public health, infrastructure provision and environmental problems such as water and air pollution. But in fact much of the investment that is

occurring in the new phase of urban administration and planning is being focused on infrastructure development of transportation systems, new middle and upper income housing developments and industrial infrastructure that are designed to make the region more nationally and globally connected. There is thus a severe disjuncture between this latter form of investment and investment directed to the eco-system that proved the basis for such a highly productive system for centuries.

#### A Note on References

This is very brief summary of an extensive literature that has been consulted. Major sources are:

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