



PACIFIC ECONOMIC COOPERATION COUNCIL
SUSTAINABLE CITIES TASK FORCE



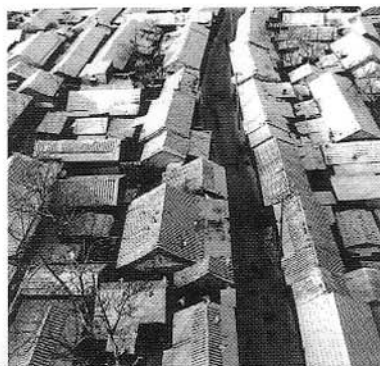
CITIES OF THE PACIFIC RIM

> diversity & sustainability

Edited by

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CITIES OF THE PACIFIC RIM

diversity & sustainability

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Forewords

H.E. Mr. Vikrom Koompaichana,
Deputy Permanent Secretary of the Ministry of Foreign Affairs of Thailand

*Excellencies,
 Distinguished Guests,
 Ladies and Gentlemen,*

It is indeed an honor and a pleasure for me to welcome all of you to this First PECC General Meeting on " Sustainable Cities. " For those who have traveled from overseas to be with us this morning, I would like to extend a warm welcome to Bangkok and to Thailand. Dr. Thanat Khoman, Chair of the Thailand National Committee for Pacific Economic Cooperation, has expressed his regrets for being unable to be with us at this Meeting, as he is in Europe at the moment. He has, however, graciously given me the honor of filling in for him. I am sure he likewise wishes all of you a fond welcome.

On behalf of Dr. Thanat Khoman, I wish to express my appreciation to the organizers of this Meeting for making this event possible. My warm thanks also go to the PECC Sustainable Cities Task Force, under the coordination of France and, specifically, Madame Genevieve Dubois-Taine's able hands, and the National Economic and Social Development Board, under the efficient Chairmanship of Dr. Sippanondha Ketudat, for their energetic contributions to this Meeting. I am confident that the intensive deliberations by knowledgeable participants over the next two days will contribute to a successful meeting.

Our topic is a crucial one, a much more crucial one than may at first be thought of. The idea of " sustainable cities " often gets lost in the entire shuffle around sustainable development, an often talked-about subject. It is not that sustainable development is not important in its own right. Far from it. Indeed, much of the debate on the future of the world economy, the improvement of the countries' standards of living, economic growth and progress, take sustainable development as a core objective. But, in the popular imagination perhaps, sustainable development is now largely connected with economic statistics, facts and figures.

In other words, sustainable development has been detached from the notion of " real quality of life. " The words " sustainable development " often do not bring to mind a clear picture of what sorts of education, employment and migration policies a city has, of what sorts of urban living conditions, such as water supply, sewage and waste collection systems, prevail and of what sorts of urban shapes and

spaces there are in a city. But those are precisely some of the things that "sustainable cities" brings to mind. The idea of "sustainable cities" makes concrete the vagueness of sustainable development. "Sustainable cities" get at the heart of the matter, that is, the quality of life of and for all the individuals who live in the cities or metropolises of this world.

I am confident that all of us are up to the challenge of helping to create a vision of what a sustainable city is like. Several experts from around the world are meeting here in Bangkok to help create such a vision. They will enlighten us on the past and present of our cities and will guide us on possible ways forward in our common quest to make our cities sustainable. The experts will present to us case studies of the cities they come from. In this connection, the fact that the Meeting is being held here in Bangkok should not be lost on all of you. Hopefully, Bangkok will add much color to your stay and be a most vivid "real-time" case study of urban development and life and the dos and don'ts of urban management that you will be discussing during this Meeting.

I wish all of you a fruitful and successful meeting and an enjoyable stay here in Bangkok. Thank you for your time and attention.

**H.E. Mr. Christian Prêtre,
Ambassador of France in Thailand**

Honorable Excellency Dr. Thanat Khoman, President of the International Law Association of Thailand, Chair of the Thailand National Committee of PECC, Mrs. Geneviève Dubois-Taine, Sustainable Cities Task Force Co-ordinator, Distinguished guests,

It is a great honor for me to take part today in the opening of this symposium, the first of a series of meetings, which will be organized by the newly appointed Sustainable Cities Task Force under the proposal of France.

First of all, I would like to emphasize the strong support of France to the Pacific Economic Cooperation Council. The recent appointments of Mr. Michel Rocard as honorary president of the French National Committee of the PECC and of Mr. Jacques Le Blanc, former Permanent Secretary for the South Pacific and former Ambassador of France in the Philippines and New Zealand, as General secretary of the French National Committee of the PECC will contribute to reinforce the French involvement in the current structures and Task Forces, and moreover to develop our abilities to make new proposals.

I would particularly like to thank Mr. Thanat Khoman who honored us with his presence and for his work that enabled the organization of this seminar in Thailand. I also want to stress the strong support of the National Economic Social Development Board and its large participation in this event.

The European, and particularly the French urban landscape, is characterized by its diversity – old town centers, large estates, residential areas, and new towns – that stands as evidence for the country's expertise in urban development. Such is also the case in a certain number of Pacific Rim countries. This is why encounters between experts from different countries are essential. France organized two major seminars this year in Bangkok, one on private public partnerships in urban services and one on urbanism, architecture and city cooperation.

These opportunities for exchanges are essential because no ready-made solutions, independent from the local context for a sustainable city, are realistic. Towns and cities evolve by adapting to economic, political and social changes. They definitively are a local and living matter.

Nowadays, because of the economic crisis of the 1990s and of the social segregation within their agglomerations, most countries are taking a new look at their urban

environment, aware of the need to integrate citizens within a perspective of sustainable development.

Seminars, encounters, meetings etc. are essential. The outcome of these seminars is very concrete and operational because it is an on-going process in connection with matters that concern all the countries represented during this General Meeting on Sustainable Cities.

Such seminars promote a beneficial exchange of ideas and practices between public officials and professionals taking account of the local and national contexts of all the partners involved.

I wish a great success to this symposium that will pave the way for a brighter future for all of us. Thank you.

Pr. Chris Findlay
PECC Task Forces Coordinating Group Chair

The issues related to urban development cut across a number of the long interests and concerns of the PECC network. Our task forces and forums have been examining the issues related to energy and the environment, the role of the private sector in infrastructure projects, and transport bottlenecks, for example. They have been working on the interaction between urban areas and the rural hinterland. They have also been examining issues in the development of telecommunications policy and its evolution in developing economies. These are just some of the topics that come up in an examination of one of the most important challenges in maintaining the long run growth in our membership, that of building a sustainable strategy for urban development. PECC adopted a proposal to establish a Sustainable Cities Task Force to examine this issue, and in the process planned to be able to draw together the results of the earlier work and apply it to new areas.

This paper highlights a number of other issues that have to be considered and some of these are new to the PECC portfolio. It adds to the depth and vigor of our organization to draw in experts in these new areas and join in discussion with them. The development of work on urban development also helps PECC reach out to new networks with interests in regional cooperation. These are the experts, officials and communities with interests in governance issues at levels below that of the whole economy. PECC through its tripartite structure can make a contribution in these areas.

The cities work also highlights another topic on which PECC has worked hard over the years. Clearly, success in building a sustainable strategy depends on the design and operation of the institutions that create and manage policy related to urban development. Yet we see a number of models of these institutions, and the sharing of the experiences of these different approaches is valuable. Work in PECC on urban development promises to produce an interesting portfolio of programs in which cooperation between Asia Pacific economies can lower the costs of change and avoid the bottlenecks to growth.

I welcome this publication of the results of the first meeting of the Task Force and look forward to the outcomes of the next stages of its work.

Introduction

INTRODUCTION

Geneviève Dubois-Taine
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Sustainability?
Sustainable cities?
Sustainable development?

These issues have now become the focus of debates and conferences in many parts of the world. While there is a broad consensus on the desirability of sustainability, there is much less agreement on its definition and the ways to implement it.

"...(A) development that meets the needs of the present without compromising the ability of future generations to meet their own needs" is how the Bruntland Commission defined sustainable development. As the world is moving from a rural civilization to an overwhelmingly urban one, with a concentration of the means of production and services in cities, sustainability is now mainly an urban issue. In many places, various groups have studied ways of helping local authorities design sustainable policies for urban areas. In particular, to aid and encourage countries around the world to integrate the issue of sustainability into public policies, including those related to urban development, the United Nations Conference on Environment and Development (UNCED) organized the Rio conference in 1992 and the

Habitat II conference in Istanbul in 1996. The main goal of these conferences was to encourage governments to help local authorities set up what are Agendas 21

Many countries around the Pacific Rim have since been elaborating their own Agendas 21. The purpose of the present volume is to highlight the value of comparative work on these issues in relation to Pacific Rim cities. We shall argue that sustainability requires a systemic approach: it has to encompass sociological, economic, environmental and cultural dimensions that need to be discussed and integrated into management and financial aspects with short-term and long-term prospects and involvement. The first conference of the PECC Task Force on Sustainable Cities held in Bangkok in October 2000 prepared the ground for such a thorough examination of "real case studies." It brought together experts from twelve major cities located in the PECC member economies, and more than 130 participants attended this event. The comparisons among different cities generated a very lively debate. In the following sections, we shall address a few core issues that came up in the conference papers and debates.

The challenges of sustainability

The question of sustainability is an issue that public authorities with responsibilities for urban development have to address in many areas. These areas include urban planning, transport policies, urban services, urban shapes and urban design, but also domains that were hardly touched upon at the Bangkok conference such as health, education, green structures, etc.

Different Cities, Different Sustainable Policies

All cities are different because of their history, geography, climate, political organization, economic development, and social and cultural dynamics. Are the urban structures of Hong Kong and Jakarta comparable? The former — a “city-state” for decades — is an autonomous

and vibrant economic center surrounded by the sea and the mountains, and backed by the massive Chinese mainland, which it serves as a major outlet. It has a very dense urban structure organized around one of the world’s most efficient public-transport systems. Can Hong Kong be used as a model for Jakarta, another dynamic city located in a developing country plagued with a serious economic crisis and high demographic pressure? Can the policies implemented by Singapore, a city where the population has stopped increasing, be applied to a sprawling city such as Kuala Lumpur or Bangkok?

The issues of multi-ethnicity and multi-culture are not the same in Tokyo, Taipei, Sydney or Santiago, but in each of these cities, sustainable



Different cities, ...

policies are being devised that need to take such problems into account. The relationship with both environmental and cultural heritage greatly differs across countries and continents. The development of Sydney and its urban sprawl (see William Ross) — resulting from the Australian preference for individual houses — are not comparable with those of a city such as Taipei (see Hsia Chu-Joe), which hosts a significant population of “ghost communities,” or with Chinese cities that are building large numbers of estates in their suburbs.

Nevertheless, a certain number of general issues have to be identified and defined in order to address the issue of sustainable urban development. *The policies to be followed in order to move towards more sustainable cities are specific to each urban area.* Cities around the Pacific face a wide range of distinct problems. A “bottom-up” approach to the study of these issues — the approach adopted by PECC Task Force on Sustainable Cities — seems

to be the only one that can help identify the contrasts in and among different urban settings and expose the concrete problems of sustainable urban development. This method — which implies the close comparison between various experiences — will also highlight realistic, affordable and differentiated policies that are consistent with each of the cities to which they are applied.

Sustainable Urban Organizations

A relationship exists between a city's density and its impact on air pollution from exhaust-gas emissions. Cities such as Hong Kong (see Rebecca L.H. Chiu) and Singapore (see Lye Lin Heng) illustrate one point in this relationship: they have a very compact center, new towns or sub-centers, a very efficient public-transport system and green cuts between urbanized areas. The question is whether and how other metropolises can appropriate this type of urban organization. To come up with possible



...different policies

answers, it is necessary first to understand what is really happening in these other urban areas that may make them more "compact."

Patterns of Development

Cities are characterized by very different modes of urban development resulting from contrasting dynamics. One of these dynamics is an essential feature of developing countries: the massive attraction of the metropolis. In cities such as Manila, Jakarta and Mexico City, a population of floating peoples and ghost communities (see Hsia Chu-Joe) looking for jobs, and sometimes sheer survival, is attracted to the large metropolis. As a result, a city made up of slums and camps grows inside the city or on its fringes. This development is rarely subject to effective (municipal) control, as it is most often against the wishes of local authorities that these urban areas receive this immigrant population (see Agus Budi Purnomo).

Another dynamic lies in the demand for adequate urban living conditions, which generates urban sprawl. As times passes on, immigrant populations ask for the services, such as adequate housing with good sanitary conditions, that they need in order to be able to live decently. Faced with the dereliction of the central districts, and for want of having given them a "modern" look, many cities then "de-localize" the population living in the center to the suburbs. Under such policies, slum areas themselves gradually get rebuilt and improved. Isolated districts, large housing estates or new towns then spring up in areas that may be well or badly served by public transportation. As a result social segregation generally increases, as the experience of Santiago demonstrates (see Francisco Sabatini & Federico Arenas).

A third dynamic is the demand for urban quality. In developed countries, and in some developing countries, many wish to live in individual houses, close to nature, and to benefit from the advantages of the existing infrastructure: this explains the urban fabric of cities such as



When the population explodes in the city center, new residential estates grow outside the town; if badly connected, this increases urban sprawl and social segregation.



Sydney (see William Ross), Christchurch (see Mark Bachels) or the American cities, another pattern of urban sprawl.

In response to this demand for urban quality, local authorities rehabilitate public spaces and parks, and improve the road network and transport system to offer better quality of living for all. This development tends to challenge our vision of urban forms as the pervasiveness of urban functions increasingly blurs the line between urban areas and rural areas. To this analysis, one can add the fact that large commercial centers, and industrial and/or services sectors outside the dense city, have encouraged the population to gather closer to these polarities (and, conversely, one could say that these polarities have developed as businesses try to set the best location for their customers).

Another fundamental element in this development process is the role of land prices, which are usually much lower on the outskirts than in the compact and well-served areas. Yet this is a complex mix, under all periods, as residents carefully balance their choices between costs, distance, housing and accessibility to urban amenities, jobs and leisure facilities.

Finally, the vigorous development of New Information Technologies in the past decade represents a phenomenon with unforeseen consequences. Mobile phones have a fundamental impact on social and professional relationships. An increasing number of people are using the Internet for work and to organize their everyday life in the best possible way. Information Technologies enable people to live far away from the large urban polarities. The full extent of this evolution on the management of cities has yet to come.

These various forces are complementary. It is the role of the public authorities to take into account both the prevailing dynamics at any given time and the financial resources of the local authorities and inhabitants to prepare a set of sustainable policies.

Compact Cities

Would a "modern" city made up of skyscrapers, high-rises and towers, with a very high ground-occupancy coefficient meet the conditions of being a "compact city"? The measurement of density is a complex matter. First, there is a gap, often a fairly large one, between density figures and the perception of density by the population. Second, in assessing the issue of density in terms of the efficiency of the urban shape, are we only referring to residents and people living, working and shopping in a space unit? Or are we talking about economic density? At what scale should density be measured: the whole urban area (with an average that has little significance and with the additional problem of defining the relevant limits of this area), the plot, the block, the district, or the urban area around a public-transport station?

All of these units are legitimate, as a city is not simply made up of the juxtaposition of unrelated objects. On the contrary, various entities and logical approaches co-exist at various levels. A city is made up of different "pieces" that differ according to their functions and densities. These pieces must be inter-related so as to create a well-balanced city and, at the same time, achieve progress towards sustainability.

High-density living presents two major advantages. First, if it offers a mixed and dense use of space, it allows for a greater variety of leisure and culture on offer. Second, it allows for the establishment of efficient public-transport systems. But there still remains the question of assessing the cost of high- and low-density cities: how can the investment, management, social, pollution, safety, and other costs all be evaluated? Pollution issues cannot be the sole determinants of sustainability. Furthermore, both high and low-density cities present contrasted, yet attractive, urban qualities.

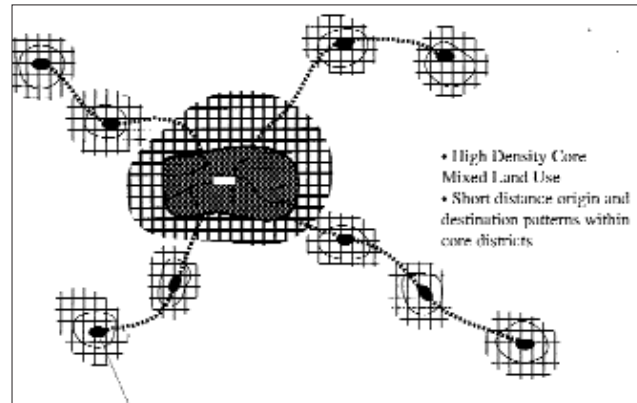
Sprawling Cities and Poly-nuclear Cities

In a city organized around a dense center, itself located around public-transport stations, people commute to work using mainly public-transport systems while, in their local areas, they use bicycles or walk. If it becomes possible to de-localize inhabitants and create employment inside these polarities, commuting decreases. The effect is the emergence of the poly-nuclear city. The city of Tokyo, for instance, is a poly-nuclear metropolis established around transport systems, especially around large stations. Other metropolises like Seoul (see Kim Jeong-Ho) or Hong Kong (see Rebecca L.H. Chiu) have set up new towns in order to better organize their territory and decongest their centers.

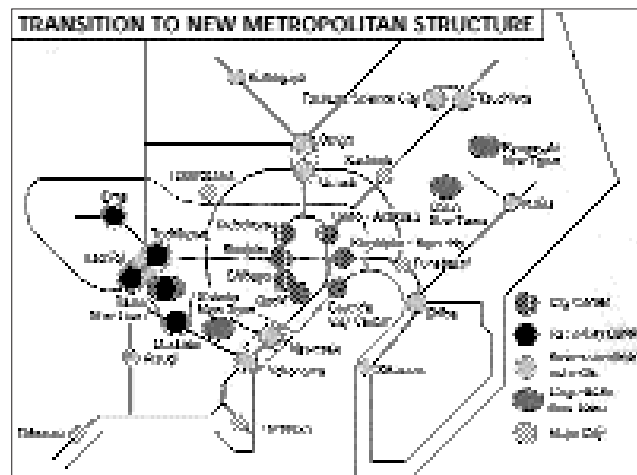
This raises the question of the priorities of these polarities: do all functions have to be located in the center, with secondary centers of lower rank — which clogs the roads leading to the centers (see the star system described by Mark Bachelis) —, or are there advantages in a poly-nuclear urban area with equivalent and complementary polarities — where the star-shaped transport system becomes a grid such as the one that the public authorities are implementing in Tokyo?

In any case, an optimum size must be found for metropolises, a size beyond which the drawbacks would outweigh the economic advantages: a network of cities such as the one emerging in Hong Kong, Macao, Shenzhen, Zhuhai and in the Pearl River Delta is perhaps opening up the prospect of an efficient urban organization.

Future work will have to be based on the concrete realities of cities in order to respond to issues related to the compact city concept, and especially to see how far the perspective that it offers allows for the implementation of realistic and affordable urban policies (see Somrudee Nicro).



The Star System



Tokyo: a poly-nuclear metropolis shaped by a grid transport system. A structure different from the star system.

Controlling Mobility

What are the links between transport and sustainability and how do transport policies improve sustainability in the city? There are three major ways in which transport has an impact on a city's health: the pollution and greenhouse gases that it generates; traffic congestion and its economic consequences in terms of loss of time; and the nuisance that transport brings to the urban area (especially noise and road safety). But without transport and the organization of flows of people and goods, there can be no city.

A strong interaction exists between urban shapes and transport demands. The number of cars per capita is one of the mobility indicators. The asymptote of this indicator is about 600 cars for every 1000 inhabitants in the United States, and 400 cars in Europe. Two very different conceptions of urbanization explain this difference. Urbanization in the United States is based on the spread out and

diffused low-density city where most of the mobility depends on cars, whereas European cities are generally denser and have efficient public-transport systems.

The urban shape plays a part in the demand for transport but other issues also have to be considered. A comparison can be made between the different phenomena that give rise to urban sprawl and the bases of the demand for transport. The first dynamic corresponds to the increase in the number of cars linked to the growth of per capita GDP, an increase that is hard to eliminate. Several participants at the Bangkok conference, in particular those from developing countries, clearly argue for the "right to mobility" without generating discrimination between people.

A second dynamic is the strong demand for a modification of the quality and nature of mobility: complaints inevitably emerge about congestion, the bad quality of public transport, noise and pollution. A new distribution of the demand for transport arises: job-related movements are proportionally reduced and those related to "non-work" greatly increase. In Europe, for instance, only 35 percent of the mobility in cities is related to work. Holidays, leisure and weekend trips are taking a predominant role in mobility. To conceive a realistic transport policy, a city must take account, among other things, of actual social demands. The number of cars will keep on growing in many countries and this trend must be considered seriously. To resist this current, some countries have implemented a set of public policies: Hong Kong and Singapore, for the reasons mentioned above; and cities such as Christchurch (see Mark Bachel's), to obtain the best energy results concerning their transport systems. These policies include very efficient public transportation systems, urban tolls, downtown parking and traffic restrictions, enhancement of urban space for pedestrians and eco-friendly modes of transport. Aware of



Many city centers are being rehabilitated to improve the quality of urban life: traffic and parking restrictions, pedestrian amenities, urban landscaping.

the danger of car invasion in cities, some developing countries (Vietnam, for instance) have decided to apply heavy taxes to car prices, thus slowing down the increase in car ownership. Others are introducing severe pollution standards for cars (Beijing and Shanghai, for instance). Other cities equip their buses with carburetors that can function with less-polluting energies, such as gas (see Zhang Min & He Cheng).

The massive growth of motorization encourages local authorities to build major transport infrastructures, urban expressways and public-transport systems (underground or above ground). In the first phase, the impact on air pollution is evident with the reduction of traffic congestion. Bangkok has visibly improved the quality of life and its environment thanks to its recently built rapid transit urban expressways and its sky train (see Somrudee Nicro). It is essential, however, to find the right balance to improve the necessary transport infrastructure without encouraging excessive motorized movements.

Urban Services

Urban services — their implementation, management and maintenance — are among the major concerns of local authorities. It is impossible to live without water, electricity, rubbish collection and treatment, cleaning of public spaces, telephones and electronic communication, and other urban facilities. This issue is essential for all communities and it is particularly crucial for developing countries: the population increase in Manila is estimated at 60 percent between 1995 and 2015 and at 88 percent in Jakarta. The low quality of urban services in these cities generates severe social problems such as overcrowding, which encourages the growth of ghettos and social segregation, but it also affects public health and causes pollution, floods and the exhaustion of natural resources (see Agus Budi Purnomo). In many countries, the local authorities have long performed the role of contractors for

“ hard ” infrastructures (e.g. roads, railways, harbors and airports, and other facilities) while at the same time acting as operators for the “ soft ” infrastructures (e.g. water supply, electricity, waste management, sanitation, and telephone). This conception is today facing a strong challenge. Experience, and the rapid evolution of techniques and specially the emergence of the NTIC, teach us that the implementation and management of urban services is a matter that increasingly requires specific professions and competence. Cities can no longer keep up with all the developments in urban services, especially the challenges of carrying out the necessary R & D, developing of new solutions, and achieving sound economic management. The development of expertise in these professions is based upon the constant cross-comparisons and encounters with contrasting situations in various contexts and under different constraints. These conditions make it necessary to link up research centers and networks. They also call for a review of the respective roles of the public authorities and the private sector.

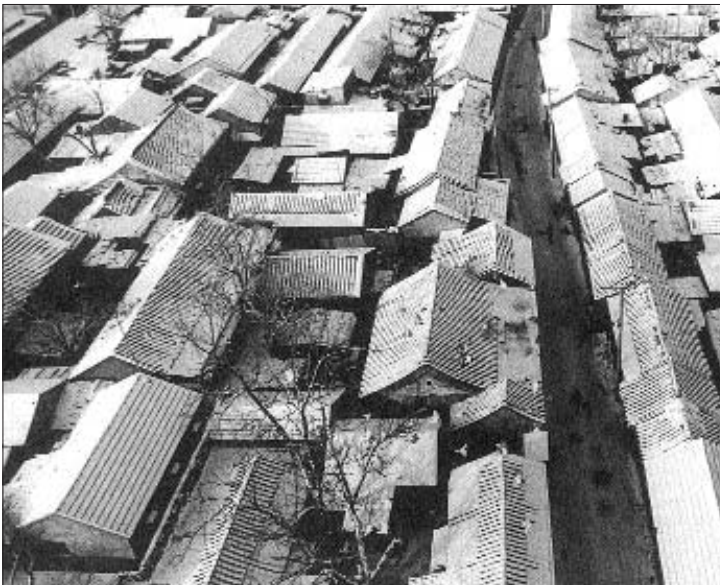
The most severe problem in the development and management of “ soft ” infrastructures arises in the developing countries. Various public-private partnership solutions have been implemented that take into consideration the end-customer and the social structures into which he fits, as well as the financial capacities of the local authorities. Quite a few cities in China, Vietnam, the Philippines, Indonesia and Chile have set up such partnerships. Industrial countries also rely on such partnerships. Environmental demands compel these countries to design and build facilities that take the environment into consideration. Such investments are huge and public-private partnerships are best suited to implement such projects. There is another reason for these partnerships: the fundamental role of the local authorities is to organize and manage the city. As such, they are increasingly involved

in social issues as well as in economic development, education and public health. These increased responsibilities make it appropriate to resort to partnerships with private specialized firms.

Another technical and financial problem that is becoming more crucial in the majority of the Pacific Rim countries is the scarcity of water resources due to aridity in some regions like North China, intensive deforestation, excessive pumping of groundwater and its pollution, as in Beijing and Jakarta (see Agus Budi Purnomo). This deficit in water resources has environmental consequences on different scales, from inter-state coordination, to the designing and implementing of appropriate technical and financial tools.

The Architectural Shape and the Urban Shape

One of the elements of sustainability relates to the heritage that we shall pass onto future generations. The relationship with heritage



Heritage is not only about ancient buildings, it is also about ancient urban fabrics

takes on very different meanings depending on whether one lives in Japan, China, Southeast Asia, Latin America or the Austral continent. The age of human settlements varies greatly, immigration movements have mingled cultures and colonial invasions have left their mark. This relationship also differs because each culture has its own definition of "heritage." Centuries-old buildings are preserved in Latin American countries (see Daniel Hiernaux-Nicolas) whereas in Asian countries, repainted temples symbolize the way in which values are rooted in the past. But heritage does not only mean ancient buildings. Housing shapes, urban and village organization, and urban fabrics are integral parts of heritage in the sense that they are evidences of the way of life.

It is on this older fabric that new major transport infrastructures, as well as office and housing skyscrapers, have settled. Sometimes whole districts are destroyed to make room for totally new urban settlements. Modernity finds its place in these mega-cities, sometimes by denying the relationship with heritage. Thanks however to international tourism, among other things, however, and to the desire to conceive the country both in its historical depth and its current state, many Asian countries are reconsidering their earlier policies of destruction and have started rehabilitating traditional housing.

But Asian cities are perhaps beginning to invent a new urban shape consisting of the elements that make it up: brilliant skyscrapers, audacious transport structures, large parks, old urban villages, traditional block cores, and fields and agriculture lying inside an exploding urbanization. They represent dynamic, ceaselessly changing, constantly evolving, hyperdense buzzing cities. They are cities of contrasts, of juxtapositions, and of movement. Is a new heritage being invented? And, as in other metropolises, what impact is to be expected from the new technologies on the architectural and urban shapes?

Establishing a Sustainable Development Policy

“ Sustainability ” can be defined by a set of criteria used to evaluate the different actions decided in an urban area in order to progressively reach the major objectives set by each city. All cities have ambitions: to become, like Singapore or Hong Kong, major economic centers of the Pacific region; or to combine, like Sydney, attractive living conditions, economic competitiveness, culture and education so as to offer the best quality of life for all their residents. Depending on its situation, objectives and the means that it possesses, a city implements certain activities such as urban planning, transport and urban services, the modeling of the architectural shapes of the built environment, housing, health, education, green and leisure spaces, and cultural and leisure policies.



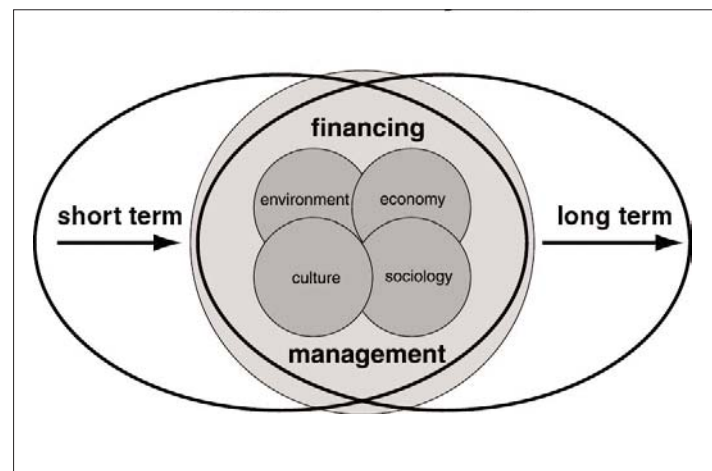
*A new urban shape:
juxtapositions and contrasts*

The Dimensions of Sustainable Development

These different activities will have to be assessed as they evolve, according to their relevance to the underlying political ambitions, but also their contribution to sustainable development. It is at this level and at this stage that sustainable development in public policies must be taken into account. Many major cities have set up Agendas 21 which, in fact, are organized around some of the major components of sustainability: economy, society, environment and culture.

They generally concern:

- *The economy*—how to be competitive in a region or the world, how to attract international investments in order to satisfy the needs of the population and how to make investments corresponding to a good management of expenses in the short and long term? Which forms of public-private partnerships should be created?



Sustainability: A System

- *Social equity*—how can social equity be promoted and what should be done to avoid the movement of poorer populations into suburban ghettos? How can health, education, hygiene and employment for all be guaranteed?
- *Culture*—how can cultural diversity be guaranteed? How can ancient and contemporary heritage be highlighted? How can the city be made attractive for all, inhabitants, tourists and business firms (see Daniel Hiernaux – Nicolas)?
- *The city's or the district's' environmental quality and good management of natural resources*—how not to pollute and exhaust natural resources, how to renew natural resources, treat waste and regulate polluting industrial emissions?

The dimensions of sustainability are strongly interdependent: economic performance is related to social equity. Culture, by its integrating role, is linked to social equity, but it does not stand outside the economic realm because of the subsidies it needs as well as its attractiveness it has to potential investors. To make choices, and develop tools to assess the relevance of the policies implemented, however, it is necessary to adopt a series of separate criteria.

The Process of Sustainability

How can long-term objectives be fixed that will be both realistic and assessable while, at the same time, bring improvements for today's generation?

It is impossible to know what the needs of the future generations will be, and therefore impossible to define what should be included in the approach to sustainable development. Nevertheless, hypotheses can be made concerning certain growth trajectories that will prevent us from reaching such a goal. This occurs, for instance, when development strategies lead to an increase in persistent pollution problems that exceed the financial capacities needed to treat them, a reduction of the global heritage value, an increase in dissatisfaction,

high tensions due to social inequalities or a squandering of critical capital essential for future development. Furthermore, it seems necessary to maintain the capacity to respond and adapt, on varying scales, when confronted with accidents or unpredictable events.

Taking into consideration the time factor implies that a sustainable development policy must be viewed as a process. Of course, policy packages can be fixed at a certain date, but it is obvious that, with time, economic, social and environmental conditions will change and that some components of the initial package will be unable to achieve the expected aims. It will therefore be necessary to regularly assess the impact of the decisions made, reconsider some of the actions taken and implement new measures. Regular monitoring is a necessity.

The Relevant Scales of Sustainable Development

A city is never isolated in its region or country. It entertains close relationships with its hinterland and surrounding territories thanks to transport infrastructures. The city's supplies come in part from the surrounding agricultural areas, and water supply is never found solely on the spot. The city is bound to host an immigrant population from the surrounding areas and its economy is generally related to both the regional and the global economies. Furthermore, a good environmental policy will impact on the city itself and will contribute to the overall environmental evolution.

Major cities have now become "city-regions" where problems need to be addressed on another scale, at either the regional level or the national level. As illustrated by the policies implemented in the Philippine, deliberate economic policies helped revive medium-sized towns in the country in order to offer well being and employment to the local population, and encourage them not to emigrate to the capital city (see Benjamin V. Carino). Yet, as the

cases of Manila or Jakarta also show, city-regions are usually not political entities, but are made up of dozens of local municipalities that fight vigorously to defend their independence from the central city, as though they are not all part of the same social and economic unit. A first step, therefore, would be taken if national and city policies were made more coherent.

Defining Agendas 21

Agendas 21 involve all the city's actors: local authorities, inhabitants and economic agents. They involve them both in their private lives and in their economic activity. They also involve them heavily in the decision-making process. The experts, through their knowledge of economic, social and environmental phenomena, are also essential actors in defining sustainable policies and in implementing the necessary processes.

Establishing such a decision-making system raises many questions, and different experiences show different results. How can the population be given a place in the process so that it can feel personally involved? How can civil society encourage the responsibility of governments and how will the latter be accountable to civil society? How can the economic and the financial worlds be associated with these processes? What part can public service companies play in defining the services that must be established and the financial partnerships that could implement and manage them? How can the process be made transparent? How can the leadership of a process that is due to last a long time be organized? In addition, how can local administrations that work differently be brought to work together? The answers to these questions depend on the will of the local authorities and on each city's specific factors.

Conclusion

The present volume is based on the contributions presented at the Bangkok conference and the wealth of the debates and discussion that they produced. It demonstrates how different the situation of each city is and argues for the need for appropriate sustainable development policies. "Sustainability" can be defined by a set of criteria used to evaluate the different actions implemented in an urban area to progressively reach the major objectives set by each city. Splitting up sustainability into four major components — economic, social, cultural and environmental — that interact with each other enables us to describe the system to be corrected. Policy-making to reach the objectives of a given city is a process that must be constantly re-activated and renewed, and it must be run by all the urban actors: local authorities, inhabitants and economic actors, with the help of experts. To solve the problems of urban sustainable development, working on

the scale of the city alone is not enough and coordination has to be established among city, region, and state organizations to set up coherent regulations and policies.

Sustainable policies take into account the differing situation of each city. They must be implemented with a realistic view of the major forces at work: local and global economic forces, social forces, and the needs of the population. The processes needed to achieve these major objectives must be devised so as to take into account local cultures and heritage and the environment. They have to be developed in the context of local economic situations.

Cities around the Pacific Rim are among the most dynamic places in the world, each in a different way. The development of exchanges between them, including an analysis of their evolution, will help identify pragmatic and realistic paths towards their sustainable development, that of the region, and that of the planet.

Contributions



PHILIPPINES

MANILA

<i>Size of the country</i>	300 000 km²
<i>Population</i>	80,3 M
<i>Population density</i>	267,6 inhab/km²
<i>Population growth rate (1993 – 1999)</i>	2,2%
<i>Part of urban population</i>	58%
<i>Life expectancy at birth</i>	69
<i>Infant mortality (per 1000 live birth)</i>	32
<i>Access to improved water sources (% of population)</i>	83
<i>Ethnic groups, their percentages in the population</i>	Malaysian + minorities
<i>Official languages</i>	English, Tagalog
<i>Religions</i>	Christian : 88 %, Islam : 4 %
<i>Gross domestic product</i>	78 billion USD
<i>Gdp per capita</i>	1 020 USD
<i>Inflation</i>	5,4 %
<i>Gdp growth rate</i>	4 %
<i>Gdp repartition in different sectors</i>	Agriculture: 17,7 %, Industry: 30,3 % (manufacturing: 21,5 %), Services: 52 %.
<i>Unemployment rate</i>	13 % (1998)
<i>Illiteracy (% of population age 15+)</i>	5 %
<i>Tourism</i>	2 M visitors (1996)
<i>Population of Manila</i>	11 M

URBAN GROWTH IN THE PHILIPPINES: POLICY ISSUES AND PROBLEMS

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Introduction

This paper is divided into three sections. The first section briefly documents the trends in urban population growth in the country and subsequently highlights the challenge posed by such growth in terms of development and environmental problems associated with the phenomenon. The second section discusses the policy res-

ponses of the Philippine government, both in terms of influencing population distribution and settlement patterns, and in terms of "managing" the consequences of urban growth. In the final section, we shall identify various issues and problems in the implementation of policy, as well as possible areas for policy reform.

The Context: Philippine Urbanization Experience

Urban Growth Trends

One of the significant phenomena that have characterized the process of development in the Philippines has been the explosive and unabated growth of urban areas. At the beginning of the post-war period in 1948, close to 5.2 million Filipinos were found residing in urban areas. Over a 22-year period, this number more than doubled, increasing to 11.7 million in 1970. By 1990, the urban population totaled 28.6 million, or well over 40 percent of the

country's population. It has been projected that close to 37 million Filipinos will reside in urban areas by the turn of the century¹. According to a UNDP report, the Philippines ranks third among Southeast Asian countries in terms of the proportion of population living in urban areas, next only to Singapore and Malaysia. It ranks second to Indonesia in terms of the absolute size of urban populations (see Table 1).

Especially noteworthy is the fact that urban growth rates in the Philippines have further

accelerated in recent years, even as total population growth as a whole has declined. From a high post-war peak of about 3.2 percent annually, total population growth rates have declined to 2.8 percent in 1980, and further dropped to 2.3 percent in 1990. Conversely, the growth rate of the urban population has been gradually increasing from an average of 3.8 percent in the 1948-1960 period to 4.3 percent in the 1970s, and to a high of 4.8 percent in the 1980-1990 period².

Urban growth was particularly rapid in the large urban centers of the country, especially in Metro Manila. The post-war 1948 population of Metro Manila was recorded at 1.6 million, out of the country's total population of 19 million. Growing rapidly into a primate metropolis, Metro Manila's population reached four million in 1970, 5.9 million in 1980, about eight million in 1990, and 9.1 million in 1995. The population of the metropolis has been projected to increase to more than ten million in 2000.

Table 1. ASEAN Urbanization

Country	Urban population as a percentage of total population			Annual growth rate of urban population (percentage)
	1960	1992	2000*	1992-2000
Brunei Darussalam		58		
Indonesia	15	30	40	4.4
Malaysia	25	45	51	3.9
Philippines	30	44	49	3.6
Singapore	98	100	100	1.0
Thailand	13	23	29	4.0

Source: UNDP, Human Development Report, 1994. * projected

Metro Manila is of course the National Capital Region (NCR) and the seat of the country's political and economic life. It is composed of eight cities and nine municipalities and covers a land area of 636 square kilometers. This is roughly 0.2 percent of the country's 3 million square kilometers. Its population of 8.6 million in 1995, however, accounted for 13 percent of the national population. This translates into a high population density of 14,308 people per square kilo-

meter, three times that of the city-state of Singapore and 60 times the national average. Beyond the problems associated with urban growth which will be documented in the section that follows, the primacy of Metro Manila or the NCR has been seen by many as a major stumbling block to the more "balanced" development of the country as a whole. Indeed, Metro Manila predominates in almost every dimension of socio-economic well being in the Philippines.

It is the center of politics, culture, trade and services, as well as of commerce and industry.

Evidence presented in Tables 2 and 3 shows that the disparities between the NCR and the other regions of the country in terms of their respective share of the Gross Regional Domestic Product (GRDP), both in absolute and per capita terms, are wide. Over a five-year period from 1995 to 1999, the GRDP for Metro Manila constituted well over 30 percent of the national total. Basically the same pattern emerges when the incidence of poverty across

regions is compared. In 1990, the incidence of poverty in the country as a whole was close to 50 percent, as against a much lower figure of 30 percent for the NCR. It is also noteworthy that over time the disparities do not seem to be narrowing. Likewise, industrial firms and other business establishments have tended to maximize income by locating in Metro Manila and nearby urban areas³. Available data show that, in 1995, more than 50 percent of the total gross added value in manufacturing originated from Metro Manila.

**Table 2. Gross Regional Domestic Product by Region at Current Prices (pesos)
1995 – 1999**

Region	1995	1996	1997	1998	1999
Philippines	1,905,953,203	2,171,912,875	2,426,742,767	2,678,187,309	2,996,371,289
NCR Metro Manila	623,939,285	717,589,855	827,616,432	920,523,923	1,027,522,166
CAR Cordillera	38,452,694	43,261,744	52,209,851	60,048,188	70,633,550
I-Ilocos	58,809,535	68,670,644	79,224,583	91,076,909	103,122,030
II-Cagayan Valley	40,374,410	45,532,563	52,573,570	55,210,929	67,363,521
III-Central Luzon	159,939,189	182,007,317	202,295,090	207,494,669	238,245,586
IV-Southern Tagalog	273,577,646	307,566,444	337,571,786	375,830,602	416,133,455
V-Bicol	55,884,813	62,669,453	72,316,817	80,748,671	87,414,676
VI-Western Visayas	132,111,554	153,012,084	158,971,046	173,676,995	197,628,023
VII-Central Visayas	121,438,468	140,543,545	158,892,511	176,516,701	200,343,241
VIII-Eastern Visayas	47,854,065	55,642,722	65,693,457	71,637,434	81,845,884
IX-Western Mindanao	52,904,036	56,636,234	62,096,996	67,914,318	74,249,478
X-Northern Mindanao	97,681,595	110,107,420	101,225,791	107,045,246	115,711,700
XI-Southern Mindanao	129,205,311	146,720,561	129,668,734	149,334,959	164,468,594
XII-Central Mindanao	54,787,933	61,619,958	67,174,197	72,297,467	79,612,277
ARMM Muslim Mindanao	18,990,674	20,332,331	24,154,697	29,757,500	30,846,572
XIII-Caraga			30,057,209	39,072,798	41,230,534

Source: *Philippine Statistical Yearbook, Manila: Economic and Social Statistics Office, National Statistical Coordination Board, 1999*

**Table 3. Per Capita Gross Regional Domestic Product at Current Prices (pesos)
1995 – 1999**

Region	1995	1996	1997	1998	1999
Philippines	27.777	31.653	33.004	35.636	39.024
NCR Metro Manila	65.997	75.903	87.255	95.204	104.285
CAR Cordillera	30.644	34.476	37.453	42.110	48.446
I - Ilocos	15.460	18.053	18.935	21.380	23.783
II - Cagayan Valley	15.920	17.954	18.538	19.051	22.766
III - Central Luzon	23.071	26.254	27.027	27.148	30.536
IV - Southern Tagalog	27.514	30.933	33.031	35.862	38.743
VBicol	12.920	14.489	15.462	16.925	17.972
VI - Western Visayas	22.869	26.488	24.804	26.576	29.665
VII - Central Visayas	24.217	28.027	28.858	31.406	34.940
VIII - Eastern Visayas	14.213	16.526	17.793	18.982	21.226
IX - Western Mindanao	18.930	20.266	20.393	21.753	23.203
X - Northern Mindanao	39.336	44.340	37.353	38.547	40.672
XI - Southern Mindanao	28.063	31.867	25.923	29.093	31.238
XII - Central Mindanao	23.217	26.112	26.720	28.055	30.156
ARMM Muslim Mindanao	9.397	10.061	11.045	13.338	13.559
XIII - Caraga	-		16.067	17.459	17.981

Source: Philippine Statistical Yearbook, Manila: Economic and Social Statistics Office, National Statistical Coordination Board, 1999)

Urban Growth Problems

At the same time, however, problems have emerged in relation to the explosive population growth of large urban centers. Many of these problems have now reached alarming proportions and pose a serious challenge to scholars and policymakers alike.

These problems are readily evident in Metro Manila. The physical decay and deterioration of the inner core is easily visible. Large sections of the inner core of Metro Manila have population densities of close to 30,000 per square kilometer and are now experiencing critical problems of congestion and overcrowding, along with the health hazards that are associated with such conditions⁴.

The manifestation of urban environmental problems in the NCR is also obvious. These environmental problems are reflected in such phenomena as the proliferation of slums and squatter settlements, traffic congestion, flooding, water and air pollution, and uncollected solid wastes. In recent years, it has been estimated that about 38 percent of NCR residents (almost four out of every ten residents of Metro Manila) live in slums and squatter colonies. According to similar data, slums and squatter settlements in Metro Manila alone occupy close to 800 hectares of land, of which about 60 percent is government property. What is really alarming about slums and squatter settlements is that they tend to exacerbate other urban environmental problems such as

flooding, water pollution, drainage problems, and, consequently, unhealthy living conditions. Other environmental problems in the NCR are just as alarming and serious. Flooding, which is both frequent and destructive, occurs in areas that amount to nearly 5,000 hectares in the metropolitan area and directly affects the life of almost three million people. All four major rivers in the NCR are heavily polluted and have long been declared "biologically dead," by the Environmental Management Bureau (EMB), except for the upstream portion of the Marikina River⁵.

Similarly, air pollution levels have reached alarming proportions. The metropolis now has excessive concentrations of airborne particles. Monitoring activities have revealed that carbon monoxide has become a serious problem

in many parts of the metropolitan area, and that some districts are feeling the impact of dangerous amounts of toxic heavy metals. In terms of solid-waste management, close to 5,000 tons of garbage is generated daily in the metropolis, of which only 3,500 tons are collected. The balance is presumably dumped in *esteros* (creeks) and canals or simply left in the streets, causing considerable health hazards. The recent disaster in Payatas, Quezon City (where a mountain of garbage collapsed and buried close to 300 individuals) is a grim reminder that the garbage disposal problem has reached crisis proportion in the metropolis. The planned closure of a disposal site by the end of the year (2000) will leave metropolis with no clear alternative in dealing with its massive garbage disposal problem.

The Policy Response

Two strategies in dealing with the problems associated with urban growth and the imbalance between Metro Manila and the rural areas are evident in the country's current development efforts. The first strategy is geared toward improving the management and governance of urban areas. The second is aimed at sustaining the momentum toward spatial decentralization and the dispersal of economic activities among smaller urban places and in the countryside.

A crucial policy point, in this connection, is the role that the national government should take at the macro-economic level with respect to the second strategy, i.e., in determining the location and development of growth centers and corridors. Briefly stated, the national government should have control of the overall spatial decentralization of the country. Central public policy should set up effective networks

of urban centers and corridors with a view to strengthening the economic and spatial relationships among them. On the other hand, a grass-roots approach to the management and governance of urban areas should also be adopted. In other words, local government units should be in control of the internal affairs of urban places. In particular, they should have sufficient autonomy in the fiscal and administrative affairs of local areas so that they can manage urban change effectively.

Urban Management and Governance

The need to cope with worsening problems associated with urban growth must receive serious consideration in the light of current projections on urbanization in the years to come. The provision for urban infrastructure, housing and basic services has to keep pace with population increase in urban areas. In this

connection, studies have revealed that the provision for such services has lagged behind the rapid pace of urban growth.

There are several reasons for this state of affairs. The first has to do with the fact that the capacity for urban governance at local levels is weak, especially in the area of planning and fiscal management. This is evident in the lack of appreciation among local government officials for the importance of the planning process, poor enforcement of land-use plans and zoning regulations, inadequate financial systems and procedures, and generally poor administration of local government functions and services⁶. More disturbing is the fact that the overwhelming majority of local governments have not formulated land-use plans and zoning ordinances as required by law.

Beyond weak urban governance capabilities, local government units are hampered in the same way by lagging revenues. Although the Local Government Code has expanded their revenue base, local sources of revenue continue to constitute a very small proportion of the total income of local governments. This problem clearly reflects the persistence of the "dependency syndrome" that has been nurtured by the long period of highly centralized government. There is also an apparent "substitution effect" related to the more generous provisions of the Internal Revenue Allotment (IRA) to local governments. They are no longer taking the initiative to raise additional revenues because they benefit from more substantial transfers of revenue from the national government under the Local Government Code⁷. This, in turn, has hampered the ability of local government units to provide basic urban services.

Moreover, some problems of urban growth cannot be effectively dealt with by local governments acting independently. These problems transcend existing political boundaries and are constantly worsened by the increasing size of the "spillover" population. Along with the benefits that could be derived from economies of scale, the need to cope with area-wide

problems provides the rationale for metropolitan arrangements and other forms of cooperation among local governments units. Current metropolitan institutional arrangements in the Philippines (such as the Metropolitan Manila Development Authority) are generally weak. That is, they have not been provided with sufficient powers and financial resources to cope with such metro-wide problems as traffic congestion, waste management and flooding.

Urban Growth Dispersal

Programs and Policies that Influence Dispersal

To address the problem of imbalance and economic concentration, the Philippine government has adopted a number of plans and programs aimed at promoting a more decentralized spatial development and, to some extent, at correcting the socio-economic disparities among regions and the high concentration of population in large urban centers in the country, especially in Metro Manila. The main philosophy behind the programs is based on the assumption that the ultimate solution to the urban crisis lies in a more sustained effort in rural development.

Other scholars have observed that there already exist various categories of programs and policies in the country that are sufficiently sensitive to the trends of internal migration⁸. Illustrative examples of these programs and policies are listed in Table 4 under four main categories.

These are programs and policies that:

- encourage people to move to certain areas;
- discourage people from moving to, or staying in, certain areas;
- encourage people to stay where they are; and
- cope with problems arising from internal migration.

An analysis of the programs listed in Table 4 would easily reveal a rural bias. With the programs and activities that encourage people to

Table 4. Major Categories of Programs that Influence Population Distribution*

Programs	1	2	3	4	Main Agencies Involved
1. Resettlement and Relocation	X	X		X	National Housing Authority, Public Estates Authority Bases Conversion Development Authority Local Government Units
2. Industrial Estates and Growth Centers	X				Philippine Economic Zone Authority National Economic and Development Authority Board of Investment
3. Highways and Infrastructure Development	X				Department of Public Highways Local Government Units
4. Natural Resource Conservation, Reforestation		X			Department of Environment and Natural Resources Department of Agriculture
5. Decentralization and Local Autonomy		X			Department of Interior and Local Government Local Government Units
6. Agrarian Reform and Related Agricultural Programs		X	X		Department of Agrarian Reform Department of Agriculture
7. Urban Land Tenure and Reform Programs	X	X	X	X	Housing and Urban Development Coordinating Council Presidential Commission for Urban Poor Housing and Land Use Regulatory Board
8. Sites and Services Schemes for Squatters	X		X	X	National Housing Authority Home Development Mutual Fund Presidential Commission for Urban Poor Local Government Units
9. Utilities and Urban Services				X	Metro Manila Development Authority Local Government Units
10. Rural Development Programs	X		X		Department of Interior and Local Government Department of Agriculture Local Government Units

*Adapted from Aprodicio Laquian, "The Need for a National Urban Strategy in the Philippines" *Philippine Planning Journal*. Quezon City: U.P. Press. 1972. - Legend for Program Categories:

1: Programs that encourage people to move to certain areas. 2: Programs that discourage people from moving to, or staying in, certain areas. 3: Programs that encourage people to stay where they are. 4: Programs that cope with problems arising from internal migration.

move to certain areas or stay where they are, the preferred place is the rural area. A "keep them on the farm" philosophy is apparent in the Comprehensive Agricultural Land Reform Program (CARP), as well as related agricultural credit and rural development programs. On the other hand, people are generally discouraged from moving to or staying in large urban centers, especially the poorer segments of society which flock to slums and squatter communities.

The programs and policies listed in Table 4 often have unintended effects⁹. Although many of these programs have been avowedly designed to curtail rural-urban migration, improvements in the lot of people in rural areas seem to encourage more migration towards urban areas as production efficiencies release marginal labor, or relatively successful rural residents yearn for something better in large urban centers. Increased agricultural productivity may also enhance rural-urban migration. Instead of keeping the people on the farm, the rice and road programs of the government may earn the farmer his transportation fare to travel through better roads leading to urban areas.

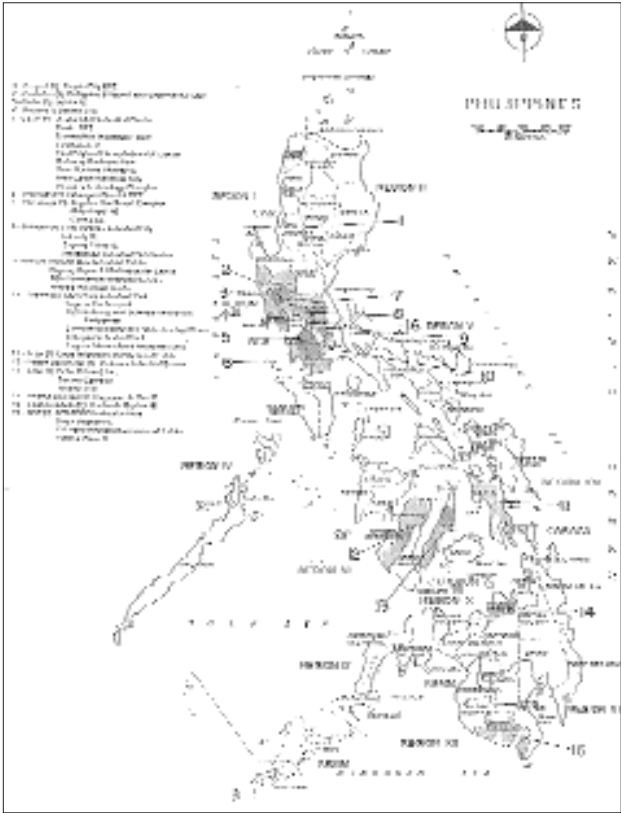
Aside from the unintended effects, the rural development thrust of the programs and policies listed in Table 4 is often hampered by a lack of coordination. These activities are carried out by numerous government agencies acting independently of one another. Thus, gains in one particular set of activities are offset by mistakes in another. Indeed, overlapping of functions, duplication of efforts, and "passing the buck" are common in various government operations. These problems have, for instance, been observed to be characteristic of such program areas as housing, agricultural land reform, poverty relief and infrastructure development.

Regional Growth Centers

It is in this context that in the 1970s, the government took a major initiative explicitly

designed to achieve a more "balanced" spatial development. It was to be achieved through a policy of dispersal of economic activities with the establishment of *Regional Growth Centers*. The strategy for growth dispersal was meant to *complement* rather than *supplement* urban governance and management strategies.

Historically, industrialization in the Philippines started in the 1950s and, except for some reorientation in its focus, this goal has been actively pursued for the past decades. During its early phase, industrialization was based on import substitution. This policy was characterized by the importation of component parts/raw materials and capital-based technology. Such a scheme had undesirable effects, including the non-utilization of indigenous raw materials and a low capacity to absorb surplus manpower. This policy also tended to be biased against agriculture-based industries, and consequently aggravated the imbalance between urban and rural areas. Being capital and import based, these industries settled in urban centers, especially in the National Capital Region. In reaction to the adverse effects of the import substitution policy, the government turned to an export-led industrialization program. Through this new strategy, the market was broadened beyond the domestic market with its low purchasing power. The strategy was likewise expected to improve the country's foreign exchange earnings to counter the depletion of its international reserves brought about by import substitution. This approach, however, failed to fully achieve its objectives. The emphasis on exported manufactured products, capital-intensive technology and imported raw materials resulted in the neglect of the countryside. Furthermore, exports were in component forms which had a lower added value than finished products¹⁰. Consequently, industrialization policies started to pay more attention to the countryside with the four-year Philippine Development



Map 1: Location of Industrial Estates

Plan of 1974-1977. As noted by Manalo, a major objective of the plan was to promote small and medium-scale industries in smaller urban areas so as to generate non-farm employment opportunities. This official pronouncement led to the adoption of the industrial dispersal policy, which was to be carried out through the establishment of industrial estates (IEs) and export processing zones (EPZs) in selected growth centers of the country. The regional growth center strategy was further pursued by the Aquino administration with the designation of Regional Industrial Centers (RICs), later renamed the Regional Agro-Industrial Centers (RAICs) in all regions of the country. In addition, a number of special economic zones were likewise identified.

These growth centers and economic zones are usually located in small to medium-sized urban areas of the country.

The selected growth centers were envisioned as “counter-magnets” to the large urban concentrations in the country. The “growth centers” strategy had obvious roots in the “growth pole” theory. As originally formulated by Perroux, growth poles are a cluster of firms or industries which are “propulsive” in nature, i.e., they have the capacity for generating and transmitting growth to other parts of the country¹¹. Whether this has actually occurred in the Philippine context is an altogether different question.

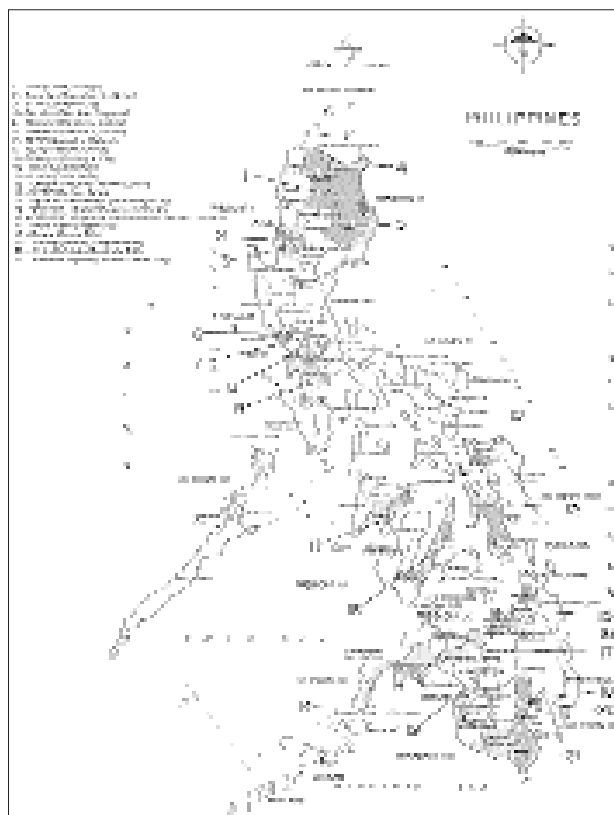
As currently implemented, there exist several variants of the regional “growth centers” strategy. Although there are no clear defining characteristics of each variant, the main features of the more prominent types are as follows¹².

- a. *Industrial Estate* is the generic term used to refer to a tract of land developed for the use of a group of industries according to a comprehensive plan. It is provided with roads and infrastructure support and utilities, with or without pre-built factories and common service facilities, and falls under a unified and continuous management. An export processing zone, namely a customs-controlled, duty-free enclave, is considered to be a special type of industrial estate. The location of industrial estates in the Philippines is shown in Map 1.
- b. *The Regional Agro-Industrial Center (RAIC)* which officially includes the Export Processing Zones (EPZs) in the country. Initially referred to as Regional Industrial Centers, the RAICs have been envisioned as the nuclei of industrialization and development in each of the country’s regions, destined to become the convergence point for public and private investments. At the same time, they have also been designed to trigger rural industrialization and economic expansion. As a location-

specific strategy, it focuses on one location in each of the fourteen (14) regions of the country and provides for the infrastructure needed by industries to operate on a competitive basis (see Map 2).

- c. *The Growth Corridor or Quadrangle* which usually covers neighboring areas (municipalities, provinces or regions) linked together through the collaboration and cooperation of local governments. The integration of these areas allows them to share their comparative advantages/strengths with one another, thereby ensuring the optimum utilization of resources and the development of the corridor and its radiation areas, as well as the integration of the targeted areas into a single economic unit.
- d. *The Economic Zones (ECOZONES)* are a somewhat smaller, but more formal variant of the growth network concept. As envisioned, ECOZONES are industrial production areas strategically located in the countryside, and are aimed at hastening the development of urban centers and rural areas around them. Foreign investments, as well as private sector and local government initiatives are to be encouraged in the establishment of the ECOZONES to enhance their role as prime movers of the local economy.

On the positive side, the main contribution of the regional growth centers, and especially of the export processing zones and special economic zones, can be assessed in terms of value of exports. In 1998, the exports generated by the companies located in the economic zones amounted to US\$11 billion in 1998, a 26.5 percent rise from 8.7 billion in the previous year. Data from the PEZA revealed that most of the



Map 2: Regional Agro-Industrial Centers

exports came from the special zones or from those that were owned by the private sector. These special zones contributed around US\$7 billion, while the government-owned EPZs contributed about US\$4 billion. Yet many problems have held back the implementation of the regional growth centers strategy. These problems have, in a large measure, reduced the impact of this strategy on spatial decentralization and urban growth dispersal.

Issues and Problems¹³

A Limited Contribution to Industrial Dispersal

The objective of dispersing industrial activity to other parts of the country appears to have been partially achieved. Currently, there are 21 RAICs, 48 export processing zones, eight urban growth corridors, and a number of officially approved special economic zones scattered in the 15 regions of the country. It should be stressed, however, that many of these industrial estates and economic zones are not fully operational at the time of writing of this article. For some designated industrial estates, even the feasibility studies are yet to be completed.

Moreover, there is clear evidence that the distribution of industrial estates is biased in favor of Luzon and the Metro Manila area. Of the 21 identified RAICs in the country, ten are located in Luzon, three are in the Visayas, and eight in Mindanao. The bias towards Luzon and the area around Metro Manila is clearly discernible. Of the total of 12,069 hectares devoted to the RAIC program, nearly half (48 percent), or close to 6,000 hectares is in Luzon. More than one third (38 percent) or over 4,600 hectares is in Mindanao. The remaining 14 percent, or a little over 1,500 hectares, are in the Visayas. Finally, the larger export processing zones and special economic zones are all located close to Metro Manila. They include, among others, the CALABARZON, the special economic zones of Subic and Clark, and the Bataan Export Processing Zone.

Slow Progress in Implementation

Progress in the implementation of the regional growth centers program has been very slow. This can be attributed in large measure to the meager resources that the government has made available for this purpose and to the consequent delays in land development and the supply of the infrastructure support needed

for the selected industrial sites. In the case of the RAIC program, for instance, only seven of the 21 RAICs identified are in operation more than ten years after the formal launching of the program. In fact, only one additional RAIC has become operational since 1986.

The expansion of existing growth centers and industrial estates had likewise been slow. Large tracts of idle and under-utilized land have been reported in many growth centers. In general, occupancy rates in many industrial sites are very low. In 1990, for instance, the average occupancy rates for industrial estates and EPZs in the country were well below 50 percent. Even more disturbing is the fact that some of the located firms have shut down or are no longer operational. The cases of business firms that have closed down in the PHIVEDEC industrial site are not an isolated phenomenon. In the CALABARZON area, for instance, only 41 of the 98 registered agriculture-based companies have been reported to be operational¹⁴. Many of these firms have either shut down or have otherwise failed to get a business license.

A Small Contribution to Employment

In 1996, total employment for the EPZs has been recorded at 152,250. No sufficient data are available for the RAICs. When viewed in the context of the magnitude of land resources devoted to industrial estates and export processing zones, the regional growth centers program has not contributed substantially to the generation of new jobs. Although the target of 200 employees per hectare of industrial land can be seen as an indicator arbitrarily set by the Board of Investments (BOI), the figure for most industrial estates and regional growth centers in the country falls considerably below this target.

For the regular EPZs in the country, average generated employment is about 50 persons per hectare. For the special EPZs, the figure is about eight persons per hectare. In some industrial estates in the country, the average is even much lower: 1.6 persons per hectare at the PHIVIDEC Industrial Estate, and six persons per hectare at the Batangas Bay Corridor. At the Laguna Technopark, average employment is about 51 persons per hectare. It should be noted that at least two EPZs have either exceeded or come close to the BOI target. These are the Mactan EPZ, with an average employment of 231 persons per hectare, and the Cavite EPZ, with 171 persons per hectare.

Land Conversion and the Displacement of Families

The establishment of industrial estates and special economic zones often entails the conversion of agricultural land to non-agricultural and industrial use. This problem has been especially critical for the PHIVIDEC Industrial Estate where displaced farmers have petitioned for the reconversion of some 800 hectares in the estate to agricultural use. The broader issue, however, is the contention by many scholars that the land conversion brought about by the establishment of industrial estates may reduce the capacity of the agricultural sector to meet the future requirements of food supply. Prime agricultural lands are usually situated in alluvial plains with very good infrastructure. These are also ideal prime lands for industrial use. RAICs alone cover over 12,000 hectares of land. Other economic zones cover an additional 6,000 hectares, large portions of which are potentially agricultural lands open to irrigation.

Some scholars have noted that the current state of conversion is critical¹⁵. If left unregulated, the projected net agricultural land left will not be sufficient to guarantee the require-

ments of the country's food security. It has also been observed that massive land conversion could result in the degradation of the environment (e.g., pollution of the coastal waters and solid waste disposal problems). Another critical problem related to the establishment of industrial centers is the displacement of farmers and their dependents, who are deprived of their major source of livelihood in the process and move to the cities.

Relatively Weak Backward and Forward Linkages

Regional growth centers have been designed to perform a "growth pole" function and to trigger growth in the rural areas. The evidence currently available suggests that industrial estates and growth centers have weak backward and forward linkages with the rural economy. In the Batangas Bay area, the main sources of raw materials come mostly outside the corridor area, and more than half of the located firms import raw materials from other countries in Asia, the Middle East and Europe. The same holds true for PHIVIDEC Industrial Estate in Misamis Oriental (PIE-MO) where ores and steel are imported from Japan, Australia, Brazil and Canada. Similarly, steel and automotive parts in the Laguna Technopark are imported from Japan, Korea, Thailand, Singapore and Taiwan. For these same industrial sites, a substantial share of the finished products is marketed internationally.

The pattern of international linkages is especially true for EPZs where imported raw materials are preferred over local materials in the production of goods. The usual reason cited for this preference is that imported materials are of better quality. On the other hand, finished products are usually luxury items (rather than mass consumption goods) which are more responsive to external, rather than to internal market demands. This import-export orientation confines growth within the industrial estate, and has little impact on the growth of the local economy.

Ineffective Financial Incentives

One of the government's major policy tools for achieving its industrial dispersal objectives is the financial incentive available to prospective firms in areas outside Metro Manila. These fiscal incentives are, in many ways, the main mechanism for promoting EPZs, special economic zones and other less-developed areas outside the NCR. Many studies, however, have found these incentives to be ineffective and generally insufficient in counteracting the attraction of Metro Manila in terms of economies of scale and agglomeration¹⁶. In fact, over 40 percent of BOI-approved investment projects in 1997 were located in the Metro Manila area. Moreover, the availability of financial incentives (e.g., tax holidays and exemptions) is not a critical factor in the location decisions of industrial establishments¹⁷. More important are such considerations as proximity to markets and source of raw materials, availability of labor, and infrastructure support (e.g., communication and transport systems, utilities, etc.). The results of other studies similarly underscore the greater importance of location factors and infrastructure support (as compared with fiscal incentives) in the location choices of business firms and industrial establishments¹⁸. Indeed, the envisioned provision of full and integrated infrastructure support for many industrial sites has hardly been addressed. The Philippine industrial estate development program could certainly learn lessons from the experience of such countries as Singapore and Korea where fast track and integrated infrastructure development have been the key to the success of industrial estates.

Offsetting the Effects of Macro-economic Policies

As previously noted, the ultimate objective of the regional growth centers and the industrial dispersal policy is to trigger development in the rural areas and correct the socio-economic imbalance between Metro Manila and the rest

of the country. Although the infrastructure for such a policy has been partially put in place, the socio-economic disparities among regions (and especially between Metro Manila and the rest of the country) do not seem to be decreasing.

Beyond the problems encountered in the implementation of the rural industrialization program, this pattern can be attributed in large part to the offsetting effects of the macro-economic policies of the Philippine Government. Many scholars have observed that most of the macro-economic policies of the government are not supportive of rural industrialization objectives and, in the process, have "subverted" the efforts aimed at industrial dispersal. Trade policies, for instance, have been noted for a strong bias against agricultural and export-oriented, labor-intensive industries in favor of import-substituting industries producing finished products¹⁹. When placed in the context of the overall economic structure of the various regions of the country, the overall effect of such trade policies is to penalize the less developed rural regions of the country.

Credit and loan policies have also largely run counter to the industrial dispersal and rural development policy. Studies have shown that there is a wide gap between the goals of the credit policy (which is to enhance rural industrialization), and the actual flow of loan funds. Data on loans approved by the Development Bank of the Philippines (DBP) show that an overwhelming proportion of loans had gone to Metro Manila. Moreover, incentives for industrial dispersal themselves appear to have generally failed to compensate for the attraction of "agglomeration economies" in the large urban areas in the country²⁰. This is evidenced by the low occupancy rates of existing industrial estates in the country, especially those outside Luzon and the Metro Manila area²¹. With the possible exception of the Mactan growth corridor, occupancy rates are very low for the majority of industrial estates

outside the immediate vicinity of Metro Manila.

These are just a few examples of national macro-economic policies that have run counter to the objectives of rural industrialization. It is worth noting that international factors have affected the country's rural industrialization program as well. For instance, the series of oil

crises in the 1970s and 1980s has retarded the growth of regions because of its adverse effects on domestic costs, trade balances, and the prices of consumer goods²². These international factors have obviously combined with the government's macro-economic policies to undermine the impact of the policies aimed at dispersing development to the rural regions of the country.

Conclusion

The main objective of this paper is to assess the impact of the urban growth dispersal strategy on spatial and economic decentralization in the Philippines. A major conclusion is that this strategy had limited impact because of numerous problems in conceptualizing and implementing the related policies.

Policy reforms must be introduced to address these problems. They could include the following:

To hasten the implementation of the regional growth center and industrial estate program, the provision of full and integrated infrastructure support for existing modern and industrial centers must be accelerated. The lack of such support has been a major reason for the poor level of attraction of urban industrial sites in the country, especially when compared to other industrial centers in Asia. In a period of scarce resources, the development of additional industrial centers by the government should probably not be encouraged. More attention should be paid to encouraging the private sector to invest in industrial estate development in areas outside Metro Manila.

At lower levels, measures to ensure the greater involvement of local governments units in the affairs of the industrial centers (especially industrial growth corridors that cut across the boundaries of local governments units) must

likewise be taken. The participation of the concerned governments must be encouraged in such matters as the promotion of benefits for the regional growth centers, the provision of local incentives for prospective firms, the construction of offsite infrastructure, and the monitoring of the effects of growth centers on the environment.

Greater attention must be given to land-use conversion issues in the selection of sites for industrial centers. Land-use conversion has to be rationalized on the basis of considerations of equity in accessing land, efficiency of farm operations, environmental impact and sustainable development. Specific considerations must include food security, the balance between agriculture and industry, and the issue of private gain versus common good. In the long-term, national land use legislation must be passed and implemented to serve as a rational framework for decisions on land-use conversion.

Beyond the need to address the implementation problems as outlined above, a major theme in this study is that of the counter-effects of some macro-economic policies of the government on the objectives of industrial dispersal policies²³. These include, among others, trade policies and fiscal policies as well as loan and credit policies which tend to enhance the

attractiveness of large urban centers as venues for economic activities vis-a-vis the rural areas of the country. Thus, if the national leadership is really committed to dispersing development to the rural areas, it must support institutional

reforms and development efforts in the countryside and at the same time gradually eliminate macro-economic policies that are biased against the less developed regions of the country.

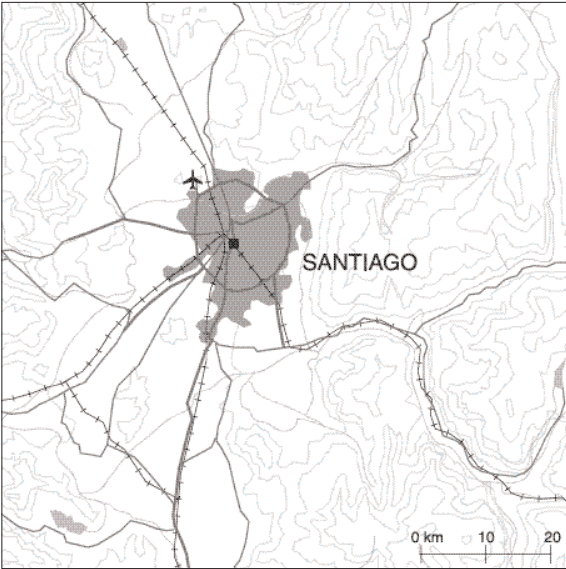
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CHILE



SANTIAGO

<i>Size of the country</i>	757 000km², length: 4300 km
<i>Population</i>	15,2 M
<i>Population density</i>	20 inhab/km²
<i>Population growth rate (1993 – 1999)</i>	1,4 %
<i>Part of urban population</i>	85%
<i>Life expectancy at birth</i>	75
<i>Infant mortality (per 1000 live birth)</i>	10
<i>Ethnic groups, their percentages in the population</i>	European: 32 %, European+Indian: 65%, Indian: 1%
<i>Official languages</i>	Spanish
<i>Religions</i>	Christian: 90%, other: 4.2 %, without: 5.8%
<i>Gross domestic product</i>	71,1 billion USD
<i>Gdp per capita</i>	4740 USD
<i>Inflation</i>	1996: 6.6%, 1997: 6%, 1998: 4.7%, 1999: 2.3%
<i>Gdp growth rate</i>	-1%
<i>Gdp repartition in different sectors</i>	Agriculture and fisheries: 8%, Industry: 34,6%, Services: 57,4%
<i>Unemployment rate</i>	9.7% (1999)
<i>Illiteracy (% of population age 15+)</i>	4
<i>Tourism</i>	1,7 M (1996)
<i>Population of the metropolitan area of Santiago</i>	5.258.000 hab
<i>% of people living in the metro area</i>	40 %
<i>Population growth rate of the metro area</i>	2 %

BETWEEN THE STATE AND THE MARKET: GEOGRAPHICAL RESONANCE AND SOCIAL SUSTAINABILITY IN SANTIAGO, CHILE

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Introduction

Santiago, Chile's Capital City, with its five million inhabitants and 34 municipalities has experienced a wide range of economic and urban policies in the last fifty years. These policies have ranged from varying degrees of state interventionism before 1973 to extreme market liberalization thereafter, especially between 1973 and 1990. We contend that the results of the post-1973 market-oriented policies have been strongly conditioned by the "geographical resonance," or physical imprint, of earlier interventionism, and by the "border spaces" that urban development is producing between the city's poor areas and the modern neighborhoods and commercial areas that are expanding today.

These spatial complexities produce paradoxical results, such as the emergence, after a thirty-year delay and under market policies,

of the sub-centers that the transportation planners designed and dreamed of in the 1960s, along with a significant degree of social integration resulting from the down-scaling of residential segregation that was stimulated by the liberalization of real-estate markets.

In the specialized literature, the predominant approach to the "territorial impacts" of restructuring and globalization seems to be far too simplistic to address the role of the configuration of space in the social sustainability of cities, and far too general to address the specifics of each city and the challenges faced therein by urban policies. In this paper we shall outline the spatial complexities associated with selected urban policies in Santiago — land, housing, and transportation — and their relevance to social sustainability.

Urban Policies

The *interventionist* period culminated in the government of the socialist, Salvador Allende (1970-1973), and the *market* period began with the bloody coup d'Etat that toppled Allende and imposed a military government headed by General Augusto Pinochet (1973-1990). In 1990 Chile returned to democracy. The center-left coalition administrations that have governed since then have acted within the framework of the urban policies designed by the military government, policies to which they have been able to make changes of only secondary importance. In the following paragraphs, we shall briefly describe the housing, land, infrastructure, and urban transportation policies implemented during the *market* period. Tables 1 and 2 contain basic economic and social data on Chile.

Among other measures, the military government's marked *policy of liberalizing land markets*, undertaken in the second half of the 1970s, included the reduction or elimination of taxes on real-estate transactions or on holding vacant sites, and the liquidation of state land reserves formed during the *interventionist* period. It also abolished the regulation on "urban limits" and the delimitation of an area available for urbanization. In the case of Santiago, this resulted in nearly doubling the urbanizable area outside of the city proper. This policy had two main objectives: firstly controlling land prices, which was a failure since prices have been persistently rising ever since, except during periods of economic crisis; and, secondly, the formation of a vigorous private real-estate sector, which was a complete success.

The democratic administrations since 1990 have tried to apply a *policy of urban densification*, even though they lacked the power to modify the legal and economic framework, including the rules put in place for other purposes — Chile's legal loopholes — making it

relatively easy to add land to the city. Economic pressure from developers with strong links to groups of firms and investors has also made itself felt. It was crucial in the significant expansion of Santiago's legal Metropolitan Area and developable land area with the addition of the province of Chacabuco in 1996. Nevertheless, we shall see that Chile's low level of development has limited the actual geographical expansion of the city of Santiago.

The *public housing policy* adopted by the military government in about 1980 redirected state housing subsidies from supply to demand. The government awards vouchers to middle- and low-income families according to a national point system; the families use these vouchers in the open market to purchase privately constructed housing. This policy's greatest success was that the construction of new units outstripped the increase in the demand for housing. However, this achievement has come at the expense of quality and size (with units as small as 32 sq. m). This public housing policy, popularly labeled "housing subsidies", has carried on the long tradition of state action in the provision of housing, which includes the segregation of the poor into the worst-equipped and worst-served peripheries of Chile's cities.

The principal metropolitan-level elements of Santiago's present-day *transportation and telecommunications infrastructure* were designed and initiated during the *interventionist* period, especially between 1960 and 1973. These public works included the 70-kilometer Américo Vespucio ring road, the Metro network, new radial access highways and the international airport. During the *market* period, after a long and severe contraction of State and public investments, public investment was devoted simply to repairing the faci-

ilities damaged by the long period of neglect and to finishing the works designed during the *interventionist* period, especially the Américo Vespucio ring road and the Metro. The 1980s privatization of the large state-owned domestic and international satellite communications companies and the 1994 adoption of the multi-carrier system have stimulated the accelerated growth of the telecommunications sector.

After 1990 the Ministry of Public Works designed a plan of investments in infrastructure for central Chile. It was meant to improve internal and external accessibility, and likewise the competitiveness, of the region, including the Metropolitan Region of Santiago and two of the other numbered Regions into which Chile is divided for administrative purposes. The plan, primarily based on private licenses for public works, includes the construction of a second 130-kilometer ring road around Santiago. The pressure on and real-estate development of Chacabuco are related to the construction of the most profitable section of this future circular highway, which has recently been put up for bidding.

In the field of *urban public transportation*, the military government adopted a policy of freedom of routes, putting an end to the old practice by which the government laid out the routes. The Empresa de Transporte Colectivo del Estado (ETCE, State Mass Transit Company), which had served the poor areas of Santiago not reached by the private companies, was eliminated. Private companies have expanded greatly, as has the number of buses. This is related to the low rate of automobile ownership in the city and, in part, to policies of laying off public employees and converting them into small entrepreneurs. Many have swelled the ranks of bus and taxi owners. Today practically all parts of the city are covered by these private businesses. Because these vehicles have fostered Santiago's congestion and severe air pollution, the democratic governments have adopted a series of restrictive measures, such as banning the use of vehicles beyond a certain age and a program of licenses open to bidding for the use of downtown streets. The latter is intended to limit the number of buses with idle capacity that pass through that area.

Paradoxes and Geographic Resonance

We maintain that the results of the liberal policies of the *market* period are strongly conditioned by the "geographical resonance," or spatial imprint, of the previous period's *interventionism*. One of the most interesting and most positive phenomena associated with that resonance is the growing number of "border spaces" that urban development is producing between the poor parts of the city and the "modern" neighborhoods and commercial areas that are presently expanding.

By "geographical resonance" we understand

the perpetuation of a certain spatial order or form over time, beyond the life of the system of urban relations that produced it, be it an economic system or one resulting from the action of the state. This spatial order cannot be reduced to the physical elements that make it up, although it depends on them¹.

By "border spaces" we understand the areas along the edges or frontiers between urban zones or places of different economic and social categories. In each city, the activities and groups of the developed zones maintain rela-

tions of dominance over the activities and groups of the backward zones. The border spaces in which these different zones meet are ambiguous spaces, and for the subaltern groups and activities, creative ones. In these areas, social exclusion combines dialectically with new possibilities for integration².

In Santiago, geographical resonances operate both between the *interventionist* period and the *market* period and within the latter period. We shall discuss three geographical resonances of the first type and one of the second; wherever appropriate, we shall describe the border spaces that have emerged.

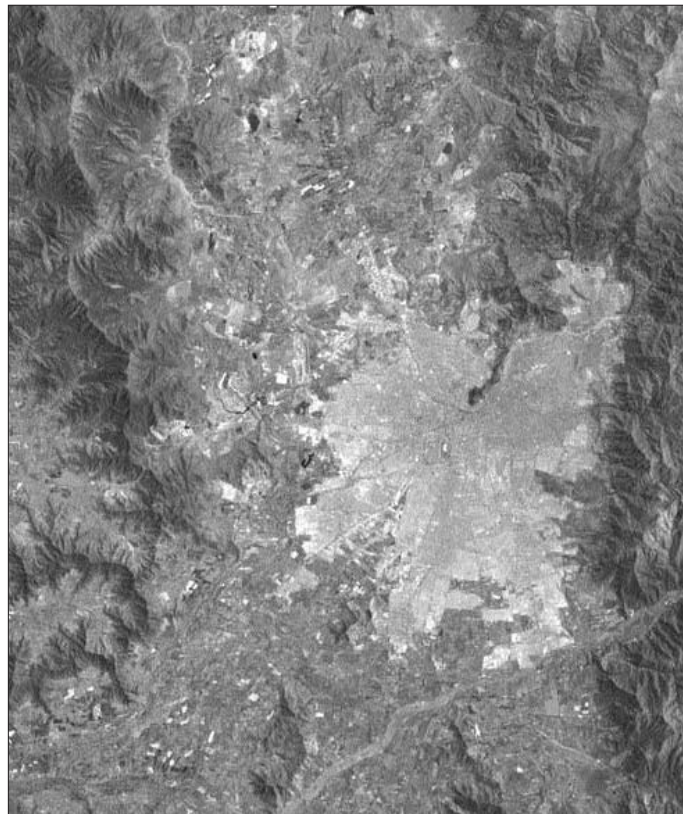
Resonances from the First Period to the Second

Compact urban form and urban transport

The low rates of car ownership and the minimal investments in urban infrastructure, especially those related to transportation, may be the causes of Santiago's compact form³ (see Map 1). Cities in more developed nations, by contrast, are characterized by the now common explosion of the urban area into the surrounding region.

Even when the land markets were liberalized and the peripheral growth of Santiago was encouraged after 1973 and especially after 1979, the basic compact form has persisted. The state's withdrawal included drastic cuts in investment in infrastructure. Between 1973 and 1995, the year in which the Américo Vespucio ring road was completed, the only new piece of infrastructure to be built was a new Metro line. After 1995 a third Metro line and a new highway into the city were constructed, while other highways were improved. In Santiago as in many cities, upper- and middle-class families from the early 1980s onward have been acquiring houses on large lots (half-hectare) in the rural periphery. However, poor accessibility has forced many families to give up these houses as primary residences, and to use them only on weekends or during vacations.

In a later section we shall see that the city's compact form has had an effect on social segregation. Here we want to point out its effect on the transportation system. A compact city with low, albeit rising, rates of car ownership conditions the urban impact of the sustained economic growth that has been associated with economic reform. On the one hand, it means a major increase in congestion and other related problems such as air pollution, a problem made more severe by Santiago's mountainous surroundings— in fact, air pollution attained the status of a public problem in the early 1980s, with clear repercussions on human health.



Map 1. Santiago 2000:
Satellite Image of the Central Region of Chile

On the other hand, the spatial imprint of the compact city means that market policies consolidate public transit as good business. The liberalization of routes, cuts in vehicle import taxes, and a variety of measures favoring the creation of transit companies, have benefited from this geographic resonance. These and other policies have meant that Santiago's public transit is not only profitable, but also covers the entire city. In contrast, during the *interventionist* period, large areas of the periphery either had to be covered by the now-defunct ETCE or were simply not serviced at all. In addition, the quality of the buses has improved to a certain degree and access to the Center has not worsened despite rising levels of congestion. Successful measures such as the regime of licenses for the use of downtown streets or for the use of recently-built "segregated lanes" for buses, have neutralized the negative impact on overall accessibility of increasing rates of car ownership and the rise in the numbers of small public transit firms.

A city with the archipelago-like silhouette that has become the norm in today's world, where modern residential, office, and commercial spaces tend to be located in the distant rural periphery, and which probably, by the same token, has significantly higher rates of car ownership than Santiago's, would rarely enjoy Santiago's ideal conditions for implementing policies of market-based public transit and disincentives to the use of the automobile. In general, the economic conditions that favor the existence of significant private mass transit services tend to disappear in such cities and the State has to subsidize these services for the poorest residents. These cities have also witnessed a vicious circle of highway investments, the increased use of private cars and problems of congestion, pollution, and the expulsion of pedestrians from the streets.

In sum, the preservation of Santiago's compact form, a geographical resonance clearly associated with Chile's low level of economic development, has allowed the economic conditions

that would make for what many urban planners today see as the only solution to the transportation problems of large cities: establishing the predominance of public transportation. Paradoxically, Chile's poverty increases the possibility of significantly alleviating Santiago's transportation problems.

But this opportunity could be squandered. The Chilean authorities do not seem to be sufficiently aware of the historic opportunity that lies in their hands. They have been lukewarm in supporting public transportation and have done nothing significant to discourage the use of automobiles. The authorities have even confronted a large conglomeration of groups within society in their eagerness to build a modern highway inside the city that will favor the most affluent neighborhoods. Perhaps because this highway will be built by private licensees, the authorities have come under pressure from strong economic interests.

Change in the Scale of Accessibility and Multiplication of Border Spaces

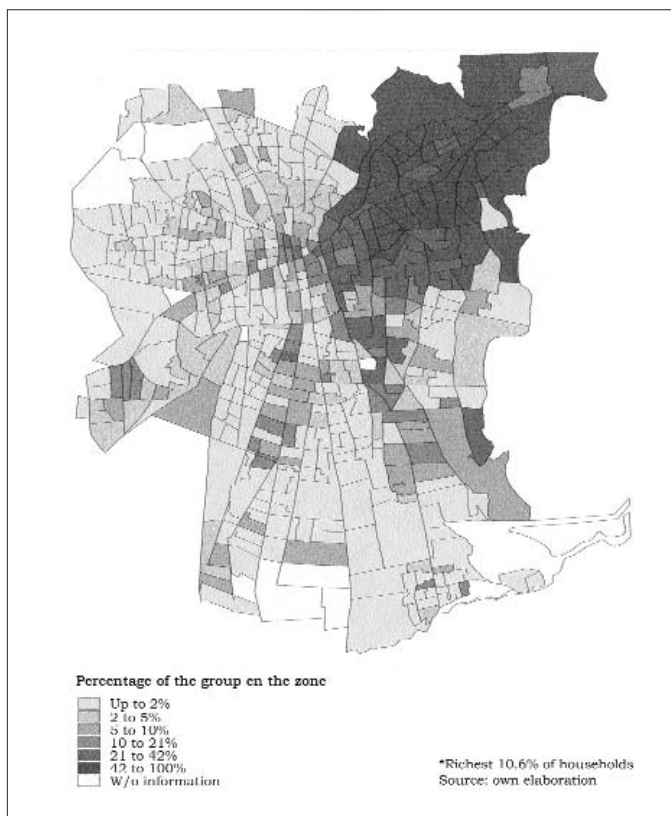
The construction of the Américo Vespucio ring road, a highway, as we noted, of some 70 kilometers, changed the scale of accessibility within the city from kilometers to tens of kilometers. When urban planners designed this road around 1960, they had three objectives in mind: to improve accessibility within the city, foster sub-centers on the urban periphery and contain the geographic growth of the city. It was anticipated that the sub-centers would appear where the city's circular and radial highways met. The designing of a Metro system and the construction of its first line should also be considered as contributing to this change in Santiago's scale of accessibility.

After 1973, when economic reforms were implemented and land markets liberalized, the greater part of the beltway was finished, but the city was still strongly mono-centric. The sub-centers arose after these market policies had been applied and had stimulated the emergence of a strong private real-estate sec-

tor. The flow of domestic and foreign investors into this sector, the concentration of capital, and the appearance of large commercial, office, and residential projects marked the beginning of a radical transformation of Santiago's urban structure, a process in full swing today. As with the majority of the large Latin American cities, Santiago's elites in the twentieth century tended to cluster in one part of the city that stretched from the center to the periphery in a well-defined geographical direction (eastward in the case of Santiago, as shown in Map 2).

On the basis of these new large-scale projects, real-estate promoters have managed to attract demand for buildings in areas outside the city's eastern and central areas. They bought cheap land, often near poor residential areas, and after erecting buildings on them, they sold properties at high prices to affluent groups and to flourishing businesses created by economic growth.

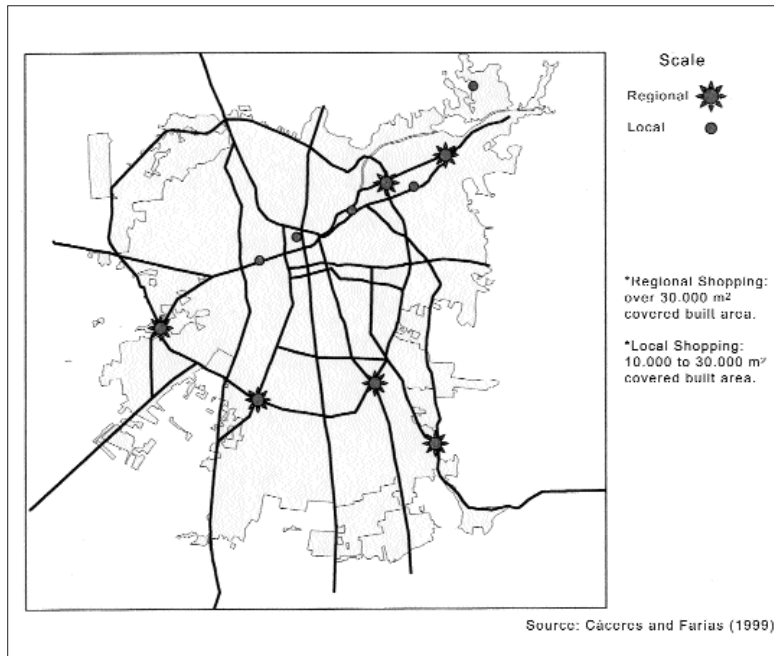
Since the late 1970s the redefinition of the scale of urban accessibility that was implicit in the urban infrastructure projects of the 1960s has allowed emergent real-estate capital to break the virtual confinement of "the modern" to the east side, and has made for the construction of shopping centers, malls, office space, and residential developments. The importance of the new scale of accessibility in the emergence of "shopping areas" is shown in Map 3. A side effect has been the reduction of the physical distance between rich and poor. The border spaces in which different social groups meet are increasing. In this way, the construction of new malls and shopping centers on cheap land has allowed access to significant market areas, while simultaneously ending the geographical marginality of many poor neighborhoods. Something similar has happened with large-sized gated communities: they are reducing the physical distance between social groups. At the same time, the fences, guards and surveillance systems, and the size of these residential developments,



*Map 2. Santiago 1997:
Spatial Distribution of Elite Families*

help maintain, and even exacerbate, the necessary minimum segregation of emerging middle- and upper-class groups from the nearby poor areas. Major streets in these neighborhoods are serving functions similar to that of the fences, combining physical proximity with a minimum level of segregation.

The reduction in the geographical scale of segregation is producing conflicting results: On the one hand, it makes social inequalities (which have increased during the *market* period, as in other countries) more apparent; and, on the other hand, it gives the poor residents of those areas access to better commercial services (mainly supermarkets, malls, and shopping centers), better public spaces, and nearby



Map 3. Santiago:
Shopping Centers Inaugurated since 1980

job opportunities, with a resulting reduction in travel time. Our aggregate statistical measurements at the city-wide level and our quantitative and qualitative case studies confirm these positive effects⁵.

Subjective living conditions also improve in these situations. The level of residential satisfaction is higher among poor people who live near these "modern" developments than among those who live in those areas of concentrated poverty that have not had the same good fortune. Galleguillos has studied an extreme case of rejection and exclusion of poor families provisionally settled near new gated communities by the municipality of Peñalolén. Even these families valued the greater proximity of the rich and the services that sprang up in their vicinity⁶.

Residential segregation is a much more complicated phenomenon than the mere form of social exclusion that it is often understood to

be. It includes a dialectical relationship between social exclusion and inclusion⁷. It is represented better by the concept of *border* elaborated within the framework of so-called post-colonial theory than by the image of the walls that, in fact, surround the new segregated neighborhoods, the gated communities⁸. Even when marked by an electric fence, the border represents the possibility of integration, however weak or remote.

In sum, in large part because of the change in the scale of accessibility brought about by *interventionist* urban planning, private action in real estate during the market period has had some positive effects on the structure of the city, such as decentralization into sub-centers and reduction in the scale of residential segregation.

Paradoxically, the planned city (comprehensively thought out in advance) materialized only when the market became stronger. What may be one of the world's most *laissez-faire* urban policies is achieving two objectives dear to urban planning: the reduction of the spatial segregation of social groups and the creation of dynamic sub-centers that would bring, among other advantages, the decentralization of commuting and daily travel patterns. But the basic spatial conditions for this transformation, the new scale of accessibility within the city and the compact nature of the urban form, were created or consolidated in the *interventionist* period, and have continued into the present as a geographical resonance.

It is not clear whether there is sufficient awareness in the Chilean environment about this combined spatial effect, and how crucial it is to retain this effect if a socially sustainable city is to be created.

The Agglomeration of Poverty and the Appearance of the Ghetto Effect

In the interventionist period, the Chilean State came to be the country's principal builder of housing units. President Carlos Ibañez (1952-58) launched "National Housing Plans" that came

to be expanded by successive administrations. The state eventually built about 60 percent of all the housing stock between 1964 and 1973. Even during the *market* period the Chilean State did not abandon spending on public housing, which regained its historic levels in the mid-1980s.

The massive production of public housing has favored the geographical concentration of the poor families which benefited from these programs. The search for cheap land for public housing has been a historic constant, even under the current policy of housing subsidies. Without any doubt, the Chilean State has been the principal agent of the large-scale residential segregation that affects the poor. On the one hand it implemented massive public-housing programs, which included everything from single-family houses to high-rise residential buildings, as well as sites with varying levels of utilities. On the other hand it carried out the removal of "encampments" and of other types of illegal settlement (generally resulting from land seizures) from areas with high property values at various times during the half-century under study. Illegal land seizures came to affect high-value land during periods with minimal or no risk of police repression, as under the administration of the socialist, Salvador Allende (1970-73). In fact, land seizure was the third factor that favored the concentration of poverty as poor families — with the support of political parties or groups of the center and left — preferred cheap land, hoping to reduce the risk of police repression. During the *interventionist* period the organization of these extensive neighborhoods of poor families (called *poblaciones* in Chile) had contributed to the integration of these families into the city. The *población* was the base of clientelistic organizations or grass-roots pressure groups. The *poblaciones* had a presence and a weight in the Chilean political system. Some of their principal demands were urban: They referred to sanitary and transportation services, pavements, and basic public buildings

(e.g. premises for neighborhood associations, police stations). But the *poblaciones* also supported political blocs in the ideological struggle that reached a high pitch in Chile, especially after Allende's election as president. Santiago's poor (who now make up approximately 25 percent of the city's population) have been spatially segregated for a long time. Around 1870, Benjamín Vicuña Mackenna, the government-appointed mayor of Santiago, who was to build major public works and improvements in the city, declared that he would designate an encircling road (*camino de cintura*) to separate the "city proper" from the "outskirts" where the poorest inhabitants lived, noting that public spending would be concentrated exclusively inside the encircling road. By contrast, there has been significant social mixing among the rest of the population. For example, the east side of the city, where nearly the entire elite (the richest ten percent of the population) lived until the late 1970s, also had a large middle-income population. Nevertheless, with the passage of time, the efforts of their residents, and the support of the state, the *poblaciones* have progressed physically, both in public and private spaces, and they have mimicked the physical structure of the city, integrating into it. Today many residential areas are difficult to recognize as having originated in land seizures by organizations of poor people.

In spite of the slowness of the process, the *población* represented a basis for hope and a base in the struggle for the social integration of its residents. Today, with relaxed labor laws and the political marginalization of the urban poor resulting from the *market* period, the *población* represents far more of a scourge than a hope. Isolated by unemployment, the concentration of income, and the decline of political clientelism and grass-roots organization for lobbying, the inhabitants of the *poblaciones* are turning inward in a miserable struggle for survival. The vigorous economic recovery that has come about since 1983 has failed to bring

back the political and labor situations of the past. The earlier hopes for urban progress and integration have tended to disappear, and the problems of social disintegration, such as drug use, crime and adolescent pregnancy, have grown, especially among youth.

In sum, the persistence of a historical trait of the city that emerged during the *interventio-nist* period, the spatial agglomeration of the poorest groups, has helped aggravate and accelerate the effects of the city's social disintegration during the *market* period. Due to ongoing deep changes in the political system and culture, such as the weakening of clientelism or of *reivindicacionismo* (demand-making and struggling), the concentration of poverty, which in earlier times reinforced the political power of the poor, has become a crucial factor in the social disintegration that affects the poor today. Spatial segregation of the poor can by no means be treated any longer as a simple or secondary side effect of public housing policies as has been the case so far.

A Geographical Resonance within the Second Period

During the *market* period, the "modern," higher-income city has abandoned its historic confinement to the east side of Santiago. As we have seen, this spatial change clearly furthers the march toward a sustainable city. Nevertheless, there are negative *spatial orders* associated with it. One of these is the *spatial propagation of land speculation* which we recognize, because of its self-perpetuating tendencies, as a new geographical resonance.

The dispersal of real-estate developments for middle- and upper-income groups and of the shopping centers, malls, and new sub-centers has "taught" landowners that these projects can happen practically anywhere in the city. The whole city, and not just the central and eastern areas, has come to be the object of land speculation and deals. The expectations of future increases in land prices are being pro-

jected onto the whole urban space, leading owners to hold land off the market until prices rise. The speculative rationale of the landowner, which can make thousands of landowners act as one without prior concertation, is crucial in producing and reproducing the conditions of scarcity that definitely push prices upward. The landowners have the power to accomplish this self-fulfilling prophecy.

In fact, the spatial propagation of these expectations and of speculative landholding have meant that, in the *market* period, land prices have risen all over Santiago, including many areas with traditionally lethargic land markets, and in spite of liberalizing policies that sought precisely to control or reduce land prices.

This generalized, persistent rise in land prices has brought about the progressive disappearance of areas with land cheap enough for the poor and for public housing programs. Especially in the last two years, the poorest families obtaining housing vouchers from the state have not found housing units in Santiago on which to spend them. They have found housing only in communities and small cities forty kilometers or more away from the edge of the city.

There are three paradoxes associated with the consolidation of our last geographical resonance, the spatial propagation of land speculation:⁹

- 1) The liberalization of land markets, and specifically of land supply, has contributed to a generalized increase in land prices in the city, contradicting the predictions of the neo-classical economists.
- 2) The concentration of real-estate capital and its greater weight in urban development are, as a by-product, bringing many poor families closer to social groups with higher incomes and closer to "modern" services and local infrastructure. This contrasts with the historic and continuing contribution of public housing policies to the geographical concentration of poverty. In this case, the facts challenge the predictions of structuralist-inspired critics of economic globalization.

3) The reduction of the geographical scale of residential segregation has brought benefits to poor residents who already have housing in affected areas, by bringing them closer to a better urban infrastructure as well as to higher-income groups. At the same time it has brought the increa-

singly marked exclusion, from the city, of the poor families currently looking for housing under state programs. The forces of exclusion and possibilities for integration come together in the spatial scenario created by geographical resonances and urban policies.

Policy Implications

Certain spatial orders that strongly condition the concrete effect of urban policies — we have called them geographical resonances — tend to form in a space as variegated and complex as a city. This conditioning sometimes radically modifies the spatial effects that could be expected from a given policy and its essential logic (which may be ideological). Viewed from this perspective, geographical resonances make the application of a given policy in a given city at a given time unique, sometimes offering major possibilities for social integration that can nevertheless be squandered if their importance is not sufficiently understood. In great measure, these possibilities are rooted in the multiplication of *border* spaces, where new identities are beginning to be negotiated and new forms of social integration are taking place. In sum, geographical resonances mean a higher spatial complexity of cities which, together with the greater social, cultural, and functional complexity of cities under globalization, open up unexpected possibilities for modifying the system of social dominance and exclusion of the new urban economy and politics.

It is important not to lose sight of the fact that, to a great extent, these advantages may be due, as in Santiago, to the realities of poverty and to the condition of a developing country that has low rates of car ownership, small investments in urban regional infrastructure,

and cities that remain compact. Will it be possible to hold on to these advantages at higher levels of development? The plans made by the Chilean authorities are not very encouraging, particularly since they do not display an understanding of the relationship between urban form and social integration.

Apart from not taking advantage of the positive potential effects for social integration associated with geographical resonances, the authorities could do even worse by carrying out a given policy that could cancel this possibility or, furthermore, neutralize new policies aimed at making use of this possibility. For example, a policy designated to stimulate sprawl could weaken another policy intended to reinforce the spontaneous tendency towards smaller-scale segregation. This may be happening already with the expansion of the Santiago Metropolitan Area to the province of Chacabuco. In the context of Chile's free market and the growth of car ownership, the construction of the second ring road in this area could encourage sprawl, weakening the compact form and its advantages. In fact, numerous real-estate projects in this province already have building permits and are at various stages of construction. The eight main projects alone cover 72 percent of the province of Chacabuco's urbanizable land¹⁰ and not one of them includes low-income housing.

Moreover, we have pointed out that geographical resonances can also be negative, as in the case of the concentration of poverty and the projection of expectations of rising property values, with the resultant speculation, on to the whole urban area. Is it possible to design urban development policies that defuse negative geographical resonances and support positive ones?

One possibility is the incorporation of civil society as a major player in the formation of urban policies. The aggressive capitalism arising out of the liberalization of land markets and other *market* policies is provoking ever more numerous reactions from, and conflicts with, citizens' groups and civil society organi-

zations. In fact, the first project in the Ministry of Public Works program of Urban Concessions in Santiago, the Costanera Norte highway, has aroused a large and sustained movement of citizens in opposition to it. These forms of resistance could provide political support for the authorities to work for a sustainable city using the advantages associated with the geographical resonances we have identified. Through these resonances, Chile's low level of development and the *interventionist* tradition of its public policy offer themselves as valuable resources for the construction of a sustainable city when, paradoxically, the economy is expanding and urban markets have been liberalized.

Notes:

1. Rupert Sheldrake postulates a substitute for the genetic theory of heredity in the form of a concept of " morphological resonance " that is applicable to a large variety of biological and social phenomena. Coincidentally, in the specific field of biology, Richard Strohman maintains that the genetic paradigm is in the process of being replaced by " epi-genetics, " a discipline that includes the study of the mechanisms that impart spatial and temporal control to groups of genes, such that genetic determinism is being replaced by a more systemic vision. Sheldrake, Rupert. *La Presencia del Pasado; Resonancia Mórfica y Hábitos de la Naturaleza* (Barcelona, Editorial Kairós, 1990); Vicuña, Rafael, " Gunter Stent y el fin de la biología molecular " [Gunter Stent and the End of Molecular Biology] *El Mercurio*, Santiago, Chile, 27 August 2000.
2. Bhabha coined the concept of " third space " to denote these possibilities. The border between the United States and Mexico is a good example of the combination of exclusion and new forms of integration peculiar to " border spaces. " Bhabha, Homi, *The Location of Culture* (London: Routledge, 1994).
3. Only 15.8 percent of daily workday trips were made in private automobiles in 1991, and today the number may be no more than 25 percent.
4. Polese speaks of a vicious circle between increases in car ownership, the decline of the privately-owned collective transport system, public investment in roads and highways, and the consolidation of a two-tier transport system (one for the " included ", based on the car, and the other for the " excluded, " based on an inferior and subsidized public transit system). Polese, Mario, " Learning from each other, " in Polese, M. and Stren, R., *The Social Sustainability of Cities. Diversity and the Management of Change* (Toronto, University of Toronto Press, 2000), pp. 316-329.
5. Sabatini, Francisco et al., " Reforma de los mercados de suelo en Santiago, Chile: efectos sobre los precios de la tierra y la segregación residencial " [Land-market Reform in Santiago, Chile: Effects on Land Prices and Residential Segregation] *Revista EURE*, Vol. 26, No. 77, 2000, pp. 49-80. Sabatini argues that the reduction in the scale of residential segregation is a phenomenon that is gaining ground throughout Latin American cities. Sabatini, Francisco, *Tendencias de la segregación residencial urbana en Latinoamérica: Reflexiones a partir del caso de Santiago de Chile* [Residential Segregation Tendencies in Latin America: Reflections Based on the Case of Santiago, Chile] Documentos del Instituto de Estudios Urbanos, Serie Azul No. 29 (Santiago: Pontificia Universidad de Chile, 1999)
6. Galleguillos, Ximena, " La Satisfacción Residencial y la Segregación Urbana en un Contexto de Pobreza. Caso de Estudio: Esperanza Andina, " Peñalolén [Residential Satisfaction and Urban Segregation in the Context of Poverty. Case Study: Esperanza Andina, Peñalolén] Thesis, Master in Urban Development (Santiago, Chile: Pontificia Universidad Católica de Chile, 2000).
7. Sabatini, Francisco, *Transformación urbana y dialéctica entre integración y exclusión social; Reflexiones sobre las ciudades latinoamericanas y notas sobre Santiago de Chile* [Urban Transformation and the Dialectic Between Social Integration and Exclusion; Reflections on Latin American Cities and Notes on Santiago, Chile] Documentos del Instituto de Estudios Urbanos, Serie Azul No. 19 (Santiago: Pontificia Universidad Católica de Chile, 1998).
8. Jacobs studies the geographical dimension of the phenomenon of *border* elaborated in the framework of postcolonial theory. Jacobs, Jane M., *Edge of Empire. Postcolonialism and the City* (London: Routledge, 1996).
9. The first two paradoxes — the first one extensively — are discussed in Sabatini, Francisco et al., " Reforma de los mercados de suelo en Santiago, Chile. "
10. Poduje, Iván, " Nuevas Formas de Especulación del Suelo Urbano en el Gran Santiago, " [New Forms of Urban Land Speculation in Greater Santiago] Paper presented in the Urban Development course of the Master's degree in Urban Development program (Santiago: Pontificia Universidad Católica de Chile, 2000).



AUSTRALIA

SYDNEY

<i>Size of the country</i>	7 741 000 km²
<i>Population</i>	19,2 M
<i>Population density</i>	2,4 inhab/km²
<i>Population growth rate (1993 – 1999)</i>	1,2 %
<i>Part of urban population</i>	85 %
<i>Life expectancy at birth</i>	79 (Male: 71, female: 86)
<i>Infant mortality (per 1000 live birth)</i>	5
<i>Access to improved water sources (% of population)</i>	99
<i>Official languages</i>	English
<i>Religions</i>	Christian: 70%, Buddhism: 7%
<i>Gross domestic product</i>	381 billion USD
<i>Gdp per capita</i>	20 050 USD
<i>Inflation</i>	3.5%
<i>Gdp growth rate</i>	3.8%
<i>Gdp repartition in different sectors</i>	Agriculture and fisheries: 4%, Industry : 30% (factories: 13%, mines: 4%), Services: 66%.
<i>Unemployment rate</i>	8 %
<i>Illiteracy (% of population age 15+)</i>	0
<i>Tourism</i>	4 M visitors (Japan: 800.000, NZ: 700.000, GB: 400.000, USA: 300.000)
<i>Size of the urban area of Sydney</i>	12 400 km²
<i>Population of Sydney</i>	3,8 M

SYDNEY: PLANNING FOR SUSTAINABILITY IN LOW-DENSITY CITIES

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Research into urban sustainability increasingly links factors such as residential density and the integration of land-uses with a city's level of sustainability. This being so, the low-density cities of the US, Canada and Australia face particularly problems if they wish to improve their sustainability. Nevertheless once the concepts have been understood, a wide range of policies exists that these cities could adopt to improve their sustainability while at the same time providing economic, social and environmental benefits to their communities.

This paper investigates sustainable planning and looks at the urban and transport policies

that low-density cities could adopt to increase their sustainability. Policies include redirecting growth from the urban fringes back towards the city center, integrating land-uses to reduce the need to travel, and promoting walking, cycling and public transport use while discouraging excessive use of private motor vehicles. Sydney is used as a case study, and it is found that while attempts are being made to address issues of sustainability, it is difficult to change entrenched philosophies of life-style and economic well-being, and for many in the community the change towards sustainability is not happening fast enough.

Introduction

During the second half of the twentieth century, planners, particularly in US, Canadian and Australian cities, directed their attention towards improving transport conditions for motorists to such an extent that the community transport modes of walking, cycling, and public transport were often neglected. But while motor vehicles provide mobility, it is the community transport modes that promote accessibility, and it is accessibility to destina-

tions that city dwellers require. Furthermore, it is the community modes that provide the sustainable transport options.

Low-density, mobility-oriented cities such as Sydney are characterized by high vehicle ownership rates of up to 70 percent of the adult population, and low motor vehicle occupancy rates, commonly between 1.2 and 1.5. Such statistics are the result of government policies, and the consequences of those policies

on environmental, social and economic indicators are invariably negative.

The links between urban and transport infrastructure have long been recognized by planners and policy makers, but their relationship to environmental problems have only been realized more recently. The British Royal Commission on Environmental Pollution found broad consensus that land-use planning policies should seek to minimize the need to travel and encourage the use of less polluting forms of transport. The Commission found that all significant applications for planning permission should contain an analysis of the transport implications of the development, including pedestrian, cycling and public transport access. The urban planning issues to be resolved include housing density, and the extent to which a city's land-uses are integrated or segregated. How these issues are decided will play a significant part in determining a city's sustainability¹. It is now clear that planning outcomes have a direct and marked effect on the local and even the global environment, and that what is needed is an integrated and holistic approach to planning which has a long-term goal of achieving environmental sustainability in urban areas. The elements incorporated into sustainability planning include not only land-use planning and transport planning, but also energy policy, bush regeneration, land conservation, coastal management and pollution control².

In this regard, planning can be seen as a form of long-term environmental management, the

purpose of which is to protect the environment and provide greater social equality, a concept that is in agreement with the philosophies of sustainable development. While a policy goal aimed at some form of sustainability may raise a number of difficult questions such as how to define sustainability, how to guarantee it, and how to pay for it, the call for a more holistic approach to environmental problems is today coming from many quarters. The way in which an urban environment is designed, and how its transport links are resolved, can play a significant part in determining not just a city's level of accessibility, but also how sustainable it is³.

This paper looks at how low-density cities such as those in the United States, Canada and Australia can tackle the question of sustainability, and describes the mechanisms by which planners in such cities can improve urban sustainability. The case of Sydney will be discussed in more detail.

The first section introduces the concept of urban sustainability and investigates how this can be applied in low-density cities such as Sydney. Section two discusses urban form in the context of sustainability planning, and planning policies such as residential density and the integration of land-uses. Section three looks at sustainable transport planning, and how the community transport modes of walking, cycling and public transport can be integrated into an urban environment to improve sustainability. The final section takes a closer look at Sydney as an example of a low-density city facing the problems of sustainability.

An Introduction to Sustainability Planning

Urban planning that is directed towards improving sustainability is predicated on three basic tenets: the promotion of community, the promotion of accessibility and proactive planning. Firstly, the promotion of community requires a shift from private self-interest to a respect for public good, where public space is valued. "The Tragedy of the Commons"⁴ provides an insight into how a publicly owned commons⁵ can be exploited by private individuals acting in their own interest, until the resource becomes degraded beyond repair. "The Tragedy" provides several lessons about economic externalities and environmental implications: firstly, there is a need to identify the conflict between private and public interest in short-term economic profit, and between private and public interest in long-term environmental survival; secondly, environmental impacts often do not manifest themselves until deterioration has proceeded to a point where it can only be repaired at very high cost, if at all⁶.

Secondly, accessibility can be promoted in low-density cities by implementing a range of transport planning policies which re-direct growth back towards the urban center; reduce urban sprawl; reduce average trip length; and reduce motor vehicle use while promoting community mode use. In central areas of low-density cities, sustainability planning involves reducing road capacity, reducing the number of cars on the road, improving community values, and achieving a re-urbanized and re-vitalized city center.

The third tenet of sustainability planning emphasizes planning that can be either responsive or interventionist. In the former, it is a regulatory arm of the state that, in a neutral, non-partisan way, should ensure that the environment is protected, that building and other standards are met, and which can arbitrate

local conflicts. As an interventionist process, planning is ideological, participative and partisan, and it can be proactive in defending the environment against modern technologies. Planners of this latter persuasion, like Howard, Geddes, Le Corbusier, Mumford, Jacobs and Calthorpe are reformist and thus often find themselves 'aligning with those who challenge the prevailing values embedded in modern technological and economic systems'⁷.

With this brief background, it is clear that the goals of sustainability planning are compatible with those of sustainable development:

- conserve resources and reduce energy use;
- ensure that land-uses in the built environment are in harmony with the natural environment, and that the built environment itself has a human-scale dimension;
- encourage development which will protect and enhance the environment; and
- promote community values and social equality.

The following two sections look at how sustainability planning can be implemented from both an urban planning point of view and a transport planning point of view. Each policy, program or project suggestion will have a positive influence on community values, on urban accessibility and on the cities sustainability.

Sustainability Planning and Urban Form

Transport indicators such as trip length and modal split are strongly influenced by urban form, whereby higher density and integrated land-uses restrain car use and encourage the use of public transport. A balance between individual and public transport modes can be strongly influenced by effective land-use planning with an appropriate infrastructure⁸. Higher residential densities together with

mixed land-uses enable shorter trips, more combined trips and more non-motorized trips. Many studies have explored the relationship of urban density to travel patterns and confirm that travel is reduced as urban density rises⁹.

The mobility approach to planning functions best in low-density cities where land-uses are segregated and subdivisions are designed around motor vehicle use. But a far more interesting urban environment can be created by mixing residential, recreational, retail, commercial, employment and educational uses and providing these with pedestrian and cycling access, as the basis of a diverse urban ecology¹⁰. This distribution of land-uses impacts directly on the planning of the transport system since it is this system that provides the links between the uses. For a number of reasons, increased motorization has had a dramatic effect on urban form in Australian cities¹¹, and contributed to their low levels of sustainability:

- by allowing the physical expansion of cities to proceed at very low residential densities;
- by enabling commuting distances to extend beyond the urban boundaries;
- by contributing to the dispersion of employment from city centers to the suburbs and to the urban fringe where it can be only poorly served by public transport; and
- by assisting the retail industry to move from the central city to large suburban malls, which have in turn reduced the viability of small neighborhood shops.

While there is little consensus on what an optimal population density may be, there is general agreement that the density of some current new urban developments is too low: Jacobs and Appleyard¹² write that 75 to 150 persons per hectare (or over 40 dwellings per hectare) is necessary to support city life, while 15 dwellings per hectare (the standard new block size in Australian cities) is most inappropriate; Newman and Kenworthy¹³ suggest that as densities fall below about 30 persons per hectare, fuel consumption for transport rises sharply as public transport use declines and motor vehicle

use increases; a UK study found that travel demand rises as densities fall below 15 persons per hectare and falls sharply as density increases above 50 persons per hectare¹⁴.

However, in 1990 the population density in Australia's major cities ranged between 9.6 and 16.8 people per hectare, with Sydney's average density being greatest. Put in an international context, Sydney's density ranged from 15 to 39 people per hectare, compared with Bangkok's 89 to 288 (average 149) people per hectare, and Hong Kong's density of between 258 and 800 (average 300) people per hectare. An improved and more appropriate form of land-use distribution directed towards sustainability would promote and allow daily activities to be carried out on foot, or by bicycle on safe bicycle networks, while public transport could be used for longer journeys. Australian studies show that commuting across suburbs greatly increases the amount of traffic in a city. One study showed that while 71 percent of people could find work in the area in which they live, in Sydney only 38 percent do, and in Melbourne only 33 percent do. Furthermore, it is estimated that two-thirds of people could find work within walking and cycling distance of their homes if job seekers were more concerned with reducing their commuting distance¹⁵.

Segregated and zoned land-uses have been a feature of the low-density Australian, US and Canadian cities, while mixed-uses are a feature of the Asian and European cities. A city in which land-uses are mixed appropriately has many advantages beyond that of reducing travel distances. Mixed-use developments mean commercial vitality, financial return and a rediscovery of the advantages of urbanity¹⁶. Where land-uses are mixed, a variety of lifestyles can ensue, transport energy use can be reduced and neighborhoods can become more attractive. Those regions of cities which have become blighted and decayed have benefited particularly from new mixed-use developments. These include old industrial areas,

waterfront areas such as the historic Rocks area in Sydney, London's Docklands, the Port of Melbourne, Fremantle in Western Australia, and San Francisco's Embarcadero region.

Sustainability Planning and Transport Policies

This section will present the kinds of transport policies suitable for promoting sustainability in low-density cities. The section begins by arguing that the direction a city takes in building its urban and transport infrastructure is in the hands of the policy makers, and that it is certainly possible for these people to decide the direction and future sustainability of their city.

Government policy can play a significant role in bringing change to a city's transport infrastructure. However, a change directed from personal mobility to community accessibility often requires strong conviction and leadership, especially where vested interests are entrenched. While the need for change may be one of survival for cities with high levels of motorization, it must be recognized that there is no universal solution suitable for all cities. Smaller cities with historic centers may protect these by comprehensive pedestrianization, other cities may use pricing mechanisms such as parking levies to dissuade motorists from entering the city center, another option is only to provide entry to pedestrians, cyclists and public transport users. Larger cities may choose to decentralize their activities to sub-regions in order to reduce congestion, or they may improve the public transport network.

Changing the direction of a city's development is not easy. For every visionary planner, there are many powerful opponents and skeptics who will block change. In the 1960s as Copenhagen's economy was contracting and its environment deteriorating, the debate centered on whether the city could survive. Even in that climate, skeptics maintained that

pedestrianization could not work in Denmark because the Nordic people would not promenade like southern Europeans but preferred to be inside their houses¹⁷. Today, Copenhagen's bustling and lively central area is made up of kilometers of pedestrianized roads linking squares that contain outdoor markets, cafes, seats and trees. Tourists, shoppers, workers and students flock to the city, businesses are booming and Copenhagen has become one of the most attractive cities in the world.

The introduction of the 30 kilometers per hour zones, now installed area-wide in every major German city did not happen with unanimous support and without hefty discussions. Politicians and powerful lobby groups opposed the introduction of a new light rail system in Strasbourg, but its construction was finally undertaken after an election swept a brave and visionary mayor to power. Although some hold the view that "we are different", the Dutch, Danes, Germans and French are as car-crazy as the Canadians, Americans and Australians, and there is no basic reason why the planning and transport lessons learned in one country cannot be applied to another. Experience shows that economies will grow in healthy environments, and that positive developments in one country can be replicated in another.

The following sub-sections look at a range of policy choices that could be implemented to promote each of the community modes and urban sustainability.

Walking

As a pastime, walking is beneficial to health and is a form of recreation. As a transport mode, it is also convenient, cheap and is low in energy use. Nearly all public transport trips, and many car trips involve a pedestrian component. As walking trips are usually of short distance, there is a clear link to land-use. Being cheap and low energy, walking places the least burden on the environment. However, walking

is rarely promoted as a viable mode of transport¹⁸. In the past, pedestrians have been herded behind road barriers, forced to wait at traffic lights, and channeled via under- and over-passes that are not without their dangers. Such measures are taken in an attempt to disrupt motor vehicle traffic as little as possible, but are all tactics that make the pedestrian's journey less direct and less attractive. Pharoah reports that around a third of all trips in Britain are made entirely on foot. Walking through a neighborhood will enhance social interaction far more than driving or even cycling through it would. Since public life cannot occur between people in motor vehicles, the most important public places must be reserved and designed for pedestrians. At walking pace, the pedestrian has time to admire

gardens, study the architecture, stroke a cat as well as exchange words with others¹⁹. Ways of encouraging walking include: planning so that facilities are within walking distance of residences; giving pedestrians priority over motor vehicles and cyclists on local streets; creating networks of convenient routes; allowing adequate green phases for pedestrians at traffic lights; and making local streets and pedestrian walks attractive and interesting²⁰. Walking is seen as that mode of transport that is most able to promote community accessibility, because it reduces travel distance the most. Since it brings people outside into public spaces and into contact with each other, public places become valued assets of the community. The following table summarizes some of the policy options available to planners wanting to promote walking (Table 1).

Table 1. Summary of Options to Promote Walking

Options	
Traffic modifications	
1	allow extensive pedestrianization in the city center and sub-centers, and particularly around transit stations
2	design short blocks to allow for a variety of alternative pedestrian routes
3	link pedestrian routes to create networks of convenient walking routes
4	reduce traffic speeds to a minimum and give priority to pedestrians on local streets
5	promote public outdoor life by reserving and designing the most important public places for pedestrians
Social enhancements	
6	provide safe, well lit, weather protected direct walking routes which include short cuts
7	build children's play areas and install street furniture where people can meet and socialize
8	encourage outdoor cafes, restaurants, market stalls and street entertainment.
Physical design	
9	design urban areas so that all facilities are within walking distance of residences
10	ensure that kerb ramps and pavements are constructed to be easily accessed by wheelchairs and prams
11	replace traffic lights with zebra crossings to reduce pedestrian waiting time
12	create a pleasant, interesting and attractive environment by planting shade trees and designing water features

Cycling

The proportion of cycling trips in the modal split varies considerably between cities: Amsterdam 23 percent, Copenhagen 30 percent, 11 percent in Munich and around six percent in the major Australian cities. It can also vary depending on weather conditions: in Copenhagen the figure drops to 20 percent with rain, and ten percent with frost and snow. However, it is also recognized that the supply of infrastructure plays an important role in the cycling share of the modal split: in Munich, cycling makes up 24 percent of trips in those areas between the old town and the outer city districts which have good cycling facilities, but less than ten percent where these are not available²¹.

While cycling can usually compete with public transport in terms of speed, the unprotected cyclist is greatly endangered by motor vehicle traffic²². Problems always arise for the more vulnerable road user where multiple users of road space coexist: pedestrians with cyclists; and cyclists with motor vehicles. One option is the physical separation of users whereby cyclists can travel on a special pathway, or cyclists and pedestrians share a pathway separated from motorists. Another option, which is suitable for busy but narrower, inner-city areas, is the installation of "bicycle streets" where motorists are required to give way to cyclists. Where bicycle streets have been introduced, cyclist numbers have increased by up to 62 percent, accident numbers have fallen, and motor vehicle speeds have fallen to between 21 km/h and 30 km/h depending on the physical design of the street, while bicycle speeds have risen to between 14 km/h and 17 km/h. An example in Buxtehude, Germany, showed that accidents involving cyclists fell from six in 1983 to none between 1986 and 1988²³.

Like walking, cycling is a healthy activity with the potential for expansion in many cities, especially in the low-density type of Australian cities. The main reason people

choose not to cycle is the danger of an accident with a motor vehicle and examples from the Netherlands, northern Germany and Denmark show that where facilities provide for a safe journey, cycling numbers can be greatly increased.

The City of Copenhagen actively promotes cycling in its traffic planning, and while motor vehicle use is growing in the rest of Denmark, it continues to decline in Copenhagen where 34 percent of the work force now cycles to work. "City bikes" is a Copenhagen innovation that provides free bicycles to tourists, shoppers, Copenhageners and train users. Introduced in 1995 with 1,000 bicycles, it was expanded to 2,000 in 1996, and aims to provide 5,000 bicycles within a few years. City bikes have a distinctive design and advertising largely covers the costs of the project.

Integrated transport planning can increase the use of bicycles: by recognizing that all trips have the potential to be carried out by bicycle; by looking at the constraints to bicycle use and how these may be overcome; by recognizing and resolving conflict situations; by developing local and regional cycling networks which link trip origins with trip destinations; and by providing facilities and infrastructure which will make cycling safer and more enjoyable.

While cycling trips in low-density cities generally serve educational and recreational purposes, commuting, shopping and personal trips can also be made using this mode. They just require a greater degree of planning: possible change of clothing, shower facilities, and a convenient bag or backpack in which to carry the shopping.

Just as city administrations have a role in providing car-parking facilities, so they have a responsibility in the provision of bicycle parking. These could be retrofitted whenever footpath maintenance occurs. Up to 12 bicycles can be accommodated on one car parking space making the provision of bicycle parking far cheaper than car parking. To meet

public demand, the City Cycling Committee in Toronto has recommended that 1,000 bike racks (up from the 175) be installed on an area-wide basis each year for five years²⁴. This is in preference to the current method of responding only to requests for bike racks from the public.

Cycling is a healthy mode of transport as well as being a sport and a recreational pastime.

As a non-motorized mode, it has a low environmental impact, and like walking, it is able to promote community accessibility by bringing people outside, into contact with each other, and by reducing travel distance. The following table lists some of the policy options available to planners wanting to promote cycling and community accessibility (Table 2).

Table 2. Summary of Options to Promote Cycling

Options	
Traffic modifications	
1	designate local streets where motorists must give way to cyclists and pedestrians, and where cyclists must give way to pedestrians
2	where feasible, replace traffic lights with ‘softer’ means of traffic control which do not require unnecessary stopping and waiting
3	upgrade traffic light systems with a cyclist light similar to the pedestrian lights currently in operation
4	begin the cyclist’s green phase several seconds before that of motorists to allow cyclists to pull away from the lights first and so increase their safety
5	permit cyclists to ride against the traffic flow in one-way streets
Social enhancements	
6	allow bicycles to be carried on all trains, trams and buses at all times
7	run advertising campaigns to encourage commuting by bicycle
8	provide weather protected, lockable bicycle parking at all major cycling destinations, especially transit stations, and change and shower rooms at destinations such as railway stations and work places
9	encourage research and development into bicycle designs suitable for a wide range of uses and users
10	educate cyclists to obey the road rules and about the need to respect pedestrians, and educate motorists on the need to respect cyclists
11	encourage motorists rather than pedestrians and public transport users to switch to cycling.
Physical design	
12	provide safe cycling routes to all destinations including shops, schools, cultural centers, rail and bus stations
13	physically separate cyclists from pedestrians and from motorists on main roads
14	signpost interconnected, convenient bicycle networks to link trip destinations
15	retrofit bicycle facilities whenever footpath or road maintenance occurs

Public Transport

Public transport includes buses, light rail, heavy rail and ferries, and may include taxis, although here the efficiency is close to that of the privately owned motor vehicle. Bus size can be used to tailor to specific needs: while a standard-sized bus network can accommodate up to 1,000 passengers per hour with a five minute headway, an articulated bus can carry nearly 1,500. Light and heavy rail can also operate with single or multiple carriages depending on demand. In Germany, light rail networks carry up to 5,000 passengers per hour, while between 8,000 and 10,000 are carried by heavy rail in Munich, Zurich and Hanover.

While not having the low energy characteristic of walking and cycling, motorized public transport nevertheless operates far more efficiently from an energy point of view than the private motor vehicle. However, the motorized nature of public transport enables greater distances to be negotiated more comfortably than can be by the non-motorized modes.

To encourage public transport use, employers can provide employees who leave their cars at home, with a monthly or yearly periodical ticket and the freed-up parking space can be put to a more productive commercial use. Salary packages can include a choice of public transport tickets, bicycle or company car and governments can provide tax incentives at least equal to the incentives generally offered for the use of company cars.

Low priced monthly or annual tickets for frequent users, often marketed as environmental tickets, can contrast with relatively expensive one-trip fares for infrequent users. Such ticketing options have contributed to increasing the number of people using public transport in Germany, Austria, the Netherlands and Switzerland²⁵. The German town of Freiburg

reduced the price of public transport season tickets by 30 percent in 1985, introduced tickets with regional validity and found that within one year, public transport usage had increased by 23 percent. Importantly, the cleaner environment was found to be attracting new investments into the city²⁶.

Murdoch University's Institute for Sustainability and Technology Policy (ISTP) data shows that in each city, the level of public transport cost recovery positively correlates with its public transport usage: 35 percent cost recovery in the US cities studied compared to 40 percent for the Australian cities, 54 percent for the European cities, 99 percent for the developing Asian cities, but 119 percent for the very efficient systems in the wealthy Asian cities.

Rail transit is more than just a transport mode. It is part of an overall development and accessibility strategy. As such it should be seen as a long-term investment and its success cannot be accurately evaluated in three or even five years. Rail transit needs to be part of a comprehensive strategy providing sustainability, and investment in rail should be pursued as part of an integrated land-use plan. The community, business leaders, politicians and environmentalists should support its introduction or extension, and should be involved in its planning stages.

Public transport enables greater distances to be covered more comfortably than walking and cycling and it operates more efficiently than the private motor vehicle. Public transport promotes sustainability because trips are generally shorter than motor vehicle trips, and usually include a walking or cycling component. The following table summarizes some of the policy options available to planners wanting to promote public transport and community accessibility (Table 3).

Table 3. Summary of Options to Promote Public Transport Use

Options	
Traffic modifications	
1	aim to increase public transport accessibility to all employment sites, schools, shops, civic services and all cultural, sporting, medical and health facilities
2	introduce programs such as community bus, taxi-bus, and call-bus
3	provide extra services at peak commuting times and for special events
4	maintain timetables with timed stops
5	ensure that buses are not delayed by traffic and parked motor vehicles
6	give buses and light rail priority phases at traffic signals, as well as bus lanes on peak routes
Traffic management	
7	tailor taxation policies to advantage public transport usage as opposed to that of the private motor vehicle
8	involve the community in the planning of new transport infrastructure
9	pursue public transport investment, especially rail, as part of an integrated land-use plan
10	integrate supportive land-uses in dense and congested corridors
Public transport software	
11	ensure that all connections and timetables are logical and complimentary, for example through pulse management of public transport from regional centers
12	provide a public transport service in which all branches (buses, trains, trams and ferries) are integrated into one fare structure
13	offer low priced monthly and annual tickets for frequent users, subsidized job and semester tickets for the employed and students, and relatively expensive one trip fares for infrequent users
14	provide ticket types, such as weekly, monthly or yearly, which do not require passengers to queue to buy these from the driver
15	include a choice of public transport tickets, bicycle or company car in salary packages
16	provide well designed, easy to read and up-to-date information on fares, timetables and routes, as well as better customer service and public relations
Public transport hardware	
17	construct bike-and-ride, and park-and-ride facilities wherever convenient
18	extend the public transport network and integrate services
19	allow passengers to enter/exit buses and trams via all doors
20	operate buses of various sizes, and trams and trains with single or multiple carriages to tailor to specific needs
21	convert entire fleet of buses, trams and trains to take advantage of the latest technologies such as low floor and minimal polluting
22	upgrade bus stops with weather protection, and network, route, timetable and fare information

Sydney: Towards Sustainability?

The New South Wales Government recognizes the links between urban and transport planning and acknowledges the need to plan new developments in a way which will reduce motor vehicle use. As such it has a number of urban and transport policies aimed at improving Sydney's long-term sustainability through better integration of transport and land use. A major program aims to increase residential densities in the city center, and in areas well served by public transport. Furthermore, to reduce motor vehicle use, new developments are being planned with mixed-use centers that have concentrations of housing within easy walking distance of employment, shopping, education and other activities.

The government is also encouraging urban renewal and rehabilitation in Sydney's established areas to both improve their environments and to encourage people to live in or near those areas. At Homebush Bay, the site of the 2000 Olympic Games, remediation of this old

waste-land is taking place through landscaping, revegetation of creek banks and the redevelopment of wetlands and creek beds. This high-density (at least by Australian standards) development will house thousands of new residents in an attractive neighborhood with fast rail access to the city center.

In addition, the government aims to increase employment opportunities and concentrate these in central parts of Sydney and in areas around existing transport infrastructure. Future development sites are being identified that are suitable for high technology businesses and other employment-generating activities.

A planned 28 km rail link to Parramatta costing AUS \$1.4 billion (US \$720 million) is expected to carry nearly 20 million passengers by 2006 and 24 million by 2021. The rail link will halve many journey times²⁷.

The few toll roads and bridges in Australia are operated more as a means of raising revenue rather than as a means of congestion control. For example, the Sydney Harbour Bridge and Sydney Harbour Tunnel both charge a two dollar toll 24 hours per day, although their level of use varies greatly during the day and night²⁸. In future, the adoption of electronic road pricing mechanisms which now operate on Melbourne's City Link road system, will allow a more flexible system of toll charges based on the time of day and congestion levels, and can thus have a major influence on road use.

The ISTP data shows that Sydney's urban density, energy consumption as well as the other urban and transport indicators are at more sustainable levels than the US cities and similar to Canadian cities, but are at less sustainable levels than the European and Asian cities²⁹. However, on a per capita basis, many indicators are trending towards less sustainability: overall urban density is still declining, the number of passenger cars is growing, the

	1961	1971	1981	1991
Urban density (persons/ha)	21.3	19.2	17.6	16.8
CBD density (persons/ha)	18.2	14.6	10.7	20.8
Passenger cars/1000 people	214.4	306.5	398.5	448.5
Total per capita vehicle kilometers	3,757	5,436	6,442	7,051
Parking spaces/1000 CBD workers	?	86.6	156.0	222.2
Total private energy use per person (MJ)	19,768	27,061	33,678	33,973

Table 4. Selected Sustainability Indicators in Sydney from 1961 to 1991³⁰

number of kilometers driven by each car is growing, the number of parking spaces available in Sydney's central business district is increasing and transport energy use continues to grow (Table 4).

Based on information presented in this paper on the many policies available to cities wanting to improve their sustainability, a closer look at Sydney reveals that the city is making some moves towards becoming more sustainable,

but it may be more accurate to say that the rate of unsustainable growth is slowing. Furthermore, the major push for sustainability is not coming from the side of the government, but from a myriad of conservation, activist and green groups. There is now huge opposition from the community to every major road project, and the government must fight long battles against community groups set up to protect remnant urban bushland and coastal zones.

Conclusion

This paper discussed the meaning of sustainability planning before presenting a wide range of planning options that can be used to address urban sustainability. While low-density cities have particular problems, a study of planning history makes it clear that sustainability planning is not new: since the late nineteenth century, the voice of people such as Ebenezer Howard and Patrick Geddes have been calling for more rational land-use practices, and more environmentally sound and economically successful urban planning. Others such as Lewis Mumford, Jane Jacobs and Peter Calthorpe have taken up their call. These people have inspired communities with the promise of a more exciting urban environment than that forming in cities following the mobility approach to planning.

Today, in Europe, North America, Australia, and increasingly in Asia, every new road project proposal is met with community opposition. In contrast, new rail infrastructure, whether light or heavy meets little if any opposition from the community and is generally applauded. The value of bus and bicycle lanes is recognized everywhere. Traffic calming local residential streets meets little opposition in the neighborhoods,

but often has to be fought through government agencies, even at the local level.

As an example of how a low-density city is approaching questions of sustainability, Sydney was looked at more closely. It was found that the government is addressing questions of residential density and appropriate land-uses, and it has a number of programs aimed at increasing the public transport network and promoting its use. Nevertheless, urban and transport indicators continue to trend in the direction of declining sustainability showing how difficult the process will be for these low-density cities. Urban and transport planning cannot please everybody all the time, there will always be winners and losers, advantaged and disadvantaged. But it is important to involve the community in the process of planning new developments, and to provide a credible explanation of the value of the measures taken, explaining how the disadvantaged will not be unduly burdened, and that possible disadvantages to a few can be outweighed by advantages to the many³¹. Furthermore, for residents in the more affluent countries, successful medium to high-density developments will need to offer special amenities, open space and quality designs to

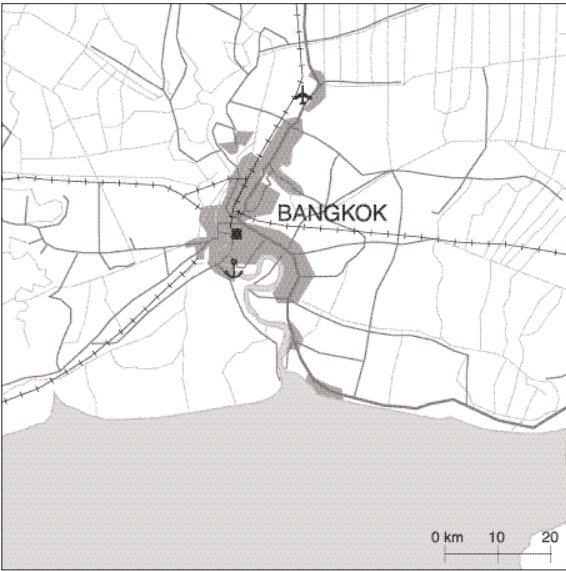
entice residents away from low-density environments. A fine-grained mix of dwellings, shops, cafes, medical facilities, and recreational and employment opportunities will also expand the market³².

Sustainability planning for the next century requires the courage to change direction from one that favors the individual and personal mobility to one that is sustainable and promotes community values.

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THAILAND

BANGKOK

<i>Size of the country</i>	513 000 km²
<i>Population</i>	62 M
<i>Population density</i>	121 inhab/km²
<i>Population growth rate (1993 – 1999)</i>	1 %
<i>Part of urban population</i>	21%
<i>Life expectancy at birth</i>	69
<i>Infant mortality (per 1000 live birth)</i>	30
<i>Access to improved water sources (% of population)</i>	81
<i>Ethnic groups, their percentages in the population</i>	Thai: 75%, Chinese: 14%,
<i>Official languages</i>	Thai
<i>Religions</i>	Buddhism: 94%, Islam: 4%
<i>Gross domestic product</i>	121 billion USD
<i>Gdp per capita</i>	1960 USD per capita
<i>Inflation</i>	3,8 %
<i>Gdp growth rate</i>	5 %
<i>Gdp repartition in different sectors</i>	Agriculture: 11,6%, Industry: 41,7%, Services: 46,7%
<i>Unemployment rate</i>	4,5 %
<i>Illiteracy (% of population age 15+)</i>	5 %
<i>Education</i>	Primary schools: 98%, secondary schools: 38%
<i>Tourism</i>	7,5 M visitors (1997)
<i>Urban area of Bangkok: Population</i>	7,8 M

MY BANGKOK TALE: STORY OF A SPRAWLED CITY

Somrudee NICRO
Urbanization and Environment Program
Thailand Environment Institute

My Bangkok

I am a true Bangkokian.¹ I was born, grew up and lived on the west side of Chaopraya River and am now working and living on the east side of the Chaopraya. I am going to take advantage of this privilege and tell you about my Bangkok, in my own way.

Back in the time when I was a girl and still today, Thonburi side, as the west bank of the River is known, had much less to offer than the Pranakorn side on the eastern bank. My parents sent me to a convent school, one of the first private schools in town. This school sits on the river's east bank near the world-renowned Oriental Hotel in the Western District of old-time Bangkok. The school has been sitting there for almost a hundred years now. I was told that the teachers here used to teach the young girls in French. That was before the government demanded that all schools teach in the Thai language.

There were only two main bridges linking Thonburi to Pranakorn then: Sapan Buddha or Rama I Bridge and Sapan Krung Thon or Sang He Bridge. Due to the long distance and traffic jams (by the old standards), I often crossed the river by boat. It was rowed by a standing

woman (or man). The only motor ferry in the neighborhood was white with a placard saying Dumex on its roof. The plant that produced the Dumex infant formula was on Thonburi side; therefore the company used this white boat, which always caught my young eyes, to ferry its visitors from the west bank. There were other motor boats for Western tourists at the hotel. Motor boats for *our* use came only shortly before I left school. The motor broke down during my first motor boat trip across the Chaopraya. Our boat floated along the river for a while before another one came to our rescue. This was some thirty years ago.

My school had two other schools as neighbors, one for girls and the other for boys. The three schools were all Catholic. We shared a cathedral that we were very proud of although, like the majority of Thais, most of the children and the teachers were Buddhists.

These schools were located in a district called Bang Rak or Love District. The term *bang* is used to name a district with a water source nearby. There were pretty canals along both sides of Sathorn Road back then. I recall that before I started making the journey to school



Map. 1. Bangkok Metropolitan Administration: Urban Area, 1987-1995

on the east side of the river, I went to a kindergarten where I had to walk across a high bridge over a canal to get to the wooden gate of my kindergarten. Like the canals along Sathorn Road, this one too is now gone. Many of Bangkok's canals, which once earned it the name "Venice of the East," have been filled in and turned into roads to lead us into modernization.

To be specific, it was the first Bangkok Land-Use Plan known as the Litchfield Plan that was instrumental in this change.² Bangkok has since changed its primary mode of transportation from water to land; and its urban form has borne the drastic consequences. Later, in a per-

sonal interview with the then Director of the Office of Town and Country Planning, I was told that the Americans had initiated the land-use plan for Bangkok because they had been much bothered by mosquitoes in the city. I wonder if this had to do with their suggestion to fill in the canals -- so that mosquitoes would have a smaller surface of water on which to lay their eggs. After finishing junior high school, I went to a co-educational school on Phayathai Road, known to be one of the best high schools in the country. Its only rival was a boys-only school. The students in my school came from the cream of the schools in Thailand. It was very important for the children to get into

good schools so that later on they could have hopes of passing the university entrance examination. The best schools and universities were in Bangkok. There was no private university then. All universities were run by the State. Naturally, there was an influx of young boys and girls who came into Bangkok each year just for quality education.

After taking the entrance examination, I again went to a school on the river's east bank. I was still living in Thonburi when I was working on my baccalaureate in architecture at the Fine Arts University. But this time, I was driving a locally assembled Fiat 124 ST to campus, going over the nearby Prapinklao Bridge. This bridge had not been in existence during my junior high school years. On the way home, this bridge took me to Charansanitwong Road on the Thonburi side, which later became the inner ring road. Although it was a ring road, it loo-

ked like any local road with shop-houses on either side. The traffic was and still is highly congested, especially during the rush hour: a classic case of ribbon development.

Nothing much happened during my college years, except for the 6 October incident in 1976, when I was a sophomore. As a result, many students left Bangkok, fleeing the State into the jungles. This was the first time that Bangkok had witnessed out-migration. Out-migration from Bangkok took its second toll after July 1997, when the economic crisis hit Thailand. Many enterprises closed down. As a result, a number of laborers originally from upcountry found themselves laid off. Being jobless, they returned home to their original families and roots. Aside from these two incidents, I have not seen any " policies " that have actually stopped in-migration or attempted to halt Bangkok's sprawl (see Map 1).

The Boom

The period around the turn of the 1970s-1980s was not very interesting for me. After spending one year studying city and regional planning at a graduate school in Bangkok, I left my hometown for the United States in 1982 and spent the next 9 years in upstate New York. This was a big step for me as I had rarely traveled outside Bangkok by myself. My father did not like me to go upcountry out of concern for my safety. In the 1960s the road system was just in the making under the first two national plans to implement " development " and also to fight communism. The following decade in Thailand saw social unrest twice in 1973 and 1976. Rural areas were then seen, not as " a place to meet nature " as urbanites see it today, but as areas of the deprived and of opposition to the government.

Bangkok's skyline changed each summer that I returned. The sky above Bangkok grew smaller, not because of trees but because of buildings and construction. It became difficult to see the bright blue sky.

The period when I was away from home, from the early the 1980s to the early 1990s, was a booming period for the Thai economy. Only after the 1997 crisis did the boom come to be called a " bubble. " During my graduate studies in the United States, we students often heard of how wealthy our Thai friends at home were, how they could get rich so easily and so quickly, and how they could spend so lavishly. When I returned home for good at the end of 1991, the cityscape had changed enormously with high-rise buildings and, of course, elevated expressways. Bangkokians had changed

even more. It seemed everybody was carrying a cellular phone. International economists viewed Thailand as the next "tiger" and the Thai could contemplate being part of the rise and glory of the Asia-Pacific Rim. When there was a mass demonstration in the streets in May 1992, most of the demonstrators were in white-collar outfits and used cellular phones and fax for communication while on Rajadamnern Avenue.

I started my career in the field of environment in the early 1990s, working as a research fellow for an environmental Foundation. This was quite timely as Thailand's environmental deterioration had clearly surfaced by then. The Seventh National Plan (1992-1997) recognized the problem. Bangkok's was prey to mounting pollution, including air pollution, flooding, deteriorating water quality, and community and industrial wastes.³ Of less concern to the public, however, were noise and visual pollution, which were no less severe than other kinds of pollution the city was facing. Noise: what was supposed to be music in the mushrooming shopping malls was no more than incredibly loud noise. The city looked ugly with tall buildings engaged in endless competition, each trying to set itself as a landmark, and unruly commercial signboards. Most visible of all were the traffic jams.

The Sprawling City

The city is dense and crowded with its multitudes, and there is little *public space* for parks and recreation.⁴ Families and young lovers alike spend time in shopping malls, which also house small amusement parks for kids, cinemas and sometimes bowling alleys and ice-skating rinks for teenagers. The most prominent open public space in this city is its road surface, which is ruled by automobiles not pedestrians. Apparently, people keep coming to Bangkok. This flow has continued for decades. Actually, this is not surprising given the fact that Bangkok remains not only the country's biggest city but also its primate city. Indeed

Bangkok and its five vicinity provinces, Patumthani, Samutprakan, Nakhonpathom, Samutsakorn, and Nonthaburi, which form the Bangkok Metropolitan Region (or BMR), is Thailand's most economically productive region.

Gross regional domestic product per capita of BMR was 2.6 times the national average in 1978. In 1988, the ratio rose to 3.15 times. GRDP per capita of BMR was 10.23 times that of the poorest Northeast region.⁵ Spatially, the BMR has already merged into one mega-city of almost ten million people.⁶ Traveling out of the city, it is impossible to say when one is leaving Bangkok and entering one of its neighboring provinces.

It has been recognized since the early 1990s that the effects of Bangkok's urbanization are not limited to these neighboring provinces. Rather, the BMR's economic growth has extended to the provinces of Ayutthaya and Saraburi in the North, Ratchaburi and Petchburi in the West and the East Coast of Chonburi, Chachoengsao and Rayong provinces.⁷ This and similar phenomena have been observed both in Thailand and elsewhere by other city planners. Douglass calls such urban extensions "mega-urban regions or MURs."⁸ Ginsburg et al. use the expression "extended metropolitan regions."⁹ Dantzig and Saaty call the corridor from the south of Washington D.C. to the north of Boston "Megalopolis."¹⁰ Sir Patrick Geddes uses the term "conurbation."

While many factors have contributed to the expanding urbanization of Bangkok, including both international economic integration and localized development policies, one single factor — road and highway development — stands out. In making daily transportation accessible, the road and highway system has made the mega-urban region possible.

In Thailand much has been said about Bangkok being a primate city. The National Economic and Social Development Board (NESDB) has used urban strategy since the Fifth National Plan (1982-1987) to develop the rural regions

and slow down the flow of rural-to-urban migration. It has successfully developed regional growth centers and secondary cities nationwide. Attempts have also been made to move national governmental functions to cities other than Bangkok. A plan for developing a city for central administration in Chachoengsao province was discussed about five years ago. All of these efforts are based on the argument that they would resolve the problem of population growth in Bangkok.

But city growth does not mean increase in *population size* alone. Cities like Bangkok keep sprawling. In spatial terms, this means longer travelling distances. More roads are needed and, in turn, these roads bring in more people and expand human settlements in the outskirts, unless regulations are made to restrain this "ribbon" form of development. Studies have time and again recommended the adoption of regulations on access to highways to limit the pattern of ribbon development¹¹ and create a green belt around the city's boundary.¹² These recommendations have yet to be implemented.

In many cases, what actually happened ran directly counter to the above recommendations. All the highways that link Bangkok to other regions — Bangna-Trad to the East; Rama II to the West; Pahonyothin to the North and Petchkasem and Praboromrajonnee to the South — have significantly changed the pattern of land use in the countryside from agricultural farming to massive industrial and housing estates.

The Transportation Nightmare

As early as 1963, Lewis Mumford warned in *The Highway and the City* that:

Cities, in turn, will be transformed into extravagant parking lots; and before you can awaken from this nightmare you may, if you ignore the experience of Los Angeles, Detroit, Boston, and a hundred other American centers, dismantle the one

*kind of transportation that would, if properly organized, rescue you from this fate: the railroad.*¹³

In *administrative* terms, several authorities are responsible for land transportation in Bangkok and Thailand: the Department of Highways (DoH), the Express and Rapid Transit Authority of Thailand (ETA), State Railways of Thailand (SRT), the Mass Transit Authority (MTA), and the local authorities, which, in the case of Bangkok, is the Bangkok Metropolitan Administration (or BMA). Each has its own responsibility and there is very little coordination among them, despite the fact that the Office for the Commission on Management of Land Transport (or OCMLT) has been established to oversee and coordinate land transport in Thailand. Only recently, on 4 October 2000, did the OCMLT hold a seminar to discuss its proposed Master Plan.

A *rail system* is preferable to *highways and cars* because it is more cost effective and can be more environmentally friendly. Yet, the recent proposal made by the State Railway of Thailand to build railroads to link the suburbs to Bangkok begs caution.¹⁴ This is because the proposed project will *facilitate* travel and commuting by people from the suburbs and rural areas to the city, increasing both *volumes* of passengers and *speed* of transportation. It is therefore foreseeable that if this proposed project is implemented, there will be many more people commuting daily to Bangkok than the current 150,000. This mass of commuters, *accelerated* by the new rail development, will certainly increase the pressing demands on urban infrastructures, including those related to in-town transportation, utility supplies, and environmental cleaning-up.

In theory, a rail system for in-town transport is desirable when compared with automobiles and expressways. An electric train system was actually proposed when I was still an undergraduate student. In reality, it took some 20 years for the first line to start operating in

1999. The development of an in-town rail network lags far behind that of expressways. Three phases of the expressway development have already been implemented and many more are in the pipeline, including new links to the neighboring provinces.¹⁵ This runs against the recommendations made in a study jointly undertaken by the National Economic and Social Development Board, United Nations Development Programme (UNDP) and Thailand Development Research Institute (TDRI) that priority should be given to sky trains over the expressways.¹⁶

If there is no change in this ETA plan, it is foreseeable that Bangkok will continue to experience sprawling, population in the BMR will increase, and more people will commute to Bangkok to take advantage of the city's relatively abundant employment opportunities, services and amenities. Moreover, traffic in the city proper will get more congested despite the seemingly better flow in recent years as a consequence of the recent completion of some expressways. Needless to say, even if we can successfully make the shifting in vehicle fuel from gasoline to natural gas or electricity, we will still be faced with more severe environmental degradation due to the heavier burden of wastewater treatment and solid-waste management. It is not yet the time to mention the issue of city "liveability."

Naturally, we feel sympathy for Bangkokians who are overwhelmed by traffic congestion. But the more they want to get away from this web, the more tightly do they get entangled in it. This is mainly because it has become the norm for the authorities to give priority to *automobiles*. Apparently, the authorities believe that the only sensible way to solve traffic problems is to build more road surface, one layer over the other. There are no efforts to curb the number of automobiles on the streets while mass transit is way behind demand, in terms of accessibility, number of vehicles, services and safety.

On 23 September 2000, we had an election for our BMA Governor. There were more than ten

candidates and five of them were front runners. All the candidates put transport policies on their platform. It is worth observing that candidates who used to be in public office claimed credit for having built roads and ring roads during their previous terms of office. This only demonstrates the importance that Bangkokians attach to transportation in their daily life. Ironical as it may sound, the development of highways and rising urban transportation problems are actually conducive to urban growth.

The excessive admiration for automobiles that was created during the "development" period needs to be addressed and corrected. This year, Thailand joined other countries for the first time in launching a Car Free Day campaign on 22 September 2000. It was a cooperative effort by many organizations, both governmental and NGOs. The leading organization was the National Energy Policy Office (NEPO), whose agenda is to save energy. The campaign was possible because of the rapid rise in gasoline prices. However, the campaign did not tackle the issues of city transportation at large, social justice or urban sprawl. As a matter of fact, prior to the campaign, our research team had already proposed that the authorities drop their longstanding policy of giving priority to automobiles.¹⁷ We have yet to see if this recommendation will be taken up under the pressure of high oil prices or whether it will suffer the same fate as earlier studies which were simply shelved.

City Scale and "Liveability"

In discussing urban sprawl, it would seem that I am proposing a "compact city" concept. However, it is unlikely this concept can be successfully applied in a sprawling city like Bangkok. What I would like to address is the debate on this concept. The European Commission has argued that the high-density, mixed-use city is likely to be energy efficient because it reduces travel distances and maximizes prospects for public transport provision.

The commission argues that a compact city provides a better quality of life to its residents. Suburban development creates both high energy consumption and a lower quality of life. Friends of the Earth has also espoused this concept.¹⁸ For the same reasons, Dantzig and Saaty had already gone even further by developing models for compact cities almost as early as 1974.¹⁹

What both the "compact city" and the "sprawled city" have to be judged against is the city's "sustainability" and "quality of life." "I would also call the latter "liveability."

What then is a "sustainable city?" Elsewhere, I have defined it as "a city which serves human beings and not motor vehicles (a humanized city), has a liveable and safe environment for its dwellers (a liveable city), is full of trees and plants (a green city), is friendly to the eco-system (an eco-city), clean (a healthy city) and lasts (sustainable)."²⁰ In the next section, I would like to further elaborate this concept in two aspects.

First, the "scale": Looking at mega-city Bangkok, can one really believe that it deserves to be called a "sustainable city" with its population and extended region? I do believe that "scale" matters here. I think it would be honest to admit that Bangkok is far from being an ideal sustainable city. One possible way to try and make it sustainable (and liveable) is to improve it by working on a smaller and more manageable scale such as the district level rather than that of the whole city at once.

The Bangkok Metropolitan Administration (BMA) has implemented a "healthy city" project at this level by selecting three districts in 1994, namely Sathorn, Yannawa, and Bang Kolaem, as pilot cases. Two years later, in 1997, the Ministry of Health, with the support of the World Health Organization, expanded the implementation of the "healthy city" project to other municipalities outside Bangkok.²¹ Actually, one of the candidates to the office of BMA governor proposed a policy to create

"Small Towns in a Big City."²² Her idea was to make each zone, possibly but not necessarily limited to the district level, become as self-sufficient as possible and create a sense of community in these zones. One proposed concrete measure included assigning BMA staff to work in the district of their own residence. This would help reduce the distances to be commuted each day. Unfortunately, this candidate was not elected and her concept will not materialize. At least, not for a while.

It is worth mentioning, though, that this proposal did not receive much support or attention from the public. Four years earlier, during the previous BMA gubernatorial election, a candidate proposing a policy to "Make Bangkok Smaller" also failed to win the election.²² It may be that in the consumerist world, "small" is not beautiful, while "big" is. One never sees a commercial place with the word "small" in its name, only "big." Thus, "Big C" and not "Small C."²⁴ In other words, I am saying that city size counts and that urban sprawl moves the city to the verge of unsustainable growth. In this case, "big" is not beautiful.

Secondly, I would argue that the "sustainable city" concept should not mean only making a city sustainable. It should also mean city development that can make the whole country sustainable and as such contribute to the world's sustainability. This, of course, can apply only if one really shares the belief of many environmentalists that environment has no boundary. Cities are important because they are strategic to the whole world's sustainability. This is because cities consume energy and resources most intensively and, at the same time, release pollution and wastes most intensively. As Maurice Strong rightly states, "the battle for the environmental future of our planet will be won or lost in the cities, particularly the cities of the developing world."

Many studies on the sustainable city tend to focus on the city's environmental sustainability, i.e., the availability of natural resources, energy consumption and pollution emission.²⁵ But I

believe that a city needs also to be “liveable.” A technologically fixed, sustainable city, if not liveable, will not be desirable and therefore will not be able to sustain its residents, especially in today’s high-mobility world. A sustainable city needs to recognize the people in the city as (qualitative) human beings not just (quantitative) population.²⁶

Social equality is becoming important to a city’s sustainability.²⁷ A liveable city needs to be both environmentally sound and socially just.²⁸ I believe that it also needs to be able to preserve its cultural heritage and integrity. Viewed in this light, a city like Bangkok that wants to demolish the hundred-year-old Muslim settle-

ment of Ban Krua against the community’s will, to make place for an expressway is, for me, not liveable. Although two public hearings have been held and while both suggest that the project is not viable, the government is persisting in its forced relocation of the population.²⁹

A “liveable and sustainable city” needs to be built not by policy makers (i.e., politicians and civil servants) alone, even though politicians come to office because of our votes. Rather, I believe that a “liveable and sustainable city” has to be built on the partnership between civil society and the State through a participatory decision-making process (or inclusive urban governance).³⁰

My Tale

Why is there a lack of policies aiming at regulating Bangkok’s sprawl? Why are such recommendations generally disregarded?

Urban planners are taught in their college years to formulate their thinking on the basis of “facts and figures” and “rational” reasoning. Policy makers have their own rationale. The “facts and figures” that really count for top policy-makers — the cabinet — are those in the bank and in the ballot box, i.e., how much money and how many votes. If one asks the well-informed Thai public at random, the chances are they will say that this is the reason why politicians are inclined to implement mega-construction projects such as in transportation.

I live in an “open” city. The parents of a young German student at the International School Bangkok told me very recently that, compared to many other places, “Bangkok is a paradise for expats.” I guess many Thais think this holds true for Thai politicians as well. The more congested the traffic, the louder the popular

outcry for mega-transportation projects. Like hungry fish, the public will snap up anything thrown at them that look like food. The more mega-projects there are, the richer some people will get. More mega-projects means that some rich people will get even richer.

I do not want to be misunderstood here. I am not saying there is no difference in the amount of time I need to travel to work today compared with, say, four years ago. Compared with some six years ago, traffic has become more fluid. What I want to say, however, is that we are bound to see more and more traffic jams on expressways, unless *preventive* measures are taken to curb traffic problems and unless decentralization keeps up with Bangkok’s expansion. Indeed, building more roads is not a preventive measure. It can only generate more problems. It may even backfire, causing more urban sprawl.

It is ironic that, at present, many studies and seminars focus on corruption in public office while the Prime Minister is known to be “clean.” No less

startling is the fact that the contender for the office of Prime minister, whose announced policy is to fight corruption, is undergoing investigation, by the National Counter Corruption Commission, into allegations of having transferring stocks worth hundreds of millions of Bahts to his domestic helpers, security guards and chauffeurs.³¹ The Minister of Transportation is also suspected of being involved in a scandal about a cooperative store in Suratthani province in the South. It has been estimated that 20 to 30 percent of the government's budget goes into corrupt pockets.³² Whether these statistics can be verified is one thing. People's perception is another. What matters here is that the Thai people believe it is possible.

On a recent trip, I witnessed two men in their early sixties conversing about their old days in a suburban residence. One of them was a well-known artist, the other a retired deputy police commissioner. They had grown up in the same province of Samutsongkram, birthplace of the

King Rama II, not far to the west of Bangkok. Fending off mosquitoes while sipping a glass of wine, I then realized how little I, as a Bangkokian, knew about the lives of the young Thais just outside Bangkok and how much I had missed. This is not about " facts and figures " and therefore does not count in my life in the big city during the week.

Living in a city like Bangkok, one cannot even narrate the events of one day in one single, continuous story. It is quite impossible because each day is broken down into several mismatched pieces of a jigsaw. A telephone call changes reality from now to never, and vice versa.

Thai people call Bangkok, Krung Thep, which means " city of angels " (or heaven). I can assure you that this " heaven " is getting increasingly crowded. And yet, I continue to live here in this colorful city and love it. Oh yes, sometimes a little more and at other times a little less. But I continue to live here -- in my hometown named *Bangkok*.

Notes:

1. In writing this paper for the PECC conference in mid-October 2000, I used previous research and studies undertaken on Bangkok and Bangkok Metropolitan Region which were prepared by experts for the Bangkok Metropolitan Region (BMR) and the National Economic and Social Development Board (NESDB), and my own experience as a Bangkokian, to argue that there has practically been no policy to inhibit, not to mention prevent, the urban sprawl of mega-Bangkok. I contend that the transportation projects and plans proposed by the authorities will help promote Bangkok's sprawl even further. I am grateful to Genevieve Dubois-Taine and Christian Henriot for their valuable comments. The responsibility is solely mine.
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 22. Khunying Dr. Kalaya Sophonpanich.
 23. The late Mr. Akorn Huntrakun.
 24. Name of a chain of large-scale stores that belong to Central Group, found even in small towns.
 25. For examples, see Brown, Lester, "Making Cities Sustainable" in Ismail Serageldin, Michael A. Cohen and K.C. Sivaramakrishnan (eds.), *The Human Face of the Urban Environment. Proceedings of the Second Annual World Bank Conference on Environmentally Sustainable Development* (Washington, D.C.: The World Bank, September 1994), pp. 24-27; and Hall, Peter, "Can Cities be Sustainable?" in Ismail Serageldin, Michael A. Cohen and K.C. Sivaramakrishnan (eds.), *The Human Face of the Urban Environment: Proceedings of the Second Annual World Bank Conference on Environmentally Sustainable Development* (Washington, D.C.: The World Bank, September 1994), pp. 32-38.
 26. See Nicro, Somrudee, "APEC and the Environment: Asking the Right Questions," paper prepared for the Asia Pacific Economic Cooperation Economic Committee Symposium "The Impact of Expanding Population and Economic Growth on Food, Energy and the Environment," The Delta Bessborough Saskatoon, Saskatchewan, Canada, 1-4/09/97.
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 31. One US dollar was roughly equivalent to 42 Bahts in October 2000.
 32. The most recent study on corruption in Thailand has been undertaken jointly by the Thailand Development Research Institute (TDRI) and the Commission of Civil Services (November 2000). See Thailand Development Research Institute (TDRI), *Proceedings of TDRI Annual Conference, 18-19 November 2000*.



PEOPLE’S REPUBLIC OF CHINA

HONG KONG

Size of the Special Administrative Region	1 045 km²
Climate	Tropical
Population	6, 84 M
Population density	6550 inhab/km²
Population growth rate (1993 – 1999)	2.6%
Part of urban population	100%
Life expectancy at birth	79
Infant mortality (per 1000 live birth)	3
Access to improved water sources (% of population)	100
Official languages	Chinese, English
Religions	Buddhism, Christian
Gross domestic product	167 billion USD (1999)
Gdp per capita	24.364 USD / hab
Inflation	2,4 %
Gdp growth rate	+1.8 % (1999)
Gdp repartition in different sectors (1998)	Industry: 15,2% (manufacturing: 6,2%), services: 84,7%.
Unemployment rate	6,1 %
Illiteracy (% of population age 15+)	7
Tourism	11 M visitors (1996)

HONG KONG: HOW SUSTAINABILITY IS MANAGED IN A HIGH DENSITY CITY

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Introduction

Hong Kong is well known for its high-density and high-rise development¹. Tall buildings are not limited to commercial and industrial uses but are also typical of residential properties. With a developable area of merely around 200 sq. km (20% of the total area) but a population of 6.8 million at the end of 1999, high-rise development is not a choice but a condition of survival. On average, every square km of land needs to accommodate 6,313 persons. In the most densely populated district, the population density is as high as 82,107 per sq. km. These density levels are very high, even when compared with those of other metropolises such as London (4,483 persons per sq. km), Tokyo (5,384 per sq. km) and Singapore (4,700 per sq. km).

Given the city's fast population growth and thriving economic activities but limited land and natural resources, achieving sustainability poses a major challenge not only to the government but also to the community.

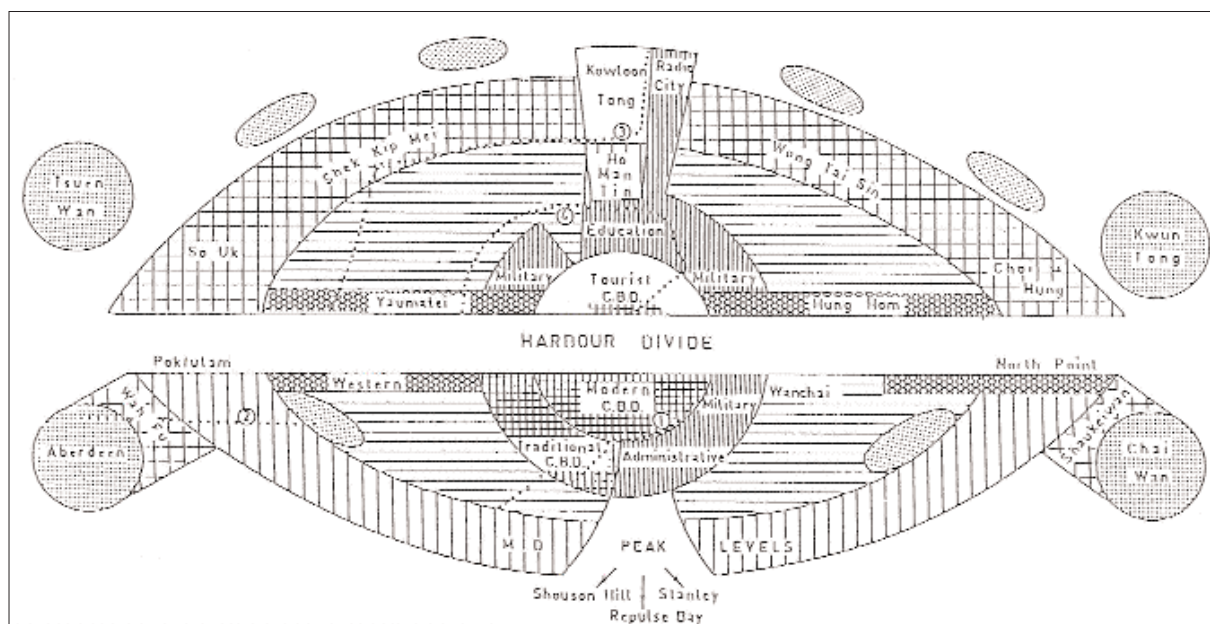
This paper thus aims to discuss how Hong Kong, as one of the world's most densely populated cities, perceives and manages sustainability. It initially examines how, before environmental sustainability became an issue, the city was organized in order to sustain its growth. It then examines how the recent concept of sustainable development has been translated in the city and how it has affected urban development. Finally, it will scrutinize the direction that Hong Kong is taking in order to achieve sustainability.

New-Town Development

The Central District and the New Towns

Prior to 1973, the urban form of Hong Kong exhibited a uni-centric pattern with peripheral extension; and since then, it has evolved into a multi-nuclear pattern with the development of new towns. The coastal strips flanking the inner Victoria Harbour has, however, continued to be the Central Business District (Figure 1). Development in this central area indeed started even before the official inauguration of Hong Kong as a British colony in 1842 because of its thriving trading activities. Initial settlement between 1841 and 1860 took place at the northern central shores of the Hong Kong Island, and later further expanded along the waterfront and southward up the foothills

of Victoria Peak. The ceding of the Kowloon Peninsula to the British Government in 1861 spurred urban growth in the Kowloon Peninsula, resulting in development along the two coasts around the inner harbour area. After the Second World War, due to the large influx of migrants from China, the urban areas bordering both sides of the harbour became extremely overcrowded. From 1954, the construction of public housing and industrial sites on the urban fringe of New Kowloon and in the newly developed areas of the Hong Kong Island has induced urban growth to the peripheral areas. By the early seventies, a complex and compact city center comprised of modern and traditional central business districts had been established. In the traditional central business district, the land use pattern was similar to



Source: McGee, T. & Drakakis-Smith, D., *Fieldwork in Urban Geography: Hong Kong and Macao* (Hong Kong: Longman, 1974)

Figure 1. Hong Kong Metropolitan Area: A Representative Land-Use Model

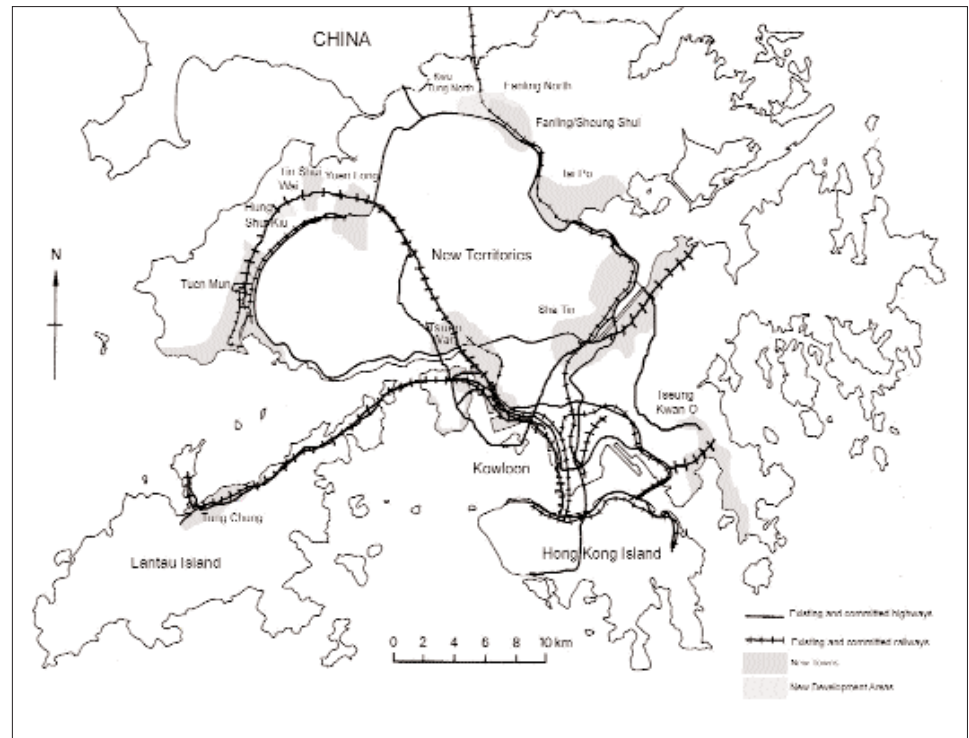


Figure 2. Transport Network of Existing and Planned New Towns

that of other Asian cities in that the retailing, industry, hawking, storage and residential functions were all inter-mixed and seldom separated morphologically. The overall urban form of Hong Kong also exhibited both concentric and sectoral patterns of land use. While the low-income and the middle-income residential zones radiated from the city center, the high-value residential zones formed wedges inserted into the lower value housing zones. Clusters of squatter settlements were also found in the outer region or at the periphery of Hong Kong Island and Kowloon. Some new or expanded town centers also began to emerge². Although the government's construction of public housing and industrial estates in new areas steered urban expansion, these efforts were more corollaries of the natural growth of the city and mainly responded to economic demands.

Large-scale urban development changing the urban form of Hong Kong nonetheless took place in the New Territories after 1973 because of the government's Ten-Year Housing Program. As early as 1957, the government had the intention of building new towns on the British model to accommodate the rapidly expanding population and industrial activities of Hong Kong. In 1960, a new town with a target population of over one million and a supply of 202 hectare of industrial land was planned at Tsuen Wan, in the south-west of the New Territories (Figure 2). The government, learning from the experience of the earlier satellite town project on the urban fringe, provided adequate residential land to reduce the commuting time for the workers and local traffic congestion. However, the development of the new town in the subsequent years concen-

trated on public housing construction and the servicing of industrial land, and the attention given to community facilities was minimal. Two more new towns with populations of around one million, following the development approach and principles of the first one were planned in the early sixties. However, enthusiasm for the new plans quickly subsided during the second half of the sixties and the first half of the seventies. The main reasons were the economic recession resulting from the 1967 riots which were local responses to the Cultural Revolution taking place in China, and the lower than expected rate of population growth. Also it was found that the supply of residential and industrial land in the first new town was excessive³.

The impetus for implementing the new town program was re-activated by the Ten-Year Housing Program, whose target was the construction of new and modern homes for 1.8 million people within ten years. The Program was announced by the first policy speech of the then newly-appointed Governor Sir Murray Maclehoose. He pointed out that " 300,000 people still live in squatter's huts or temporary housing. Many units in resettlement estates are badly overcrowded, or have no separate wash places or lavatories. It is estimated that a further 310,000 people would need rehousing if all of those in shared private flats and tenements were to have a self-contained home, and few of those could afford the rents asked by private landlords. " In his conclusion, he stated that " the inadequacy and scarcity of housing and all that this implies, and the harsh situations that result from it, is one of the major and most constant sources of friction and unhappiness between the government and the population. It offends alike our humanity, our civic pride and our political good sense."⁴

It was acknowledged that a large amount of new land would be needed to provide sites for this massive housing program, all the more so

as the housing standards were to be improved. Thus it was intended that " the bulk of the new housing must be provided in the new towns in the New Territories - the complex of Tsuen Wan, Tsing I and Kwai Chung, Sha Tin and Castle Peak."⁵ Furthermore, three principles for new town development were laid down to make them attractive to potential inhabitants: good communications with the old urban areas; the provision of housing to be accompanied with full provision of community services; and the provision of employment. In short, " these towns must be built as a whole."⁶

Not only were two originally-planned new towns developed but, in January 1979, three more market towns (Yuen Long, Fangling/Sheung Shui and Tai Po) were designated for development into new towns, and another two (Tseung Kwan O and Tin Shui Wai) were added in 1982. A ninth one, the Tung Chung New Town, in close proximity to the new airport, was announced in 1989. Three New Development Areas (Fanling North, Kwu Tung and Hung Shui Kiu), which are extensions to the existing towns in the north and north-west New Territories, were announced this year. Thus altogether there are nine new towns in Hong Kong and they are planned to house a total population of about 4.5 million. As shown in Figure 2, because of the new-town program, the urban form of Hong Kong has become multi-centered.

All the new towns are connected with the main urban center by highways and most of them are connected with mass transit railways, either underground or at grade. As shown in Table 1 and Figure 2, all these towns are to be linked up by mass transit railway lines by the year 2006. Commuting between the new towns and the city center is mainly by public transport, which is the usual means (90 per cent) of travelling in Hong Kong⁷. Owing to the high density of the new towns, mass public transport is necessary to move the huge number of commuters. The public transport system carried a total of almost 10.65 million passen-

Table 1. Transport Network of Existing New Towns

New Towns	Major Highway		Railway			
	To CBD Existing	To Other New Towns Existing	To CDB		To Other New Towns	
			Existing	Committed ¹	Existing	Committed ¹
Tsuen Wan	✓	✓	✓	n.a. ²	✓	n.a.
Sha Tin	✓	✓	✓	n.a.	✓	n.a.
Tuen Mun	✓	✓	*	✓	✓ ³	✓
Tai Po	✓	✓	✓	n.a.	✓	n.a.
Fanling/Sheung Shui	✓	✓	✓	n.a.	✓ ³	n.a.
Yuen Long	✓	✓	*	✓	✓ ³	✓
Tin Shui Wai	✓	✓	*	✓	✓	
Tseung Kwan O	✓	✓	*	✓	*	✓
Tung Chung	✓	✓	✓	n.a.	✓	n.a.

Notes:

1. Due for completion by 2006.

2. Not applicable.

3. The Light Rail running through these three new towns is currently not connected to other new towns, but the committed railway will connect these new towns to the main railway systems.

ger trips per day in 1999⁸. There is a wide range of public passenger transport modes operating in the city, including buses, the underground train system, heavy and light railways, mini-buses, ferries, trams and taxis. With their vast numbers of customers and the permission given to railway companies to develop properties at the railway stations, public-transport operators in Hong Kong are not only self-funding, but in fact profitable. The franchised buses are usually guaranteed a profit rate of 12-15 per cent by the government.

Why the Changes in Urban Policy?

The shift from a uni-centric to a multinuclear pattern of urban development reflects the use of the new-town approach by Hong Kong as a way to sustain its growth: providing decent housing to the fast-growing population so as to enhance social stability and political popularity; and providing cheaper land for economic

activities especially industrial operations. Although the latter objective has not been quite achieved, as we shall see later, the former has been successful because of the semi-voluntary nature of public housing allocation. As shown in Table 2, new towns in Hong Kong are gigantic, targeted to accommodate population sizes of 320,000 to 860,000. The sheer speed of population growth has necessitated development on such a scale. The high natural increase rates (around 28 per 1,000 population) and the large influx of immigrants from China in the post-war years had expanded the population from 1.8 million in 1949 to 4.1 million in 1972⁹. Thus if the government was to eradicate the housing shortage quickly, large new towns had to be built.

Figure 2 shows that most of the new towns in Hong Kong were built on reclaimed land on river estuaries along the coast. Given Hong Kong's hilly topography, it is both difficult and

Table 2. The Population and Development Areas of New Towns

New Towns	Existing Population	Target Population	Total Development Area (ha.)	Projected Population Density (per km2)
Tsuen Wan	790,000	860,000	2,850	3,018
Sha Tin	630,000	670,000	2,000	3,350
Tuen Mun	490,000	630,000	2,250	2,800
Tai Po	300,000	332,000	1,270	2,614
Fanling/Sheung Shui	230,000	547,000 ¹	1,481	3,693
Yuen Long	167,000	440,000 ²	1,605	2,741
Tin Shui Wai	150,000	340,000	430	7,907
Tseung Kwan O	220,000	520,000	1,090	4,771
Tung Chung/Tai O	20,000	320,000	760	4,211
Total	2,997,000	4,659,000	13,736	-

Sources: Based on Territory Development Department, Hong Kong: The Facts: New Town (Hong Kong: Information Services Department, 1999); Planning Department and Territory Development Department, Planning and Development Study On North East New Territories: Development Proposals for Kwu Tung North, Fanling North and Ping Che/Ta Kwu Ling: Consultation Digest (Hong Kong: Planning Department and Territory Development Department, 1999); Planning Department and Territory Development Department, Planning and Development Study on North West New Territories: Development Proposals for Hung Shui Kiu: Consultation Digest (Hong Kong: Planning Department and Territory Development Department, 1999).

- Notes:
- 1. Includes the New Development Areas of Fanling North and Kwu Tung North.
 - 2. Includes the New Development Area of Hung Shui Kiu.

expensive to form land, and this is why these coastal sites were chosen. Land reclamation is expensive, but it is quicker and cheaper than to take over land from the indigenous residents of the New Territories. Although all land in Hong Kong, except for a small parcel in the central district, has been leasehold land since colonial days, the land rights of the indigenous residents in the rural New Territories have been treated with great care in order to minimize hostility. While all land take-overs are fully compensated for at market rates (usually assessed at the potential market rate not at the price of the existing superstructure), the negotiation could be lengthy either because of the unwillingness of the original residents to be moved to another place or because they are unsatisfied with the amount of the compensa-

tion. The cost of land development is thus high in Hong Kong whether it is done by reclamation or by the take-over of land. When these factors are coupled with the scarcity of developable land in Hong Kong and the fact that the new towns were primarily developed to provide sites of cheap public housing, it is logical that concentrated high-density and high-rise development should have been preferred to low-rise urban sprawl. Apart from its social and political reasons, the large-scale housing program in the new towns also spurred economic development. From the sixties to the eighties, Hong Kong adopted an export-led economic growth strategy based on the manufacturing industry. A constant supply of cheap labour was therefore essential, and the provision of public housing helped lower

labour wages and tie down the working population. Thus it has often been argued that new town development in Hong Kong was public-housing led. While this is true for the formative years of the respective new towns, private housing development often played a major role as planned, once the infrastructure and transport network had been completed. As a matter of fact, except during periods of economic recession, there was always a shortage of land for private housing development. Land sale has been an important source of government revenue and the real-estate sector has become a major economic sector since the eighties. Thus it was important that new land sites be supplied through the new town program.

The most important economic objective of the new town, however, was to decentralize economic activities, mainly industry. Yet, except in the oldest new town and the industrial estates, the vacancy rates of industrial premises in the new towns have been high. The reasons for the slow industrial development are manifold and the most important factors are the abundant availability of both cheap labour and land in China since its opening in 1980. The others are inertia in industrial re-location due to long-established links with facilities and business connections in the main urban area and transport cost and time, not to speak of traffic jams and inconvenience so long as the new towns have not matured. Needless to say, the new towns have not been able to overcome conglomeration effects to attract high-order commercial activities from the central business area. They thus become the economic and residential adjuncts of the central city¹⁰.

A study conducted by a transport consultancy firm found that generally less than half of the employees in the new towns worked in their area of domicile in 1992¹¹. The average journey-to-work time by public transport was about three-quarters of an hour to one hour. However, as the average time was the mean of the time taken by those who travelled within

the area and those who commuted, the travel time of the latter group must have been higher than the average. Inevitably their family and social life would have been adversely affected by the long commuting time. This might be one of the reasons contributing to the higher divorce rates in all the outer new towns of Tuen Mun, Yuen Long, Fanling/Sheung Shui and Tin Shui Wai, which were 2.2 per cent, 2.5 per cent, 2 per cent and 2.2 per cent in 1996 respectively (Table 3). Likewise, the higher crime rates are found in the districts of Tuen Mun (1,146 per 100,000 population) and Yuen Long (1,654 per 100,000 population) where the outer new towns are located (Table 4). There has in fact been a tendency for the better-off to move back to the main urban area.

The government's effort to improve the transport system, especially in recent years, is nonetheless impressive. For instance, the route length of the underground railway was doubled from 43.2 km in 1988 to 82.2 km in 1999, and that of the light railway was increased from 23 km to 31.8 km in the same period¹². At the same time, the total road length in Hong Kong increased from 1,434 km to 1,885 km between 1988 and 1999. Vehicle speed accordingly increased from an average 28.3 km per hour to 31 km per hour. In the New territories where the new towns are located, the increase in the same period was more significant: from 35.9 to 44.6 km per hour¹³. The recent completion of Route 3, a highway linking Yuen Long with Central has effectively reduced commuting time between the new town and the main urban area by thirty minutes. With the completion of the railway network connecting all new towns with the city center in 2006, commuting time will be further reduced. Nevertheless, the inability of the new towns to attract high-order economic activities eventually led to the government's announcement of the Metroplan in 1988, signalling a return to the harbour area for re-creating land for economic activities.

Table 3. Divorce Rates in New Towns

New Towns	Divorce Rate ¹ 1996 (%)
Tuen Mun	2.2%
Sha Tin	1.8%
Yuen Long	2.5%
Tsuen Wan	1.5%
Tai Po	1.8%
Fanling/Sheung Shui	2.0%
Tseung Kwan O	1.5%
Tin Shui Wai	2.2%
All new towns	1.8%
Whole territory	1.9%

Source: Based on Census and Statistics Department, 1996 Population By-census: Main Tables (Hong Kong: Census and Statistics Department, 1997).

Note:
1. The divorce rate is calculated with the number of divorces and the size of the population at age 15 and above

Table 4. Crime Rates in New Towns

District ¹	Crime Rate (Per 100,000 population)	
	1996	1999
Tuen Mun	1,146	1,088
Sha Tin	896	762
Yuen Long	1,654	1,648
Tai Po	1,016	1,139
Tsuen Wan	1,110	929
Lantau	1,043	1,067
Kwun Tong	1,103	720
All new towns	1,118	1,008
Whole territory	1,253	1,122

Sources: Based on Royal Hong Kong Police Force, Crime and Enforcement Report 1996 (Hong Kong: Statistics Office, Crime Wing, 1996); Hong Kong Police Force, Crime and Enforcement Report 1999 (Hong Kong: Statistics Office, Crime Wing, 1999).

Note:
1. The statistics provided by the Hong Kong Police Force are classified by Police Regions which are different from the new town boundaries. The crime rate in Tseung Kwan is grouped under Kwun Tong, whereas those of Fanling/Sheung Shui and Tin Shui Wai are grouped under Yuen Long.

New Concerns in City Growth: Sustainability, Sustainable Development and Community Participation

Economic Changes and Environmental Consciousness

The late eighties saw the start of a gradual shift in the concerns of urban development in Hong Kong. As shown in Table 5, due to the deployment of industrial operations to southern China where land and labour are much cheaper, the manufacturing industry in Hong Kong dwindled and, by the nineties, it had ceased to be a major economic sector. However, the 'open door' policy of China has resurrected the entrepot function of Hong Kong and import, export and re-export activities resumed their place as major economic activities (Table 5). Since the eighties, the finance and service sector has also been growing rapidly, and Hong Kong has gradually become a regional center for these activities. These new economic developments reinforced the importance of the central business areas as conglomeration effects, and forward and backward linkages are essential for servicing and financing. The back-to-harbour strategy thus got the upper hand. The Ports and Airport Development Strategy, with its emphasis on expanding the hub function of Hong Kong, was thus conceived at the end of the eighties. Another important strand of societal development affecting the concept of urban development today was the growing awareness of environmental quality in the eighties – at least in the minds of some government officials. The global call for environmental protection and the environmental problems confronting Hong Kong¹⁴ finally led to the announcement of a major environmental policy in 1989 in the form of the White Paper on 'Pollution in Hong Kong – A Time to Act'. The Paper stated that "serious environmental pollution in Hong Kong is an unfortunate by-product of economic suc-

cess and population growth. One of the government's major priorities is to halt the decline in environmental conditions and to do more to improve our environment." ¹⁵ The Paper set out a ten-year program to tackle environmental problems that had accumulated over decades of rapid growth in the economy and population. The disposal of solid waste, sewage, chemical waste, air pollution, and noise problems were major concerns. It also promised that a review of progress would be published every two years.

The first review in 1991 focused on the progress of the program on combating environmental problems. The second review published in 1993 took a more comprehensive approach. Apart from reviewing the progress of the ten-year program, it set out a basis for future action to protect the environment, including initiatives for improving the government's own performance in environmental protection, educating and involving the public in protecting the environment and introducing the concept of environmental sustainability. Community response also pointed to the need of to tackle air pollution, strengthen environmental education, promote conservation of resources and promote sustainable development in a wider sense.

The second review published in 1996 formally adopted 'sustainability' as its theme, defining it as "living our lives in such a way that we do not thoughtlessly deprive future generations of the right to fresh air, clean water, adequate food, pleasant surroundings, and the basis for continued prosperity." ¹⁶ The review announced the commencement of a major study aimed at building considerations of sustainability into strategic development planning, and enhancing public awareness and education on environmental issues.

Table 5. Economic Structure of Hong Kong, 1981-1996

	1981	1989	1996
<i>Manufacturing</i>			
Labor Force (%)	41	30	16
Share of GDP ¹ (%)	23	19	7
<i>Wholesale, retail and import/export trades, restaurants and hotels</i>			
Labor Force (%)	19	25	30
Share of GDP ¹ (%)	20	24	27
<i>Financing, insurance, real estate and business services</i>			
Labor Force (%)	5	7	12
Share of GDP ¹ (%)	24	20	25
<i>Construction</i>			
Labor Force (%)	8	8	9
Share of GDP ¹ (%)	8	5	6
<i>Transport, storage and communication</i>			
Labor Force (%)	8	10	11
Share of GDP ¹ (%)	8	9	10
<i>Community, social and personal services</i>			
Labor Force (%)	15	18	22
Share of GDP ¹ (%)	13	15	18
<i>Others</i>			
Labor Force (%)	5 ²	2	1 ²
Share of GDP ¹ (%)	12 ³	14 ³	16 ³

Sources: Based on Census and Statistics Department, Hong Kong Annual Digest of Statistics (Hong Kong: Government Printer, 1982, 1990, 1991, 1997 & 1999).

Notes:

1. GDP at factor cost (production-based estimates).

2. Figures added up to more than 100 because of rounding of figures.

3. Figures added up to more than 100 because of rounding of figures and the fact that bank service charges have not been deducted from individual sectors by the Census and Statistics Department.

Prior to the publication of the final review of the 1989 White paper in 1998, a government study on "Sustainable Development for the 21st Century" had already been commissioned in September 1997. The study aims to develop a tool to help decision-makers incorporate the concept of sustainability into Hong Kong's future development. Two large consultation exercises were conducted to raise public awareness and provide the public and stakeholders with opportunities to comment on the main outputs of the study including the proposed definition, guiding principles, sustainability indicators, decision support tool and institutional changes. Taking the public views into consideration, the findings and recommendations of the study together with the outcome of the reviews of the 1989 White Paper will form the basis for the next White Paper on the Environment which will become Hong Kong's Agenda 21¹⁷.

Sustainable Development and Urban Policy

Environmental Regulations

Although at the time of writing, Hong Kong's Agenda 21 is still in the making, the global emphasis on sustainable development, particularly environmental sustainability, has already affected the direction of urban planning and development in the past decade, especially last year. The first important step in adding an environmental dimension in the urban development stage was the inclusion of a chapter on environment in the Hong Kong Planning Standards and Guidelines in 1985. In the same year, all new major housing development projects (which amount to no less than 2,000 units) were required to undertake an environmental impact assessment study. The environmental concerns of the above guidelines and planning authorities include the suitability of the quality of the local environment for residential development (specifically in terms of air and water quality, noise level and waste treat-

ment), the compatibility of the proposed project with existing land uses and infrastructure, the impact of the proposed development on the environment both during the construction process and after completion (especially its impact on sensitive receivers and sensitive parts of the natural environment) mitigation measures against undesirable environmental impact, and the planning gains to the locality in environmental terms. The promulgation of the Environmental Impact Assessment Ordinance in 1997 further imposes statutory environmental requirements on large residential development projects, ensuring that these developments provide accommodation that meets the prevailing environmental standards.¹⁸

However, the ordinance has no impact on the environmental quality of the existing housing stock. As a matter of fact, about 58 per cent (1,193,419 units) of the existing housing stock was produced before 1985 when environmental awareness was low¹⁹. Furthermore, looking into the future, the Territorial Development Strategy Review of 1996 pointed out that given the size of the projected population growth, Hong Kong would have to face serious adverse environmental impacts generated by its activities, even with the implementation of mitigation measures. There was a need for a comprehensive environmental baseline study. SUSDEV21 grew out of this new awareness.²⁰

Sustainable Development Study

SUSDEV21 proposed eight guiding principles that translate the local definition of sustainable development (as defined above) into different aspects of development that affect sustainability in the SAR (Table 6). These principles, apart from the added emphasis on environmental sustainability, do not depart from the past goals of city development before environmental protection had become an issue. Perhaps, as pointed out by the incumbent Director of Planning, "if sustainable development is about balancing the community's

Table 6. Guiding Principles for Sustainable Development
in Hong Kong, SUSDEV 21

Economy	Hong Kong should achieve a competitive and prosperous market-based economy which provides the resources to meet the needs and aspirations of the population, both now and in the future.
Health and Hygiene	Hong Kong should provide a living and working environment and pursue policies which promote and protect the health of the people of Hong Kong.
Natural Resources	Hong Kong should promote the sustainable use of natural resources through improving consumption efficiency, minimising the use of non-renewable resources and re-using, recycling waste and recovering energy from wastes.
Society and Social Infrastructure	Hong Kong should foster a stable and progressive society and enable individuals to contribute to and fulfil their potential by providing universal access to adequate and appropriate social infrastructure.
Biodiversity	To maintain the biodiversity of Hong Kong and to minimize any threat which consumption in Hong Kong may have on biodiversity elsewhere.
Cultural Vibrancy and Recreation	Protect and enhance the vibrancy of Hong Kong's recreational opportunities, leisure activities, cultural diversity, archaeological, historical and architectural assets.
Environmental Quality	Hong Kong should be pro-active in avoiding environmental problems, seek to find opportunities to enhance environmental quality, and minimize the unwanted side effects, locally, nationally and internationally, of development and inefficiencies such as air, noise and water pollution or land contamination.
Mobility	Hong Kong should provide safe, accessible and efficient transport systems and pedestrian facilities along with an efficient transport network for the movement of goods and facilitation of services for the community.

Source: Planning Department, *Sustainable Development in Hong Kong for the 21st Century: Second Stage Consultation: Consultation Document* (Hong Kong: Planning Department, 1999), p.14.

social, economic and environmental needs, I would venture to suggest that considerations for sustainable development have long been very much a part of our planning process, albeit under a different cover. "²¹ However, he acknowledged that if Hong Kong was to continue with the past demand-led development path, there would be serious long-term environmental consequences; and " it would be difficult, if not impossible, to provide all the necessary facilities of the right scale, at the right locations and at the right time to satisfy all development needs, and without any adverse environmental impacts. "²² He thus suggested Hong Kong should have a new way of managing demands – promoting environmentally friendly economic activities, discouraging environmentally damaging activities, and ultimately cultivating a sense of sustainability into people's way of living. Thus environmental sustainability is at the core of sustainable development in Hong Kong, although this is yet to be confirmed with the impending announcement of Hong Kong's Agenda 21.

Nevertheless the sustainability indicators and " the computer aided sustainability evaluation tool " proposed by SUSDEV21 were unable, from the very outset, to address the environmental sustainability issue. The computer system was devised for consistent, disciplined and cross-sectoral examination of the implications of any proposed policy for the sustainability indicators. The performance of the indicators will be assessed against announced government targets and objectives of existing socio-economic policies, but not against a standard by which sustainability can be achieved. For instance, while the study proposed to include an indicator of living space standard, it did not stipulate a minimum standard for a satisfactory living environment that would be compatible with the environmental and spatial capacity of Hong Kong not only for this generation but also for generations to come. Unless a resolution to this issue is sought, the space standard indicator will provides no reference to

sustainable housing development.²³ The computer system and the indicators so far remain at best analytical tools for the study of policy impact.

Long-Term Positioning:

A World City in Asia

While it still remains to be seen whether the final version of these sustainability tools can address the issues of sustainable development squarely, the Chief Executive in his Policy Speech last year has already summarized recent efforts and the future direction of urban growth to improve the quality of the living environment.²⁴ The future directions were set especially in the light of the long-term development objectives of Hong Kong and the perspectives of sustainable development. As a new government that does not have a time limit on its sovereignty, the Government of the Hong Kong Special Administrative Region saw it as an imperative to establish a clear position for Hong Kong. It was decided to position Hong Kong as a world city in Asia, with a status comparable to that of New York in North America and London in Europe. Rightly or wrongly, the Chief Executive maintained that Hong Kong's economic link with China was its greatest advantage in developing into a world-class city. However, he acknowledged that creating a first-rate living environment is one of the most urgent tasks for nurturing and attracting the world's most talented people to the city.

An important urban policy to achieve this objective lay in the adoption of a comprehensive approach to urban redevelopment. This approach has already been mooted in the government and the community for the last few years because of the slow pace of urban redevelopment under the old system. The major problem has been multiple ownership of high-rise buildings, rendering the purchase of premises very difficult for the redevelopment agent and developers. A more powerful urban renewal authority is soon to be set up, and its

task is to redevelop the nine old urban areas. With the adoption of a comprehensive approach, it is hoped that there will be comprehensive planning over larger areas, providing additional space, green belts, pedestrianized precincts and community facilities with improvements to road networks and the preservation of the heritage and the distinctive features of the old districts. If the pace of urban renewal is quickened as intended, the old urban area will become a major source of new land supply, thus augmenting the supremacy of the main urban area.

Preserving the countryside is also highlighted as an important task. Not only is the natural landscape of Lantau Island and Sai Kung District to be preserved, but there is also a general recognition by the planning authorities and the community that the rural characteristics of other outlying islands should be preserved. Equally there is also a recent emphasis by the planning authorities on improving the preservation of areas of ecological value such as wetlands in Mai Po (a Ramsar site) and its neighbouring areas, and Sha Lo Tung with its rare species of dragonflies. The Chief Executive also pledged that in 2001 the managed country park areas of Lantau Island would be extended. Whereas a million trees have been planted in the past two years, the government would draw up a comprehensive conservation policy and work with the community to work on urban greening and urban greenery protection. The government has the ambitious vision of making Hong Kong a green model for Asia.

Finally the Victoria Harbour. To reclaim land from the inner Victoria Harbour along the two coastal fronts has always been the major means of creating new land for the expansion of the city center. This policy, however, was hampered by rising community concern over the environment and the preservation of Hong Kong's natural landscape. In 1998, when the zoning plans of two large-scale reclamation projects (the old airport site and the Central-

Wanchai district), which were approved by the Executive Council, were gazetted, the public strongly opposed its implementation. The scale of the former was reduced by 138 ha to prevent the harbour from becoming a big channel, whereas the latter was minimized just to enable the construction of much-needed transport facilities to relieve traffic congestion. The community's concern for the harbour has also led to the adoption, by the government, of a proactive approach in protecting the harbour and containing reclamation to the absolute minimum. Thus the late nineties marked a significant drift from the long-held urban policy of creating land by large-scale reclamation of the harbour. This has at least two important ramifications: a greater need to enhance urban redevelopment to provide land for the expansion of economic activities in the city center; and the development of more land in the New Territories to house the population originally planned to be accommodated on the old airport site, totalling 80,000 people. These two reclamation projects also had a far-reaching impact on Hong Kong's urban planning system, reshaping its mode of governance.

Urban Governance in Transformation: Public Participation

In the past, public participation in Hong Kong's land use planning system was limited, although it was not as restrictive as that described by some of the critics²⁵. In the making of statutory zoning plans, public participation is defined by Sections 2 to 7 of the Town Planning Ordinance. Sections 2 to 4 stipulate the appointment, functions and powers of the Town Planning Board. The Board is mainly comprised of non-official members who are drawn from different professional and business sectors of the community. Therefore public participation at the decision-making level is restrictive and elitist.

Sections 5 to 7 set out the procedure for making statutory plans (i.e. the outline zoning

plans), delineating when and how the public can participate. The first opportunity for the public to express views is when a draft zoning plan is advertised in the newspapers and gazetted for public inspection. Within a period of two months, anybody who feels that she or he may be affected by the proposed plan can object to the plan, and propose alternatives. The Town Planning Board will consider the objections and, if the objection is not upheld, a hearing will be conducted by the Board. If the plan is amended according to the objection, the Board will notify persons whose land interest is affected by the amendments. If objections are raised subsequently, the Board will conduct a hearing inviting both the original and further objectors to attend. If further amendments are made owing to the hearing, they will be gazetted for three weeks, starting off another round of public consultation. Finally, when all objections have been heard and amendments made as deemed justified by the Board, the draft plan, with or without amendments, is submitted to the Chief Executive (the Governor before July 1997) in Council (the Executive Council) for approval. Any non-withdrawn objects are to be attached as well.

Thus, the public is consulted in the plan-making process of statutory zoning plans. However, the general public is only involved when the draft plan is completed and the participation is in the form of objection submission. The involvement of the public is thus often considered to be too late and too divisive. Although in the earlier stages of the plan-making process, statutory and advisory bodies such as the District Boards are consulted, public participation is limited to the few who sit on those organizations. The closed-door meetings of the Town Planning Board are viewed by the public as a black-box operation, even though members of the Board may have striven to their utmost to balance the competing interests of all parties concerned and performed their duty with due diligence.

The outline zoning plans of the two above-discussed reclamation schemes were gazetted in May 1998 and September 1998 respectively. At that time, the community's concern for the harbour had been heightened by the passing of the controversial Protection of the Harbour Ordinance in June 1997. The widespread community opposition to the outline zoning plans, the useful suggestions of the objectors (including, *inter alia*, professional institutes, academics and developers) for alternative plans, an increasingly democratized society, and heightened environmental concerns in previous years led to the adoption of a different planning approach in the process of revision of the two plans. Concept plans of the two districts were published for public consultation (mainly in the form of public forum) prior to the re-drafting of the zoning plans. Consequently the amended draft Central-Wanchai zoning plan, duly taking account of public concern about large-scale harbour reclamation, the prominence of the locality, the historical value of the place, etc, was well received by the community. These two planning exercises have led to a number of major changes in the public consultation practices of the planning preparation process.

These changes are summarized in the latest issue of the annual report of the Planning Department published in 2000²⁶. First, the past practice of consulting only the public on the findings of a planning study, on the basis of which zoning plans are drawn, has been redefined on the basis of consulting the public on the focus and methodology of the study as well. Second, public consultation forums are used as a more proactive consultation tool. It is regarded as an effective consensus-building method as it provides a channel for different community sectors to learn and appreciate each other's views. It in fact has the benefit of exposing to the public the conflicting interests within the community and lessening the arbitration tasks of the planning authorities. Third, specific target groups such as local residents, stakeholder groups and professional

institutes are invited to the forums. Discussion meetings, briefings and site visits are also arranged for the concerned parties. Fourth, the importance of access to planning information is acknowledged. Consultation materials, including technical reports, are made as comprehensible and accessible as possible. The SUSDEV21 study is a case in point. Furthermore, the Planning Department also endeavours to produce a report after each consultation exercise summarizing the comments received and explaining how they will be incorporated. The report is sent to the participants and uploaded in the home page of the Planning Department.

Thus, the public involvement in the planning process has been made more significant in

the past two years. While the changes outlined above mainly pertain to the plan preparation stage which is non-statutory, a comprehensive review of the Town Planning Ordinance is being undertaken and the Legislative Council is considering an amendment bill. It is anticipated that, when the bill is eventually passed, not only will the statutory planning making process be made more transparent and participatory, but local planning applications, which are currently considered behind closed doors in order to protect commercial information, may be made more consultative. The public will be better empowered to influence urban development, as an essential means to achieve sustainable development.

Conclusion

Thus the development of large-scale new towns and the reclamation of land from the sea have been the major means used by the government of Hong Kong to meet housing needs and provide sites for economic activities. These two means were used because of the mountainous topography of Hong Kong, the difficulty (and therefore unwillingness of the government) to take over land from the indigenous residents in the New Territories, and the slow process of urban redevelopment due to multiple ownership rights in high-rise buildings. The new town program has been successful in decentralising the population and improving housing standards largely because of the massive public housing program. The de-concentration of economic activities has generally failed primarily because of the availability of cheaper land and labour in southern China, and the growth of the servicing, financing and trading activities since the eighties,

which require land in more central locations. Following the global trend of promoting sustainable development, and due to aggravating environmental problems, new directions of city growth emerged in the late eighties. To date, 'sustainable development' has been formally adopted in the city's development policy. Although environmental sustainability seems to constitute the core of this new horizon of urban growth, a greater emphasis has been given to cultural heritage, quality of life and natural assets such as the harbour. However, confronted with competition from the neighbouring areas, including fast growing Chinese cities, the new government has taken the development of Hong Kong into a world city of Asia as its long-term development goal. While this may enhance the economic sustainability of Hong Kong, its potential conflict with the general concept of sustainable development and other strands of

sustainability, particularly environmental sustainability, seemed not to have been mooted within the government. It is also worrying that the proposed policy tool for assessing the sustainability impact of future major policies and programs does not include sustainability standards apart from those relating to safety

and health. Thus its ability to help Hong Kong achieve the tenets of sustainable development is very much in doubt. Nevertheless, the continuous empowerment of the public in planning is a favourable development, bringing Hong Kong into a new phase of urban governance.

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SOUTH KOREA



SEOUL

<i>Size of the country</i>	<i>99 400 km² (70% covered by mountains)</i>
<i>Population</i>	<i>47,3 M</i>
<i>Population density</i>	<i>477 inhab/km²</i>
<i>Population growth rate (1993 – 1999)</i>	<i>1%</i>
<i>Part of urban population</i>	<i>81%</i>
<i>Life expectancy at birth</i>	<i>73</i>
<i>Infant mortality (per 1000 live birth)</i>	<i>9</i>
<i>Access to improved water sources (% of population)</i>	<i>83</i>
<i>Life expectancy at birth</i>	<i>74 years (male: 71, female: 78)</i>
<i>Ethnic groups, their percentages in the population</i>	<i>Han</i>
<i>Official languages</i>	<i>Korean</i>
<i>Religions</i>	<i>Buddhism: 45%, Christian: 50%</i>
<i>Gross domestic product</i>	<i>398 billion USD</i>
<i>Gdp per capita</i>	<i>8490 USD</i>
<i>Inflation</i>	<i>0,8% (1999)</i>
<i>Gdp growth rate</i>	<i>8%</i>
<i>Gdp repartition in different sectors</i>	<i>Agriculture: 5%, Industry : 43,5% (manufacturing : 31,8%), Services: 51,5%</i>
<i>Unemployment rate</i>	<i>4,6% (2000)</i>
<i>Illiteracy (% of population age 15+)</i>	<i>2</i>
<i>Tourism</i>	<i>4,5 M visitors (1998)</i>
<i>Population of province of Kyonggi-do</i>	<i>22 M</i>
<i>Population of Seoul</i>	<i>10,8 M</i>

PUBLIC POLICIES FOR NEW TOWNS IN KOREA: AN APPRAISAL

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Introduction

In the post-war period, Korea has experienced severe housing problems, characterized by an absolute shortage of housing, an extremely skewed distribution of housing services, and real-estate price inflation. Housing problems were especially noticeable in the city of Seoul. Numerous efforts were made to solve them, including large-scale residential redevelopment and in-city new town projects, but with little success. The reason basically had to do with the massive influx of people into the city and with the extremely high rate of household formation¹.

In the late 1980s, the situation worsened to the point where the government decided to initiate a massive housing construction plan to meet the ever-increasing demand for housing and stabilize real estate prices, especially in the Seoul Metropolitan Area (SMA). The plan, prepared in 1987, was to provide as many as two million new housing units of various size and quality within a five-year period (1988 to 1992).

The city of Seoul needed as many as 100,000 to 120,000 units of housing annually, but it only had a small surface of land available for new

residential development under its jurisdiction. Land had to be secured elsewhere, outside the city limits, but the location had to be reasonably close to the city so that Seoulites could settle there with minimum adjustment. Yet, under the legislation then in force, it was also very difficult for the government to acquire residential land on such a scale within such a short period of time.

Actually, the government had enacted the "Residential Land Development Promotion Law" in 1979, which authorized public entities to engage in large-scale residential development. But the law was not effectively enforced until 1989 when the government decided to develop the new towns within the Seoul Metropolitan Area. The other important piece of legislation was the 1978 "National Land Use and Management Law," which defined and regulated the uses of the nation's land at the regional level. The law authorized the government to designate a large amount of land throughout the country for residential development purposes in order to implement a massive construction plan. It was decided that the land parcels located just outside the city of

Seoul, but adjacent to the greenbelt area, would be used primarily as sites for the development of new towns.

As such, the new town development scheme was an integral part of the massive housing production plan known as the "Two-million-unit housing construction plan of 1988-1992." The plan envisaged that the five new towns in the SMA would provide a total of 293,000 housing units, mostly multi-family condominium units. The new town sites were to be strategically positioned within a 20-25-km radius from the city's Central Business District. The boundaries of the new towns were delimited according to the local planning codes. The five new towns were Bundang, Ilsan, Pyungchon, Joongdong and Sanbon by order of size (See Figure 1).

This paper will first briefly describe how the new town development took place. It will then discuss its achievements and drawbacks, as well as the criticisms that it received. The final section of this paper will attempt to draw lessons from the Korean experience for the benefit of those who conceive new towns as a means to solve inner-city problems.

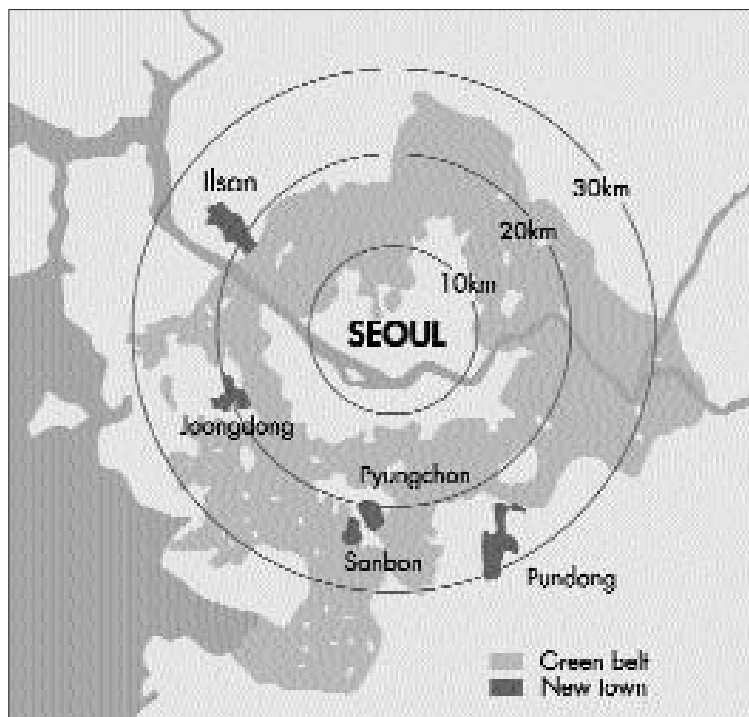


Figure 1. Seoul and the New Towns

The Rationale for New-Town Development

A Brief Overview

The new-town development effort of 1989 was not new in Korea. In the past, this method had been used either as a policy tool to alleviate problems in the inner cities or as a means to support the industrialization policy. The scheme for the development of five new towns was conceived to relieve congestion and the over-concentration of population and industries in Seoul. The city's population had increased to 10.4 million in 1989 from only 2.4 million in 1960. Over 20 percent of the nation's popula-

tion resided in a small area of 680 sq. km, approximately 0.06 percent of the country's total surface. The concentration of population in Seoul led to over-loaded public facilities and environmental degradation. In addition, an inadequate level of social infrastructure services aggravated the quality of urban life². Worse still, over-concentration and centralization in and around the primate city of Seoul further intensified housing shortage. Housing conditions went from bad to worse. Housing price inflation was rampant and homeowners

benefited most from this inflationary situation. As a result, income distribution between the rich and the poor became more unequal. Home prices doubled every three to four years. Inevitably, poor tenants were hard-pressed, as rents rose even faster than sale prices.

The government devised numerous measures to decentralize population and industries and push them away from the city and the SMA. But none of them worked effectively. On the contrary, the city grew even more rapidly as the economy boomed in the late 1980's. Policy-makers realized that the inter-regional decentralization programs would take more time and that they had to initiate a policy of intra-regional de-concentration. They opted for a policy of sub-urbanization that took shape in the form of five new towns. Even before the announcement was made, an increasing number of newly emerging middle-class and upper-middle class households had moved out of Seoul to live in the suburbs, beyond the green belt. This middle-class exodus to suburbia was largely due to the rise in income and changes in the value system, as well as to the deterioration of living conditions in the city³.

Rationale for the Five New Towns

Basically, the development of the five new towns can be rationalized from two perspectives, housing and the use of space.

The housing shortage surfaced in the early 1970s as a result of the massive migration of the rural population into the large cities, especially Seoul. As shown in Table 1, the number of housing units only doubled between 1960 and 1990 while households almost tripled throughout the country. The situation was even worse in Seoul where the supply ratio for housing was as low as 50 to 55 percent before the massive housing construction that started after 1989⁴. Housing density was extremely high. For example, the number of persons per room was 1.48. A World Bank study found that the average figure was 1.6 in its sample of world cities as a whole, but only 0.7 in advanced countries⁵.

The average price of a house was about 9 to 10 times the median annual household income in the late 1980s. With continuing expectations of higher prices, housing became the target of speculation. Home prices in Seoul increased by 75 percent during the five-year period from 1985 to 1990. A study conducted by the Korea Research Institute for Human Settlements (KRIHS) revealed that only the upper 30 percent of the nation's households could access the housing market and that over 72 percent of them were already homeowners. The same study found that most were motivated by the combined reasons of upward residential mobility and, even more importantly, the search for a productive investment. In fact, a subsequent survey showed that over 90 percent of home buyers had investment or speculative motives in mind. They anticipated an average 23.3 percent rate of return on their investment in housing⁶.

The better-off residents sparked the trend in speculative purchase, but it almost instantaneously spread among upper middle-class households that felt insecure about rises in home prices. The latter were eager to buy homes because soon they would not be able to afford it. In fact, the price of the large-size condominiums went up by 30 to 50 percent over only half a year in the late 1980s. The rate of return was almost five times the rate of regular savings accounts in banks. Besides, much of the income earned from speculation went untaxed. Other taxes, e.g. property tax and the income tax on real estate transfers, were not high enough to discourage speculators from investing in housing. Property taxes on condominiums were light because they were based on real-estate values under-assessed at as little as one-tenth of the current market value.

The other housing-related problem was the shortage of residential land. Land prices soared which, in turn, severely constrained the supply of housing. Residential land shortage was especially detrimental to the construction of low-income housing units. A KRIHS study of

the Korean housing market strongly suggested that the variables of housing demand combined with a low elasticity of supply explained the major part of the land price spiral. Nevertheless, government control on land use and land supply remained tight, which exacerbated the situation even further⁷.

Despite numerous anti-speculation measures, large chunks of land were held on to by individuals and corporations with speculative profits in mind. This was especially true in urban fringe areas. Yet official measures were counter-productive. They created a "locked-in effect," thus further reducing land supply. Land was purchased and hoarded until capital gains could be maximized. Given the risks and uncertainties involved in alternative investments like stocks and bonds, land investment seemed to be relatively secure and yielded an extremely high rate of profit. Consequently, a large portion of domestic investment funds, which would otherwise have been utilized for more productive purposes, poured into the land market. Such a speculative demand for land pushed up land prices, which in turn translated into the inability of developers to moderate the price of housing.

The situation in Seoul was particularly critical. The amount of land available for new residential development within the city planning area was only 8,232 acres, while the amount of land required every year was estimated at 2,137 acres. Therefore, new housing development would have to stop within a few years, even

with a careful and efficient management policy. The second perspective is that of land use. As pointed out earlier, planners had for years argued for the intra-regional dispersion of the population of Seoul city throughout the capital region. This was to be a substitute for the failed inter-regional decentralization policy. However, planners were divided on conceptualization: one group argued that the sites of the new towns should be located far away from Seoul city; the other group advocated just the opposite. The former group considered the new towns as independent and self-contained entities, spatially, functionally as well as economically. Their preference went to large-scale towns that could serve as counter-magnets to the primate city of Seoul. The latter group was strongly in favor of satellite dormitory towns that would provide a wide variety of new accommodation for the Seoulites. They conceived such new towns merely as extensions of the city's housing market. The government initially adopted the views of the former group, but eventually, when the plan materialized, it sided with the latter group⁸.

To sum up, housing issues were the primary reason for the development of new towns. It helped suburbanize the Seoul Metropolitan Area (SMA), but intensified the centralization problem. In retrospect, planners and government officials in particular were very shortsighted in that they failed to take sustainability criteria into consideration when they designed the new towns.

New-Town Development

The Methods for Residential Land Development

Once the decision to develop new towns was made, a whole range of issues had to be solved, such as acquiring land, financing infrastructures, pricing the serviced lands, and marketing the new towns to potential buyers. After a careful review of existing laws and regulations, government officials came to the conclusion that the most relevant and effective tool was the Residential Land Development Promotion Law. It provided the legal basis for a mechanism called "Public Purchase and Development" (PPD), which was used for new town development. There were two other frequently used methods — Land Readjustment Project (LRP) and Urban Redevelopment Method — but both were replaced by the Public Purchase and Development method (PPD) in the early 1980's. The PPD method did not allow land-owners to keep their ownership rights after the land had been purchased. Development plans were formulated by either local or central governments and executed by public entities such as local development corporations, Korea Land Development Corporation (KLDC), Korea National Housing Corporation (KNHC), etc. The purchased lots were subdivided, partitioned, and often serviced. Then they were sold or leased to private developers and other public builders. This was the method used for the new towns.

The New-Town Plan: An Overview

Location of the New Towns

The five new towns are located within a 20-25-km. radius from the center of Seoul city, as shown in Figure 1. Government planners initially conceived Bundang and Ilsan as self-contained, independent towns because of their size, and the other three as "in-city new-towns."

Bundang is quite close to Kangnam, the fast growing urban center south of the Han River. Almost 70 percent of the area were agricultural land and the other 30 percent remained undeveloped green space. Because of its proximity to the primate city, the town was intended to accommodate the middle and upper-middle income households living in Kangnam as well as function as a business and commercial sub-center of the city of Seoul.

Ilsan used to be an agricultural area — with mostly paddy fields — close to the demilitarized zone (DMZ). It is located about 25 km to the north-west of Seoul. Despite its environmental quality, the new town failed to attract as many home buyers as Bundang. The reason has to do with both the proximity to the demilitarized zone and the lack of adequate direct transportation routes to Seoul's downtown area.

The other three new towns were located within the city planning areas of the existing cities of Buchon, Gunpo and Anyang. Accordingly, they were conceived as in-city new towns and expected to function as new CBDs for these cities respectively. Gunpo was a relatively small city with a population of less than 50,000, but both Buchon and Anyang were medium-sized cities, with populations of 500,000 and 400,000 respectively.

Land-Use Plan for the New Towns

The land-use plans for Bundang, Pyungchon and Ilsan were drafted by the Korea Research Institute for Human Settlements (KRIHS) in 1989 on behalf of the government. The Korea Land Development Corporation (KLDC) and the Korea National Housing Corporation (KNHC) designed those of Joongdong and Sanbon respectively. The major factors taken into consideration when KRIHS developed the land-use plans were the natural and man-

made characteristics, physical distance and travelling time from the city of Seoul, the location of the sites, existing transportation networks, existing land use and the proximity to nearby cities and towns. Much attention was paid to residential use and, to a lesser extent, to parks and open spaces, two of the most important features of the new towns. Planners made every effort to secure as much commercial space (and some industrial space) as possible in some new towns like Bundang so that it would accommodate not only people, but also businesses and jobs from Seoul.

As shown in Table 3, the percentage of residential area was high in comparison with land for other uses. It ranged from 32 percent in Bundang to 45.6 percent in Sanbon. Next came roads, from a high 24.5 percent in Joongdong to a low 13 percent in Sanbon, and parks and open spaces from 23.7 percent in Ilsan to 12.1 percent in Joongdong. The amount of land set aside for commercial and business uses also varied widely. Close to 10 percent of the total land was earmarked for commercial use in Joongdong against only 2.9 percent in Ilsan. Ilsan was noted for its spacious living conditions, with a high proportion of parks and open space. On the other hand, in a town like Bundang, a large chunk of land was reserved for roads because town planners paid particular attention to improving accessibility to Kangnam. In fact, the city's road network is fairly elaborate and connects to almost all the major arteries of the city as well as to highways and other trunk-roads that lead to the large cities and towns throughout the country.

Population and Residential Density

Table 4 shows the surface of the five new towns as well as population and housing density. The size of the land area for the five new towns ranges from 419 hectares in Sanbon to 1,894 hectares in Bundang. The planned size of the population was targeted at 70,000 persons in Sanbon, 390,000 in Bundang, and 276,000 in Ilsan. The average gross density of the five new

towns was 23,500 persons per sq. km against 18,100 in Seoul. The net residential density was even more impressive. It touched 68,600 persons, while it was only 36,400 in Seoul.

Planners had advocated low- and medium-density towns endowed with a wide variety of homes with indigenous architectural design and environmentally friendly and culturally rich neighborhoods. They had initially conceived some of them as "rurban" living areas for the middle and upper-middle classes, but government officials and home-builders shunned the idea and adhered to high-density and high-rise development.

Housing Allocation Plan

Initially each new town was targeted for households with different characteristics in terms of age-cohort, income, tenure and household size. Some of these features found their way into the housing allocation plan (Table 5). A survey study conducted by KRIHS helped in the drafting of the allocation plan. It was completed about six months before the public announcement of home sales in Bundang and other new towns. The study focused on the groups and households who were most likely to move to one of the five new towns. It covered the issues of residential location, price range, type of home, desired level of residential quality, preferred amenities and apartment size. The survey showed that a majority of the prospective movers lived close to the sites of the new town. For example, those who wanted to move to Bundang's new town resided in Kangnam, only 10 to 15 kilometers away from the designated new town.

The plan not only gave an indication of the number of multi-family condominium units to be provided in each new town, but specified the proportion of units of different sizes. Both Bundang and Ilsan were to supply relatively larger units compared with Joongdong and Pyungchon. The differences in apartment size and scale of neighborhood between the various towns came from the survey's findings.

Both government policy-makers and builders wanted to have the new homes sold off fast. In the absence of a formal financing mechanism for construction, only a quick turnover could help launch other new town projects.

Financing Infrastructure Facilities

A major question was the cost of infrastructure facilities and its distribution between private builders and public corporations. The total costs for roads and subway lines for the five new towns amounted to approximately 3.7 trillion won (Table 6). The cost of infrastructure per housing unit stood at 17 million won in Bundang, 12 million won in Ilsan, 11.6 million won in Pyungchon and Sanbon and 6.5 million won in Joongdong. The private developers were responsible for over 76 percent of the costs of construction of roads and subway lines. The central and local governments bore the remaining costs, 4.5 percent and 19 percent respectively. It was clear that the new home buyers would have to bear most of the expenditure on infrastructures. The developers actually shifted these costs on to them. A typical home in Bundang, for example, was priced as high as 80 to 90 percent of that of a comparable unit in Seoul. This was too expensive for low-income and middle-income households.

New-Town Development Process

The Goals of the Government

Prior to the official announcement of the new-town development scheme in late 1989, planners had worked on the prospective new towns in Bundang and Ilsan. Their concept was basically that of the self-contained compact city, free from the influence of the prime city of Seoul. By the time of the announcement, however, the government had opted for satellite cities or high-density and multi-family dormitory towns that would remain highly dependent on Seoul for employment, education, shopping, and cultural activities. Actually, for the three in-city new town pro-

jects - Pyungchon, Joongdong and Sanbon - planners were asked to come up with unprecedented high densities of land uses. The total number of housing units in the planned five new towns amounted to 300,000 units. They were to be built within the next five years (1989-1993).

To ensure the efficient implementation of the project, the government emphasized three points:

- its role as a coordinator of conflicting interests among the various actors: developers, local governments, land owners, homeowners, and tenants.
- the timely execution of housing construction schedules in tune with the dynamics of the housing market.
- the maximum utilization of private funds for infrastructure development⁹.

Public Developers and the Pre-Sale Scheme

Public developers were authorized to fully implement the new town plans under the 1979 "Residential Land Development Promotion Law," that was enacted to promote large-scale residential land development in urban areas. The Korea Land Development Corporation (KLDC), the Korea National Housing Corporation (KNHC) and the Local Development Corporations (LDCs) were entrusted with land acquisition, land regrouping and subdivision, land development and servicing, and the sale of the serviced parcels. The KLDC was responsible for the development of Bundang, Ilsan, Joongdong and Pyungchon while the KNHC was responsible for Sanbon. Earlier, the KNHC had helped build Guachon city, 10 km away from Seoul, where the government complex is located. The KNHC was primarily responsible for public housing construction and purchased serviced land parcels from the KLDC at much lower prices than the private developers.

At the initial stage of new-town development, a huge amount of capital was required for the

purchase and servicing of the land. The funds were raised through a pre-sale system whereby private home-builders had to pay in advance for the sites allocated to them. Similar deals were made between the builders and the home buyers. The latter had to pay about 80 percent of the price of the homes pre-sold to them under the pre-sale scheme. Thanks to this mechanism, the new town projects went ahead fairly smoothly with little financial burden on either the central government or the local municipalities.

The Koreans devised this rather unique home-ownership scheme partly to supplement the inadequate formal financing system for housing and partly to make prospective buyers wait for their turn in a context of high demand for new housing and low supply. Formally there were two types of home-ownership schemes. Both were administered by the Korea Housing Bank (KHB): the Housing Subscription Time Deposit (HSTD) and the National Housing Pre-emption Subscription Deposit (NHPSD). Those who joined the former scheme made a one-time deposit that ranged from 5 to 15 million won and waited for two years to be eligible for "priority" in purchasing a unit in one of the newly built multi-family condominiums. The NHPSD, on the other hand, was designed to draw deposits from the prospective purchasers of the National Housing Fund-financed condominium units that were provided by the KNHC and municipal governments. The participants paid monthly installments at their own discretion in order to receive "priority" in the purchase of public-funds-assisted housing units. Through these mechanisms, public and private builders were able to finance residential developments with little reliance on formal financial institutions¹⁰.

In late 1990, as many as two million participants in the scheme were waiting to purchase new apartment units — approximately 60 percent of them were Seoulites — while the number of housing units sold averaged only 40,000 to 60,000 units per year. Consequently, the

competition to acquire a condominium unit was very stiff in Seoul and, to a lesser degree, in the SMA. Those who were not registered under any scheme had to pay a "high premium" for the right to a priority.

The Sale Price Ceiling System and Speculative Demand

The other important housing policy measure was the condominium sale price ceiling system. It was adopted as a temporary measure in 1983 to put a lid on the "escalating" sale prices of newly-constructed homes. The government expected that the price ceiling system would help curb the price spiral. Home-builders were not allowed to set the sale price by themselves. They had to abide by a "standardized" price uniformly set by the government.

Although the price ceiling system was long recognized as having adverse effects on the housing market, no attempt was made to do away with it until very recently. This system only controlled the sale price within the allocation scheme, but it had nothing to do with the actual market price in subsequent sales. The system unnecessarily stimulated demand along with the widening gap between the market price and the government-set sale price. For example, the market price of a condominium unit of 130 square meters was about 300 million won, while the same unit was sold for only 100 million won to the beneficiaries of the Housing Subscription Time Deposit scheme. Similarly, an NHS-subsidized 66-square-meter unit was worth over 100 million won on the market, but it was officially sold at less than half this price¹¹. Consequently, the price ceiling system helped stimulate the housing market. The wider the gap between the two prices, the more speculators did it attract and the more inflationary did the market become. With these mechanisms and conditions, the sale of newly-built condominiums in the new towns posed few problems. For example, over 200 prospective buyers competed for a unit when they were pre-sold in Bundang. Builders and government

were guaranteed an almost limitless demand for home purchases, which partially explains why the new-town development program was

completed two years ahead of schedule. In short, the new towns owed much of their success to housing speculation¹².

The Impact of the New Towns on the Housing Market and Spatial Configuration

Impacts on the Housing Market *Overall Assessment*

Some people thought that the development of the new towns had merely ignited another powerful wave of land speculation in which only the better-off made fortunes while the poor tenants suffered from the inflation of rents, despite massive housing production. Others criticized new-town development program because it severely damaged the nation's economy. The construction sector was overheating and absorbing much of the nation's capital at the expense of the other sectors. Wages soared and inflation became rampant, severely undermining the nation's economic competitiveness. In that sense, some economists assert that the massive housing construction plan of 1988-92 was partially responsible for the country's financial crisis of 1997¹³.

Despite these criticisms, the new-town project undoubtedly had some positive effects on the housing market. It alleviated the housing shortage in Seoul and helped stabilize home prices and rents in the long term. It also contributed to a rise in the home-ownership rate and a significant improvement in housing conditions. The housing supply ratio increased from 54 percent in 1985 to 68 percent in 1993 in Seoul and from 68 to 78 percent in the country as a whole. It helped keep down house prices after 1993 and contributed to the expansion of the middle class through increased home ownership¹⁴.

Effects on Home Ownership and Housing Welfare

A KRIHS study found that a majority of the new-town residents came from Seoul: 89 percent in Bundang, 65 percent in Ilsan, and 61 percent in Pyungchon. When renting is taken into account, it appears that 65 percent of the new-town occupants were *chonsei* tenants before their move, but almost 90 percent of them became homeowners afterwards¹⁵. Clearly the rate of home ownership rose substantially thanks to the new towns. Home ownership symbolized personal achievement in Korea. It was regarded as the most conspicuous way to gain middle-class status. For society as a whole, home ownership helped consolidate political and social stability. Most of the households who moved to the new towns enjoyed housing conditions that were more spacious and of better quality than in their former residences. In fact, the living space increased by 30 to 150 percent.

Obviously, in measuring the net benefits of moving to the new towns one should take account of the additional time and money that the residents have to spend in commuting and shopping downtown. One should also consider the social costs associated with the congestion and environmental degradation that result from new-town construction and dense traffic. Therefore, from an overall perspective, the welfare gained from the construction of new towns may not necessarily outweigh the losses

incurred by their development. Yet many surveys have clearly established the fact that the new-town residents are largely satisfied and willing to pay for the additional time and money spent in commuting.

The Impact of the New Towns on Home Prices in Seoul

The question we want to address is whether the new towns helped stabilize home prices — both purchase price and rents — in Seoul and its vicinity. If the two markets were interdependent and housing products in new towns were substitutable, the impact would be great. If not, the impact would be small and insignificant. A KRIHS survey clearly indicated that the housing market in the new towns was in fact considered to be an extension of the housing market of Seoul¹⁶. This is quite understandable

because the transportation system — the modern transit system and the new highways — makes the new towns easily accessible from downtown Seoul. Actually some new towns like Bundang and Pyungchon are more easily accessible than many parts of the city of Seoul¹⁷. The average price of homes in the city of Seoul sharply declined about six months before the actual occupancy of the Bandung new town in 1993. Further analysis also showed that macro-economic variables such as GDP growth, money supply and inflation played a more important role in the short term but that the quantity of housing supply — mostly the housing units of the new towns — was a more consistent and reliable predictor in the medium and long term. Producing more housing at the right time and place was the proper way to stabilize housing prices¹⁸.

The Impact on Spatial Configuration and Inter-Governmental Relations

Some experts strongly recommended the new-town concept because it could hopefully lead to a correction of the over-concentration problem in the primate city of Seoul through a process of suburbanization. Government officials also argued that a new town development scheme could serve as an effective means to de-concentrate and eventually decentralize the population and industries away from the city of Seoul. Judging from what happened over the last eight to ten years after the introduction of the five new towns, de-concentration in fact occurred, but hardly any decentralization took place. The city of Seoul has witnessed a gradual demographic decline since 1990. Its population increased by 2.3 percent in 1990, but thereafter it declined on average by 0.77 percent every

year until 1999. Between 1970 and 1990, Seoul's population had almost doubled from 5.6 millions to 10.5 millions. The new towns absorbed most of the out-migrants¹⁹. On the other hand, the SMA has consistently been gaining more residents to the extent that 48 percent of the nation's population now reside in the area. The new towns are to some degree responsible for this intensification of centralization since they have provided the necessary housing facilities. Obviously, the migrants from other regions of the country tended to fill the vacuum left by Seoul's out-migrants. The total number of people who moved out between 1990 and 1998 was estimated at close to one million — almost 10 percent of the city's population — but the actual

loss of population was less than 332,000. During the same period, the SMA gained of 2.72 millions new residents. The new town development has clearly helped the outward expansion of the SMA making the nation's spatial configuration even more skewed, in contradiction with the government's avowed support for balanced regional development in the country.

The new towns also had an effect on inter-governmental relations. When it conceived the new towns, the government's original goal was to build complete medium-density new towns that would be physically and administratively independent from the respective local governments in the original sites. The local authorities strongly objected to the plan and made it clear that they would not cooperate if this idea were to be maintained. Objections also came from the developers who wanted to make the most out of the booming housing business related to new-town development. Home-builders claimed that the mass production of multi-family homes was the only way to solve the housing shortage within a short period of time.

Consequently, the concerned local governments benefited almost overnight from large

increases in population and claimed that they would themselves become independent cities, beyond the reach of the Kyunggi provincial government. Actually the population had to reach at least one million to obtain the status of an independent city. The local governments wanted independence because this would make them free not only from interference in municipal affairs by the provincial government, but also from a tax-sharing obligation. The new towns brought in an enormous amount of property tax and the local governments' financial position would improve significantly if they did not have to share these revenues with the relatively poor localities of the province²⁰.

In conclusion, the new towns could help the concerned municipal governments become fiscally wealthy and politically independent. The provincial government would gradually lose its hold over the localities in a shift of power or jurisdiction that could be regarded as a step toward the democratization of the inter-governmental structure. The other correlated effect was the shift of the middle-class families from Seoul to suburbia. This shift of residence helped diversify as well as balance the population make-up of the SMA.

Caveats

New-town development was a successful undertaking from the government's perspective because it was probably the only way to achieve the massive production of housing within a short period of time and address the housing crisis in Seoul. It helped the city attenuate the twin problems of housing shortage and housing price inflation. However, the new towns also had some serious side effects that may serve as a reference for countries involved

in designing or constructing new towns for similar purposes.

Spatial Aspects

The Korean new-town development plan should have been more carefully thought out with respect to its spatial implications. It directly contradicted the long and consistently upheld principle of balanced regional development. Undoubtedly, development intensified

the centralization of population and industries in and around the capital region. Kyunggi province, where the five new towns are located, grew by leaps and bounds, but it experienced consistent sprawling development at the expense of the rest of the country. It also contributed to an extension of Seoul city's outlying residential districts, geographically as well as economically. Clearly the new towns substantially eased the problem of over-concentration in Seoul city, but Kyunggi province had to invest a lot of money for the modernization and expansion of infrastructure facilities out of its own resources.

In addition, the plan was prepared far too hastily with a view to solving only the imminent problem of residential land shortage without due consideration being given to the impact of the new towns on the internal structure of each city concerned. In particular, the old sections of these cities quickly deteriorated while economic activities flourished in and around the centers of the new towns, as in Anyang and Joongdong.

Economic Aspects

The development of the new towns and the plan for the construction of two million housing units plan sparked off excessive investment in construction, resulting in a shortage of construction materials and manpower. The lesson to be drawn is that a policy of new-town development of such a magnitude at the national level cannot be conceived without due consideration to macroeconomic policies and conditions as both interact very closely. Policy-makers must look at urban development policy from a broader perspective, considering all the major factors through which such a policy might influence the national economy. Particularly relevant in this context are pricing policies and credit allocation policies as well as the conventional fiscal and monetary policies.

Aspect of the Development Method

The PPD (Public Purchase and Development) method is rather undemocratic and non-market oriented. Land was acquired by public purchase and fully compensated for at market price. This put an extremely great financial strain on the public developer and was actually an obstacle to sound development. The funds came from the pre-sale of the serviced lots. They represented almost 80 percent of the total investment required for infrastructure development, with the remaining portion shared by the central and local government. This method resulted in land speculation because the developer put the serviced land parcels up for sale to the highest bidders. It made huge profits, much of which was invested in infrastructure facilities, but such a practice exemplifies a typical case of "moral hazard." The job could have been more efficiently undertaken, had the private developers been allowed to compete with the public developer.

Density Aspect

There are too many high-rise buildings in the new towns. Planners suggested low-density and medium-density development. The price of land is often determined by the intensity of its use. Accordingly, land parcels for high-rise condominiums were priced at a higher rate than those used for single-family detached homes. The original price of land was 10 to 30 times lower because it was mostly zoned as a green or agricultural area when it was appropriated for development.

The condominium sale price ceiling system was equally responsible for high-density development. Under this system, the profit margin per unit of housing was relatively low and developers were eager to build as many units as possible to maximize their revenues.

Logically, they preferred high-rise development that allowed mass production. In this way they could significantly reduce production costs.

These two reasons together meant that the new towns had to be high-density towns. The gross density of the five new towns ranged from 18,400 to 39,200, higher than in Mokdong, the most densely developed in-city new town in Seoul. The appearance of the densely developed towns is very monotonous, and lacks diversity and variety. High-density and high-rise development discouraged planners and architects alike, who had long hoped to introduce innovative design concepts into the new towns.

Aspects of Sustainable Urban Development

Finally, but most importantly, the country lost an opportunity to build a "sustainable city" for the future; a city that would be more humanistic, resource-efficient, environmentally friendly, socially cohesive and culturally rich. Policy makers and planners could have experimented with a truly livable city, a city that would help reduce energy consumption as well as pollution and waste.

Clearly the concept of "sustainability" was emphasized and explicitly stated in the urban design plans many years before Agenda 21 was

officially adopted at the Rio Summit. For example, Ilsan enjoys the highest proportion of parks and open spaces, followed by Bundang and Sanbon. Green networks have even recently been established, combining pedestrian roads with bike lanes. In Bundang, for example, any place can be reached through bike lanes that connect the residential neighborhoods with the city center via a scenic river bank.

But traffic is still a problem. Over 60 percent of the new town residents use automobiles for work and shopping. Traffic congestion has become worse, although there have been many citizen-initiated campaigns to reduce the flow of traffic. The core of the problem is the transportation system, which is not well integrated with land use planning. In retrospect, urban designers did not pay much attention to such an integrated approach to community planning. Most of the actions mentioned above are recent initiatives by groups of citizens in the new towns. They are successful because there is strong grass-roots support from the community at large. Early planners and government officials were in fact shortsighted when they disregarded the concept of "sustainability." It took many years for them to recognize the importance of sustainable development, but now oddly enough they act as if they were the forerunners of the "environmental movement."

Notes:

1. Kim Jeong-Ho, " Changing Perspective for Korean Housing Policy, " in Gill Lim, et al., *Dynamic Transformation of Societies* (Seoul: Namam Publishing House, 1993), pp.319-43
2. Kim Jeong-Ho, " Changing Perspective for Korean Housing Policy " , pp.319-43
3. Kim Jeong-Ho, " Changing Perspective for Korean Housing Policy " , pp. 319-43
4. The supply ratio is measured in terms of the number of housing units over that of households.
5. World Bank, *The Housing Indicators Program*, pp. 31-36
- 6 Kim Jeong-Ho, " Changing Perspective for Korean Housing Policy ", pp.319-43
7. Kim Jeong-Ho, " Housing Policies toward the Year 2001, " paper presented at the 12th Congress of EAROPH, " Major Planning Issues in the 1990's: Decade of Turning Point, " Seoul, 1990, pp. 208-35.
8. Kim Jeong-Ho, " Housing Sector Performance Evaluation " in Lee G.Y. (ed.), *Cities and Nation*, Seoul: Nanam Publishing House, 1995), pp. 335-69
9. Kim Jeong-Ho, " Housing Indicator Study, " *An Assessment of Korea's Housing Policy and Future Policy Directions* (Seoul: The Ministry of Construction, 1994), pp. 1-44
10. Kim Jeong-Ho, " Housing Policies toward the Year 2001. "
11. Kim Jeong-Ho, " Housing Policies toward the Year 2001. "
12. Kim Jeong-Ho, " Changing Perspective for Korean Housing Policy. "
13. Kim Jeong-Ho, " Massive Housing Construction Policy: Korean Experience, " unpublished mimeo), January 1999.
14. Kim Jeong-Ho, " Housing Indicator Study. "
15. Under the *chonsei* system, a tenant pays a lump sum of key money to the landlord, which is fully returnable to the tenant when the tenant moves out. *Chonse*i money may amount to as much as 50 to 70 percent of the market value of the rental unit. The monthly rent is equivalent to the interest foregone from the key money. From the homeowners' perspective the *chonsei* is a form of financing a new home purchase as they cannot easily secure funds from private financial institutions. And from the tenants' point of view it serves a means to save funds for future home purchase. The *chonsei* deposit grows as a tenant moves upward and ultimately is able to purchase a home once the *chonsei* deposit has accumulated sufficient interest. In recent years, however, the system has gradually been replaced by the monthly rental system, largely because people can have a better access to formal credit through financial institutions.
16. Kim Jeong-Ho, " Changing Perspective for Korean Housing Policy. "
17. Kim Jeong-Ho, " Housing Sector Performance Evaluation. "
18. Kim Jeong-Ho, " Changing Perspective for Korean Housing Policy. "
19. Shin J.C., *Shintoshi kabal-e joughap pyungka* [A Comprehensive Evaluation of New Town Development, Korea Land Development Corporation] (Seoul: Korea Land Development Corporation, Kyungki-do, 1999).
20. Kim Jeong-Ho, " A Comprehensive Overview of Housing Policies " .



INDONESIA



JAKARTA

<i>Size of the country</i>	1 919 300 km²
<i>Climate</i>	Tropical and equatorial
<i>Population</i>	212 M
<i>Population density</i>	110 inhab/km²
<i>Population growth rate (1993 – 1999)</i>	1,6%
<i>Part of urban population</i>	35%
<i>Life expectancy at birth</i>	65
<i>Infant mortality (per 1000 live birth)</i>	43
<i>Access to improved water sources (% of population)</i>	62
<i>Ethnic groups, their percentages in the population</i>	Javanese: 60%, Chinese: 5%
<i>Official languages</i>	Bahasa Indonesia
<i>Religions</i>	Islam: 87%, Christian: 9%, Buddhism: 2%
<i>Gross domestic product</i>	120 billion USD
<i>Gdp per capita</i>	580 USD
<i>Inflation</i>	6,3%
<i>Gdp growth rate</i>	6,8%
<i>Gdp repartition in different sectors</i>	Agriculture: 17,4%, Industry: 43,1% (manufacturing: 25,4%), services: 39,5%.
<i>Unemployment rate</i>	20% (1998)
<i>Tourism</i>	6M visitors (1997)
<i>Population of the urban area of Jakarta</i>	10,6 M

JAKARTA, PARASITE CITY AND CITY OF PARASITES

AGUS Budi Purnomo
Center for Urban Studies
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Introduction

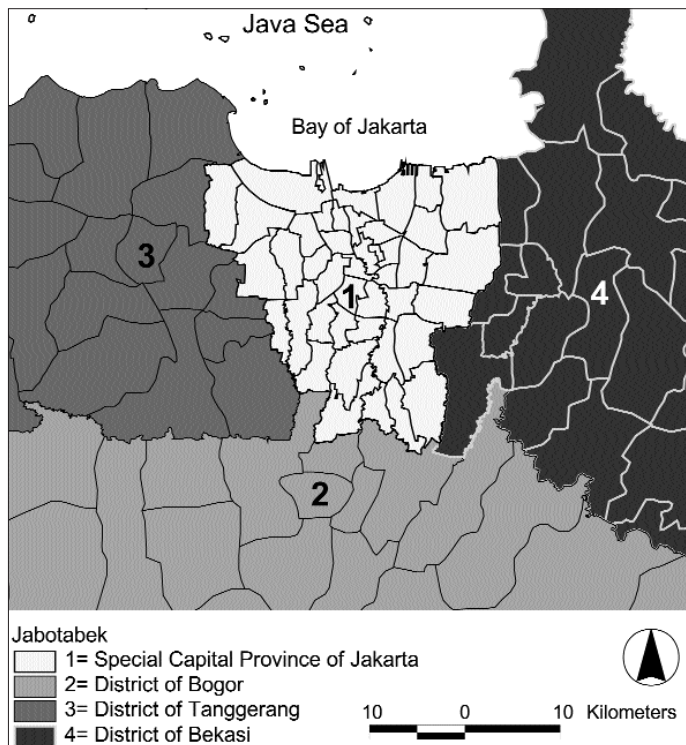


Figure 1: Jakarta as a part of Jabotabek (Jakarta, Bogor, Tangerang and Bekasi)

Jakarta is the capital city of the Republic of Indonesia. It is located on the western part of the Island of Java. To the north, Jakarta is bordered by the Java Sea, and to the south, it is bordered by the District of Bogor in West-Java Province. To the west and east, Jakarta is bordered respectively by the District of Tangerang (Banten Province) and the District of Bekasi (West-Java Province). Along with Jakarta, these districts presently form an agglomeration known as Jabotabek, the abbreviation for Jakarta-Bogor-Tangerang-Bekasi (Figure 1).

In 1997, the population of Jakarta was 8,853,102. The total area within the jurisdiction of the Provincial Government of the Special Capital Province of Jakarta covered 692.20 sq. km.

Jakarta has received several names intended to reflect its characteristics. In the 18th century, Batavia, as the city was then known, was called "the Queen City of the East." At that time, its perimeter did not extend further than 3 kilometers from its center. Beyond that perimeter, the city was surrounded by rice fields, fruit orchards and sugar-cane fields¹.

In 1950, immediately after the independence of the Republic of Indonesia, Jakarta was known as the "Big Village." The nickname described the Jakarta of that era as a village or "Kampung" rather than a city. In the fifties Jakarta was as yet more rural than urban. In other words, while farming was not so predominant, it was still present in Jakarta².

In the 1990s, Jakarta came to be nicknamed "Service-City." This name designated a city in which service activities outnumbered productive activities. Even when the latter existed, they primarily took the form of secondary production where the basic inputs such as food came from outside the city. These nicknames show that Jakarta was moving from the condition of a self-sustaining city to that of a city dependent on external resources.

Since the 1950s, Jakarta has been undergoing rapid urbanization. From several studies, it appears that, ever since that time, Jakarta has faced various housing problems such as squatting, slums, encroachment on the hinterland, and industrial and domestic

waste. For example, the rapid population increase has forced the municipal government to turn cultivated land into housing, thus decreasing the city's capacity to provide food for its inhabitants. Another example is the unplanned expansion of slums, which has prevented the development of an infrastructure for waste management. Because of poor waste treatment in these slum areas, pollution of the shallow underground water is increasing, thus reducing the ability to provide safe drinking water to the population⁴.

The trend shows that Jakarta has now become less sustainable than in the past. Due to rapid urbanization, not only have the needs of its population increased but it has also jeopardized its own ability to produce such essential goods as food. Jakarta does not produce enough for its own needs but has to drain it from other places. This is truly characteristic of a parasitic nature. The following case studies will examine several aspects of this parasitic nature.

Case Study 1: The Ability of Jakarta to Feed its Population

In this section, we seek to understand whether Jakarta, if left to itself, could meet the needs of its population. To answer this question we shall turn to the concept of the ecological footprint. Ideally, the concept itself is based on the complete accountability of material processes in a given ecological entity⁵. However, due to data limitation we were only able to use two factors to calculate the ecological footprint of Jakarta. These two factors are food and non-food consumption and production.

According to these data, Jakarta should have ten times its present land area if it is to be capable of providing for the needs of its popu-

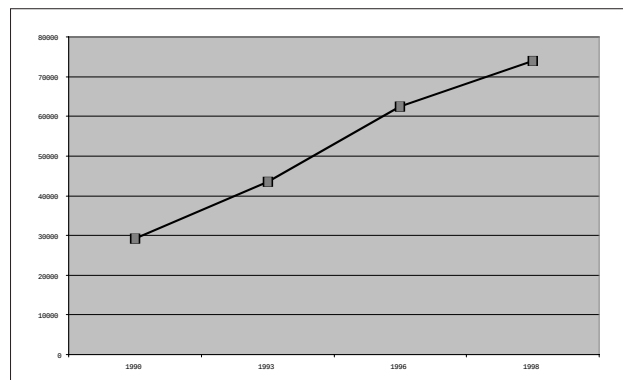


Figure 2. Ecological footprint of Jakarta (1993-1997).
Unit: sq. km

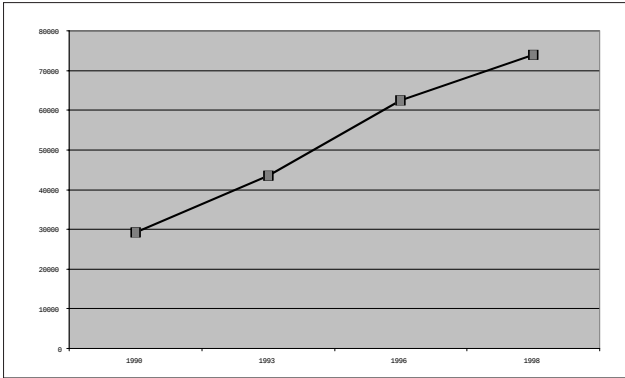


Figure 3. Food Consumption (1993-1997).
Unit: (in terms the rates of Rupiah against US\$ in each year and standardized to 9000 Rupiah/US\$ in 1999).

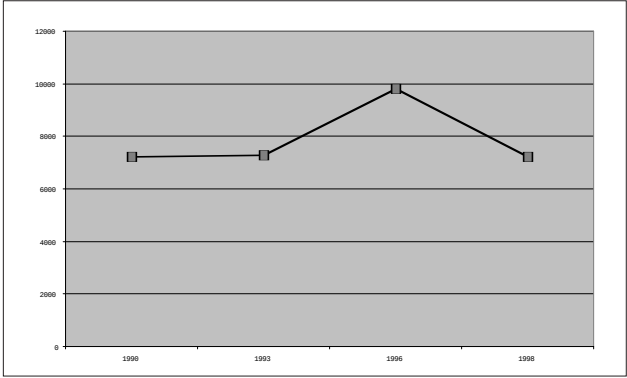


Figure 4.: Food Production (1993-1997).
Unit: billion of Rupiah, standardized for each year at the rate of 9000 Rupiah/US\$ in 1999

lation (Figure 2). The largest portion of that land would have to be devoted to food production. What makes the situation worse is that, from year to year, per capita food consumption is increasing while production capacity remains

unchanged (Figure 3 and Figure 4). Therefore, we may conclude that Jakarta itself cannot feed its population. To a large extent, it must depend on outside sources.

Case Study 2: Encroachment on the Hinterland

Jakarta has the advantage of a hinterland that is very rich in resources and includes Bogor, Tangerang and Bekasi, and the four districts known as Jabotabek. Although it cannot provide for the needs of its population, Jakarta still can rely on its hinterland. Therefore, the next question is whether Jakarta is maintaining its hinterland so as to meet the future needs of its population. The answer is uncertain. Since the 1950s, Jakarta has been encroaching on its hinterland.

From the data it appears that the area of the rice-fields in Jabotabek has been decreasing at an average rate of 2725 hectares per year in the vicinity of Jakarta (Figure 5). The data also show that densely inhabited sub-districts (DIS) have been spreading at the rate of 1600 hectares per year (Figure 6). The remaining loss of 1125 hectares of rice-fields per year has to be accounted for by other functions such as industries and highways. We can therefore also conclude that the spatial spread of Jabotabek has been affecting the potential and capacity for food production in Jakarta's hinterland.

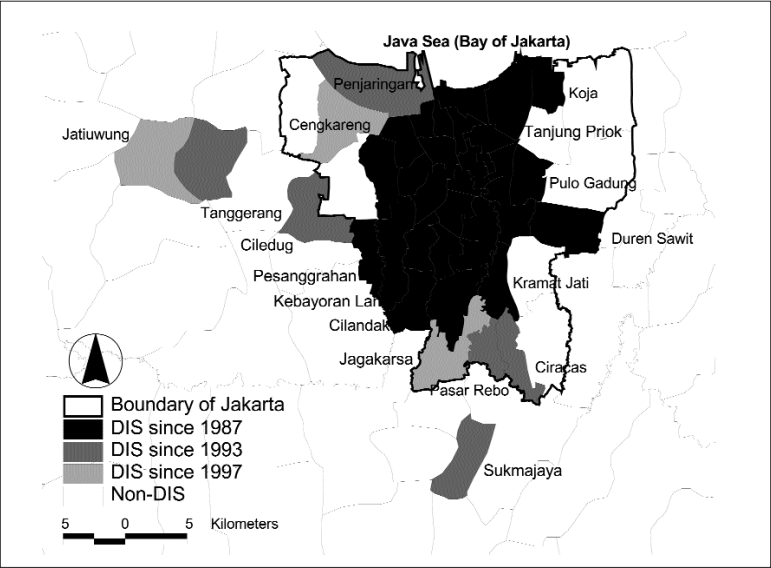


Figure 5. The Receding Rice-fields in Jakarta's Hinterland

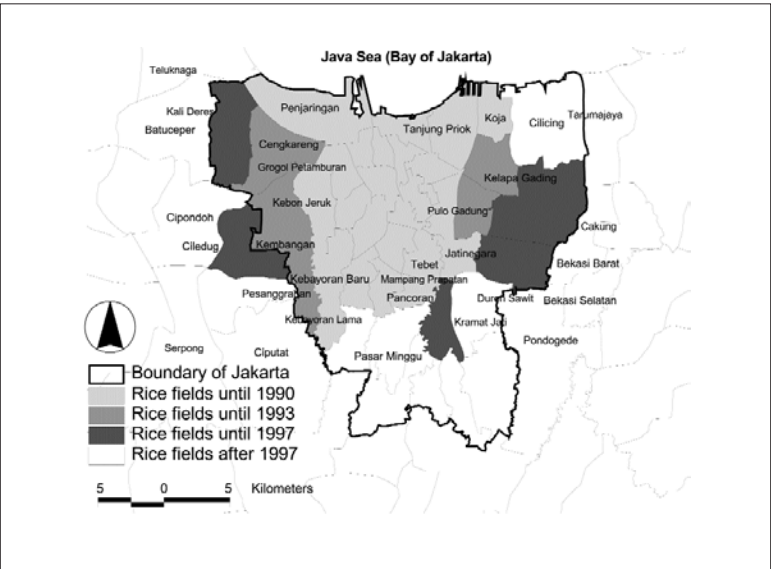


Figure 6. The Expansion of Densely Inhabited Sub-Districts (DIS)

Case Study 3: Slum Areas in Jakarta

In Java, the per capita amount of farmland has become too small to produce enough goods to support the livelihood of farmers⁶. Small farmers in rural areas have found it more profitable to go and work in the city than to till the land. Endowed with huge capital resources, a large city like Jakarta attracts people from the rural areas. The centralized development policy of the New-Order regime has reinforced this tendency. However, the movement of the population from the rural areas has not been balanced by the proportionate creation of new job opportunities. The difficulties are compounded by the fact that the people who come from the rural areas do not possess enough education and skills to compete for good jobs in the city. Most of them try their luck at making a living in the informal sector. Since they earn low wages, they usually live in informal housing and slums. The living conditions in most of this informal housing are usually

below standard. For instance, most shelters and lodgings in slum areas do not have adequate clean-water and waste disposal facilities.

In Jakarta, an area can be categorized as a slum if it has a high density of population and consists mainly of houses built of non-durable material without adequate streets, water supply and a sewage system. Furthermore, an area can be categorized as a slum if it has developed without the permission of the municipal government. In other words, a slum is generally an illegal settlement. Figure 7 shows the distribution of slum areas in Jakarta in 1996. Several sub-districts have a high percentage of slum areas. The majority of slum areas are concentrated in the Kalideres, Cengkareng, Pademangan, Senen, Cilincing, Cakung, Jatinegara, Kebayoran Lama and Jagakarsa sub-districts. These sub-districts are located on Jakarta's east-west and north-south axes.

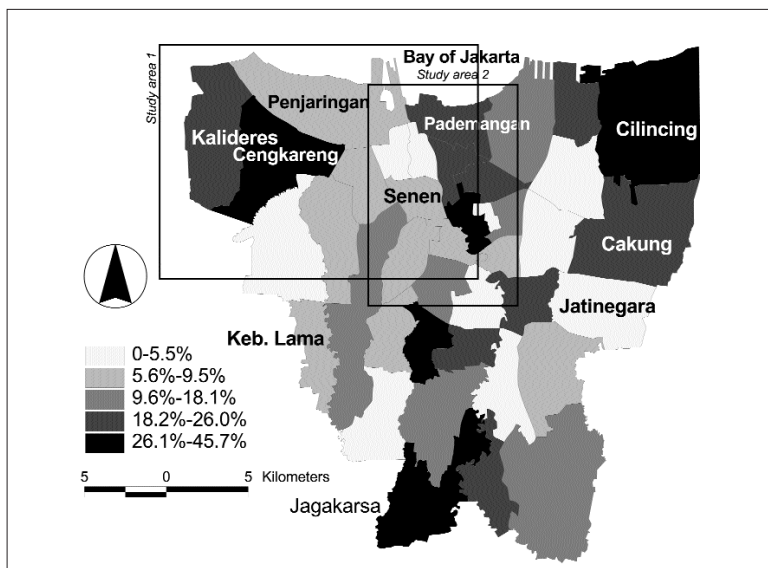


Figure 7. Percentage of Slum Areas in Jakarta (1996)

Case Study 4: Seawater Intrusion and Underground Water Pollution

In the previous case studies, we have discussed the impact of Jakarta on its hinterland. In the following section, we shall ask whether the population maintains the resources that exist within Jakarta itself. From the available data, we can state that at the micro level the inhabitants are not preserving existing resources. Two examples will illustrate this statement. The first one is the problem of the intrusion of seawater and the second one is the pollution of underground water.

The major sources of water in Jakarta are precipitation and surface water. In the past, it was assumed that the underground water of Jakarta had its source in the Bogor, Puncak and Cianjur regions (known as Bopuncur). However, more recent geological data have established the existence of a fault line between the underground water system of Jakarta and that of the Bopuncur region.

Although there are laws that regulate the surfacing of land with non-porous materials (such as concrete and asphalt), they have failed to prevent the increase of non-porous surfaces in Jakarta. Consequently, the covered surfaces have prevented precipitation that would renew the underground water system of Jakarta. According to existing regulations, any activity that implies the tapping of underground water requires due permission from the municipal government. Taxes for tapped underground water should be paid accordingly. However, in practice, the inhabitants of Jakarta hardly abide by this regulation, especially in the slum areas. According to a study conducted by a team of researchers from the Bandung Institute of Technology, there is a correlation between population density and the depletion of the groundwater table⁷. The maps in Figure 8 and Figure 9 shows that, during the 1995-1999 interval, there was a steady decrease in the water table in Study

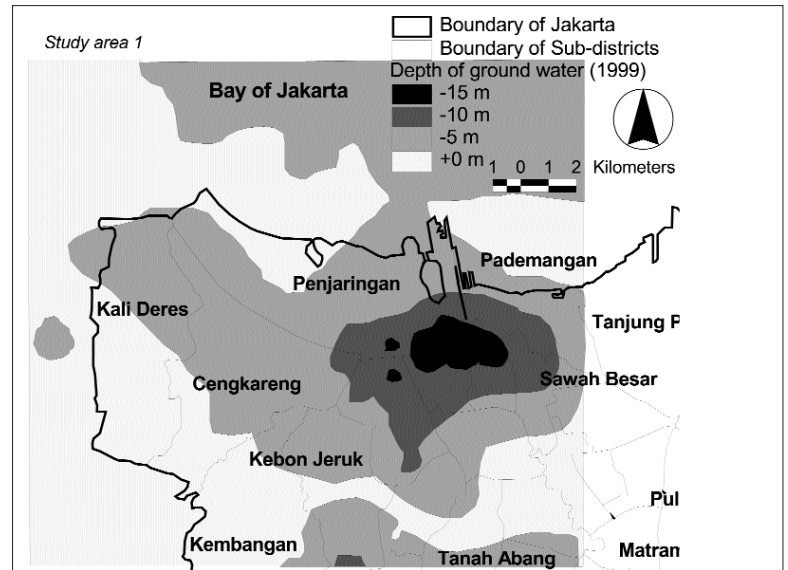


Figure 8. The Contour of the Groundwater Table in 1995

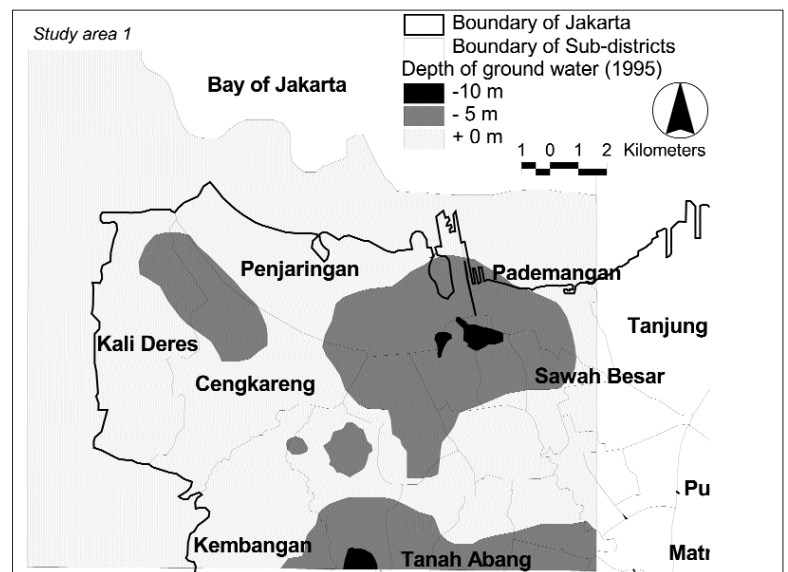


Figure 9. The Contour of the Groundwater Table in 1999

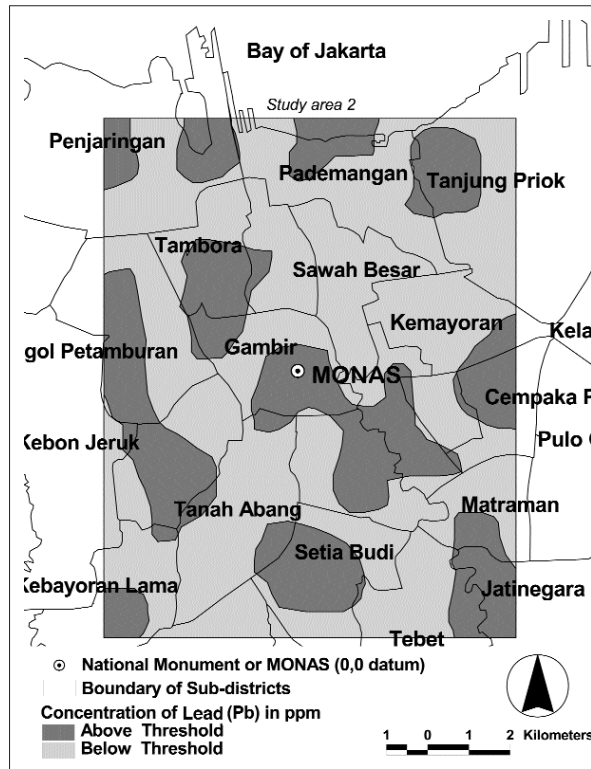


Figure 10. Pollution of Underground Water Sources by Lead (Pb)

Area 1 (Figure 7). Finally, in 1999, the pressure of underground water gave way to sea water, thus opening the groundwater enclosure to sea-water intrusion and destroying Jakarta's capacity to provide fresh water for its inhabitants.

There is no integrated waste-treatment system in Jakarta. Of the waste produced by households, 90 per cent is treated locally and individually by using seepage septic tanks. According to existing regulations, every industrial entity should treat its own wastes before discharging them into the environment. Yet, waste treatment operations are often considered as being too expensive. In practice, many factories simply do not operate a waste-

treatment plant. The most direct consequence, which was confirmed by the study of Erwin et al. (1996), is the pollution of Jakarta's underground water by heavy metals such as lead, mercury, manganese, etc. The maps in Figure 10 and Figure 11 show the location of Study Area 2 where the lead and manganese content in the water tapped underground is above the minimum permissible level for human consumption. From these data, we conclude that, internally, the city not only has limited sources, but it is not maintaining the quality and durability of these limited sources.

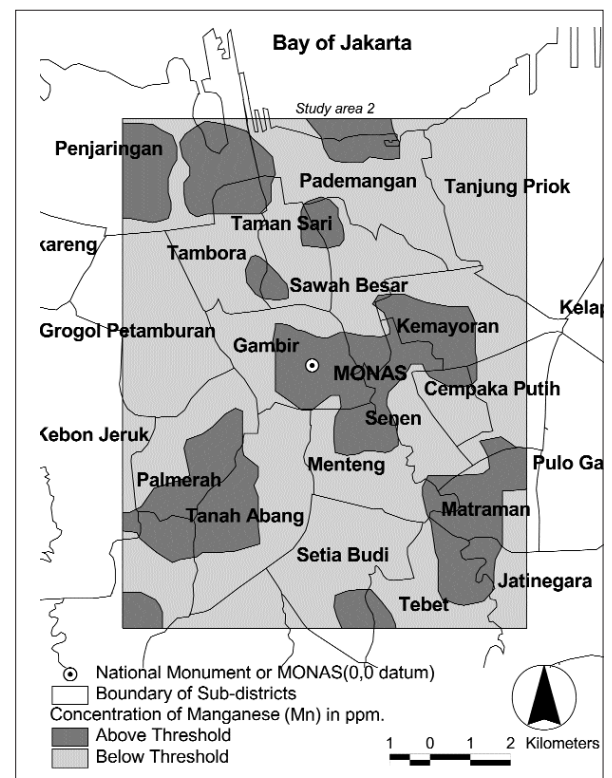


Figure 11. Pollution of Underground Water Sources by Manganese (Mn)

Implementing a Policy of Sustainable Development

The environmental problems that Jakarta is facing can be stated in terms of land ownership policy, environmental management and urban development. The existing legal tools are inherently related to these three aspects. Yet, the ideals and norms they embody fail to be matched by a corresponding rigor in their implementation. This results in expanding encroachment on farmland and deteriorating environmental conditions in Jakarta.

In the history of Indonesia, land has been one of the most important determinants of politics and development. In the past and in the present — this may hold true in the future — land has been closely related to wealth. In the past, the ownership of land in Indonesia was not evenly distributed. Some people owned large tracts of land that were worked by landless peasants. One of the proclaimed ambitions of Indonesian independence was to free humankind from the exploitation of man by man. In this spirit, in 1960, fifteen years after the declaration of independence, the Basic Agrarian Law (UUPA No. 5/1960) was promulgated and immediately became the basic text for the regulation of land use and ownership. The aim of UUPA No. 5/1960 was to limit land ownership and distribute land to the people. The adoption of UUPA No. 5/1960 can therefore be considered as promoting a land-reform movement. The intention of the law was to return the land to those who tilled it. In the 1960s, the Indonesian Communist Party (PKI) actually linked the law to the proletarian revolution. The party used UUPA No. 5/1960 as a political tool to reach the hearts of the landless peasants. UUPA No. 5/1960 also served as a pretext in many cases of land seizure. At that time most local governments, as landowners, often became the targets of land occupation. Therefore, in the 1960s UUPA No. 5/1960 had become the symbol of the proletarian movement.

After the military coup in 1965, the New Order regime (Orba) postponed the implementation of UUPA No. 5/1960. However, the regime did not transfer the regulatory functions of UUPA No. 5/1960 to any other law. There was thus a very opaque form of land management in the era of New Order regime. Land became a commodity and an object of speculation. For almost two decades, the New Order regime ignored land issues. Instead, it put the emphasis on the process of industrialization. Only after two decades in power did the regime realize that even the development of industries required land. Unfortunately, the commercialization of land had produced new land problems in Indonesia. In a large city like Jakarta, the provision of land for development had become very complex. Instead of reviving UUPA No. 5/1960, the New Order regime started converting farmland outside the city into land for other activities such as industries. This policy spurred the phenomenon of farmland encroachment that was discussed in the previous sections.

In the 1980s the transformation of land at the periphery of the city generated a "city-bias" phenomenon. Farmland was sold by the farmers to urban residents and, inevitably, farmers joined in the movement of in-migration from the rural areas to the city. The influx of low-quality labor from the rural areas to the city was the most direct cause of the development of an informal economy and the proliferation of sub-quality housing. Since UUPA No. 5/1960 prohibited the transfer of ownership of farmland to people living in the city, the city bias may have been averted if the New Order regime had not postponed the implementation of the law. If UUPA NO. 5/1960 had been implemented in accordance with its true spirit of fair distribution of land ownership, it could have prevented the process of land hoarding. In other words, the implementation of UUPA No. 5/1960 could have prevented — or at the very least limited — the encroachment on fertile farmland by housing and industries.

Another failure of the New Order regime was its emphasis on industrialization. The regime considered industrialization as the mainstay for growth-oriented development. In the first two decades of the regime, environmental issues were simply neglected. At that time, the perception that Indonesia was endowed with rich natural resources determined a policy of exploitation and utilization of these resources to the fullest extent possible for the sake of economic growth. This perception is at the root of today's numerous environmental problems. In the hinterland of Jakarta, the growth-oriented policy of the New Order regime has contributed to further encroachments on fertile farmland. In the inner city, the absence of environmental monitoring and standards caused serious air, water and land pollution. All the issues discussed in the previous section can be seen as one of the results of an over-emphasis on sheer growth. Before 1982, the only law that catered to environmental issues was the "Hinderordonatie" passed in 1940 and "Reglement" N° 341 passed in 1930. The then Dutch colonial government enacted both laws. Since the law focused on the visible environmental obstacles, it could not deal with the unperceived but increasing threats posed to the environment such as ground-water pollution. In 1982, Law N° 4 on environment management was adopted. The new law stated that every human activity should be based on the effort to establish environmental sustainability. However, the law did not mention how sustainable activity should be achieved. The text actually had two shortcomings. First, it only dealt with definite cases. It did not deal with the cumulative effects of an activity over time and their potentially negative impact on the environment. For this reason, in 1986, the Indonesian Government introduced Government-regulation N° 29. The regulation stated that, in order to promote a sustainable environment, every activity should be based on an analysis of environmental impact (AMDAL).

The analysis should give a detailed description of the possible impact of the activity on the environment. It should also include a prediction of the cumulative effects of given activities on the environment. Second, the 1982 law only addressed activities or environmental cases that were formally reported. The law did not take note of the fact that in Indonesia informal activities took precedence over the formal sector. For instance, due to rapid immigration to urban areas, informal housing often represented 85 per cent of the available housing. In Jakarta, this figure could reach 95 per cent. In relation with the informal sector, although the government has adopted various formal environmental standards and measures, law-enforcement can only be based on the awareness of the population at large. Therefore, in Indonesia, any improvement in environmental problems depends more on how education will succeed in promoting environmental awareness among the people. With the regular influx of less educated people into Jakarta, this issue has become a crucial challenge for the local government.

Another problem that Indonesia has to face is the difficulty of monitoring the environmental process. The 1982 Law and the 1986 Government Regulation clearly state that environmental monitoring should be performed by government institutions. It excludes monitoring by NGOs or by citizens at large. With limited resources, the government has neglected to carry out careful and continuous environmental monitoring. Consequently, most environmental problems come to be known only after it is too late for a satisfactory solution. With serious and regular environmental monitoring, heavy metal pollution and the intrusion of seawater into the ground-water table in Jakarta could have been identified and prevented well before the studies mentioned in the previous section made them obvious.

The main law that regulates urban development in Indonesia is Law N° 24 that was passed

in 1992. The law is the reference for the planning and management of space utilization in Indonesia. The term "space" herein covers not only land, but also the air space and the sea. Briefly, the 1992 law states that the utilization of space should be managed so that it is sustainable. Therefore, the idea of sustainable development exists within the law. After the introduction of Law Number 24/1992, every city in Indonesia was required to base its urban development plan on the provisions of the new regulation. Theoretically, therefore, urban development in Indonesia would be based on the idea of sustainability. However, some cities like Jakarta already had their own urban development plans. They therefore had to revise these plans. The modification of the development plans to make them conform to the ideal of the law was not an easy task. The required changes could disturb on-going developments. In Jakarta, the provincial ordinance for the regulation of urban development between 1991 and 2005 (RBWK 2005) had been adopted in 1990⁹. Therefore, RBWK 2005 could not be fully modified. For example, RBWK 2005 emphasized that development should be oriented along an east-west axis. In RBWK 2005, development along the north-south axis was to be limited. At that time, the hinterland south of Jakarta was considered as a source of water for Jakarta and the area had to be protected against urban development. The coast along the Bay of Jakarta in the north was considered as a waterway that needed to be preserved for the prevention of floods. However, the emphasis on the development of the east-west axis did not allow for the fact that the food-producing farms were actually located along this axis. At present, due to this emphasis on development along the east-west axis, fertile land has been transformed into dormitory towns for Jakarta's inhabitants. The encroachment on rice fields discussed in the previous sections can be traced to the provisions of RBWK 2005.

Another shortcoming of RBWK 2005 is its exclusionary nature. RBWK 2005 prohibits the mixed-use developments that generally characterize a compact mode of development. Consequently, the nature of urban development in Indonesia does not follow the principle of a compact city. The urban texture of Jakarta tends to be loose and to utilize all the possible and available land for development. The loose and exclusionary characteristics of urban development have led to urban sprawl in Jakarta. Finally, the priority given to the east-west axis made this sprawl eat up large tracts of productive farmland.

Monitoring the implementation of RBWK 2005 is another problem that the municipal government of Jakarta has yet to face squarely. According to the regulation, one of the functions of the municipal government is to monitor its implementation. However, limited human resources have hindered the monitoring process, and the ideals embodied in RBWK 2005 have often been compromised. For example, although it is stated that development along the north-south axis should be limited, the municipal government, in practice, has approved housing construction and other urban development projects along this axis. The development of the Bay of Jakarta Water-Town is an example of how RBWK 2005 has been ignored¹⁰. The development of much elite housing in the southern part of Jakarta is another case of violation of the provisions of RBWK 2005.

The municipal government had already laid down many environmental standards and procedures to monitor the implementation of RBWK 2005. For example, the Governor Decree Number D IV-a (12/1/49/1974), introduced as early as in 1974, laid down that every activity that tapped water from the ground should be reported and recorded in the municipal government office. Tapping underground water is subject to the payment of a tax that depends on the depth and quantity of the water to be tapped. In practice, cases of the tapping under-

ground water have seldom been reported. This means that little tax has ever been derived from such activities. Excessive tapping is never fully monitored. The intrusion of seawater into the underground water table examined in the previous section has its roots in the excessive tapping of ground water in Jakarta.

RBWK 2005 is also designed to regulate land coverage. For example, the limitation of Building Coverage (BC) and Floor-Area-Ratio (FAR) are a mechanism through which RBWK 2005 was to limit the coverage of land surface in order to ensure that rainwater could seep down and renew the underground reservoir. In practice the objectives of RBWK 2005 have never fully materialized. Building Coverage has often been compromised. For example, due to the lack of monitoring in the construction process, building basements usually trespass beyond the limits of the visible ground floor, thus enlarging the actual building coverage. The prescribed Floor-Area-Ratio is another mechanism that is often violated by developers. With its orientation on growth, the New Order regime has tended to be very lenient about violations of the Floor-Area-Ratio standards by large developers. For example, a developer may readily agree to pay fines in exchange for having violated the Floor-Area-Ratio standards. Whether this can be seen as a contradiction or not, there is a government regulation in Jakarta by which

permits are issued for buildings that violate the Floor-Area-Ratio standards in return for the mere payment of a certain fine. Fines, however, are considered to be different from taxes. Taxes should always be recorded in the government accounts, while fines can go completely unrecorded. Therefore, fines are liable to lead to corruption, thus further weakening the monitoring process.

From the discussion on the development policy and its implementation in Jakarta and Indonesia at large, a connection can be established between urban development and the related factors of land and environmental policy. First, the postponement of UUPA Number 5/1960 left the uneven distribution of land unaltered and contributed to more rural-urban disparities. As a result, the rural population began to migrate to the city and add to the population problems that large cities like Jakarta were already facing. Compounded with inadequate environmental monitoring, the slum areas that were formed with the influx of the rural population to the city greatly increased local environmental problems. The growth-oriented development policy favored industrial rather than agricultural development. Opening land to urban development initiated a process of extensive encroachment on the most fertile farmland around Jakarta further diminishing the food-producing potential of its hinterland.

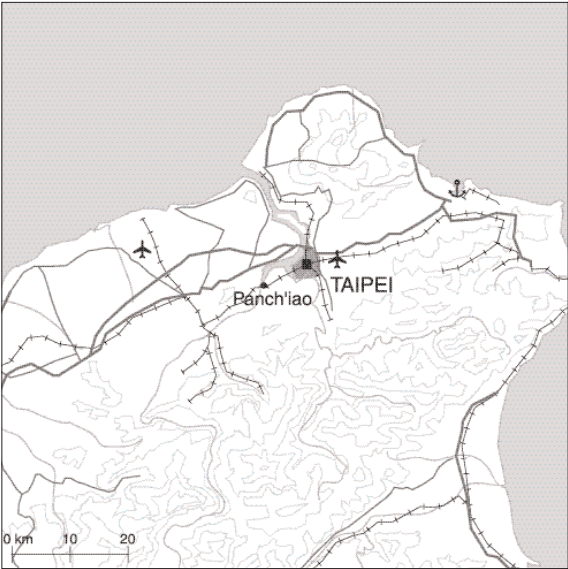
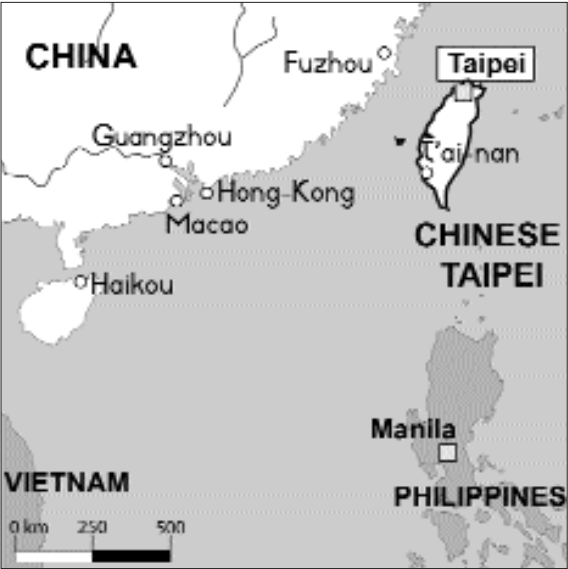
Conclusion

From the previous discussion, we can conclude that, like any other city, Jakarta has lived above its means. Jakarta has been spreading over its hinterland and polluting itself. These facts alone suffice to label Jakarta as a parasitic city and a city of parasites. We should examine whether there were any efforts made to maintain the resources that exist in Jakarta and its hinterland. The local and national authorities have acknowledged the need for a form of sustainable development, which they have enshrined in their development policy and in laws meant to protect the land and the environment. Yet, Jakarta's authorities have not fully complied with the policies designed by themselves. Unless Jakarta implements a vigorous policy of sustainability, it may turn itself into a parasitic city and a city of parasites.

To break the self-defeating cycle of growth, land encroachment and slum expansion, several options lie at hand. First, UUPA Number 5/1960 should be revived and fully implemented in accordance with its original spirit, i.e. the distribution of land to those who till it. Second, environmental policies and regulations should be implemented in earnest. The inherent limitations of government institutions that have hindered the full implementation of environmental policies should be counter-balanced by participation by the community at large. Third, urban development should be based on a balance between a growth-oriented approach and resource conservation concept. One can hope that, through such measures, Jakarta will begin to live within its means and stop polluting and encroaching on the environment.

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10. The Water-Town project was not in the 1991-2005 urban-area-plan. The project was imposed by the New Order Regime. The regime only cared for its potential economical benefits but it ignored its environmental consequences like flooding.



CHINESE TAIPEI

TAIPEI CITY

<i>Size of the country</i>	<i>36 000 km² (64% covered by mountains)</i>
<i>Climate</i>	<i>North: subtropical, South: tropical</i>
<i>Population</i>	<i>22,3 M</i>
<i>Population density</i>	<i>619 inhab/km²</i>
<i>Population growth rate</i>	<i>0,8%</i>
<i>Part of urban population</i>	<i>77%</i>
<i>Life expectancy at birth</i>	<i>Male: 72, female: 78</i>
<i>Infant mortality (per 1000 live birth)</i>	<i>5,6</i>
<i>Ethnic groups, their percentages in the population</i>	<i>Han: 85%, Chinese arrived in 1949: 14%</i>
<i>Official languages</i>	<i>Chinese</i>
<i>Religions</i>	<i>Buddhism: 4,9M, Taoism: 3,9 M; Christian: 0,7M, Islam: 0,05 M</i>
<i>Gross domestic product</i>	<i>320 billion USD</i>
<i>Gdp per capita</i>	<i>14 526 USD</i>
<i>Inflation</i>	<i>1.8 %</i>
<i>Labor forces in different sectors</i>	<i>Agriculture: 8%, Industry: 37%, Services: 55%.</i>
<i>Population at work</i>	<i>9,7 M</i>
<i>Unemployment rate</i>	<i>2,8%</i>
<i>Tourism</i>	<i>2,4 M (1999)</i>
<i>Population of Taipei</i>	<i>3M, metro: 11M</i>

SOCIAL INCLUSION/EXCLUSION IN A SUSTAINABLE CITY: THE HOUSING PROBLEM OF “ URBAN INDIGENOUS PEOPLE ” IN TAIPEI

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Introduction

This paper is divided into three sections. The first provides a general evaluation of sustainable development and social inclusion/exclusion in Taiwan. The second section focuses on the housing question of the so-called “ urban indigenous people ” in an attempt to address the issue of social inclusion/exclusion in metropolitan Taipei. The last section discusses the issue of social inclusion versus social exclusion in identity politics and globalization in a more theoretical framework.

In the 1990s, most planners have adopted the definition of sustainable development laid down in the 1987 Brundtland Report: development that meets present needs without compromising the ability of future generations to achieve their own needs and aspirations. Even at that level, however, Peter Hall reminds us of the ambiguity of the goals of the sustainable city and the controversial processes of transla-

ting them into actual contexts while avoiding the NIMBY (Not In My Back Yard) trap¹. Manuel Castells divides environmental movements according to two different perspectives and identities: the search for the control of space and the search for the control of time. The defensive spaces of the NIMBY movement lead to collective individualism, whereas the offensive timing for the preservation of nature for future generations over very long periods as opposed to the instant time approach of instrumentalist development, and the sustainability of the environmental movement pave the way for reconciliation between culture and nature, thus introducing a new holistic philosophy of life². The real differentiation lies in actual practice. The challenge is that of policy formation for a sustainable city. In other words, implementation is the critical element leading towards the sustainable city.

The Conditions of Sustainable Development and the Sustainable City in Taiwan

If Peter Halls comments are taken as criteria, it is seen that sustainable development in Taiwan is just in the early stage of scholarly research. Sustainable development has been an alternative to the dominant values legitimized by the developmental state for more than thirty years. The ideas of sustainable development are promoted in numerous conferences held on campus. Some technocrats discuss visions and strategies for the initial stage. A three-year research project on the measurement of sustainable development supported by the National Science Council was undertaken in 1999. The evaluation systems and indices are rationalized, differentiated and calculated by different teams working on environmental and ecological resources, on social, economical, urban, institutional, and informational systems.

From the preliminary results of research on sustainable Taiwan, it appears that most of the development trends have clearly deviated from the course of sustainability. The increasing rate of car ownership in three major metropolitan areas is a case in point³. Even the disparity between the rich and the poor has been increasing since 1997, due to irrational tax regulations and speculation on the land and stock markets⁴. This is a warning to Taiwan's model of economic development. In fact, the *Living Planet Report* of the World Wild Fund has examined global consumption patterns for a few critical resources. The report shows that the per capita consumption pressure on natural resources in Taiwan is 3.42 times higher than the world average and ranks second on the global list. It is even higher than in the United States⁵. It is no surprise that the data of the Healthy City Survey an operation promoted by the World Health Organization since 1985 on 23 cities and countries comes to the same conclusions. The survey

was published in *Kangjian* (Health), one of Taiwan's leading magazines. The places that enjoy a better natural environment have difficulties in economic performance, while the places with better economic performance are subject to insecurity and unhealthy lives⁶. The contradiction is deeply rooted in Taiwan's model of development.

As for an assessment of policies of sustainable development, there is hardly anything worth our consideration, even in a "primate city" like Taipei. Some local policies may be considered to contribute to the goal of sustainability. However, they belong more to the register of well-intentioned ideas, like the extension of the green city project with greening fingers from the surrounding mountain areas into urban areas, than to the realm of well thought-out strategies⁷. It is difficult to evaluate the contents and possible impact of such policies. We shall argue that it does not even make sense to implement these policies, although implementation is precisely the most critical stage for any policy meant to create a sustainable city.

A new policy deserves special mention: that of the "per bag trash fee" policy in Taipei City. Since 1 July 2000, the municipality has been implementing a new scheme for the collection of trash fees. Whereas the original trash fees were charged to the water bill, it is now collected on a per bag basis. The purpose of the "per bag trash collection fee" is to use a volume-based fee to promote "trash reduction" and "recycling" in order to make Taipei a cleaner city. In fact, considering the embarrassing record of state policy implementation in Taiwan, the political risks for the mayor were high. Nobody could foresee the effects before the actual implementation of this policy. Although it has only been in practice for

three months, it has so far been successful. The volume of trash has decreased by 38 per cent and recycling has increased by a staggering 400 per cent. Illicit dumping now represents less than 0.5 per cent of the total volume of garbage. The increased amount of recycling is significantly higher than expected. The pressure on the Department of Environmental Protection of Taipei City has become more

severe. The next target will be to reduce kitchen-trash to 600 tons from its current level of 900 tons per month. In the near future, lessons may be drawn from these experiments and shared with other cities. This is only the first step toward a sustainable city, but undoubtedly a critical one for Taipei City. Hopefully, Taipei residents will continue to be responsible citizens.

Economic Growth and Social Inclusion/Exclusion in Taiwan and Globalization

If we look at economic performance and the issue of social inclusion/exclusion, it would seem at first glance that Taiwan's model of development has brought apparent advantages. Even as recently as in the mid-1980s, Taiwan's low Gini index was one of the most striking signs of the "Taiwan Miracle." Yet a new trend of social fragmentation has been emerging in the last few years. On the one hand, the 1990s have seen the globalization of Taiwan's economy. The dense connections between Silicon Valley, Taipei-Xinzhu (Hsinchu), and the mega-cities along the Chinese coast form inter-related segments of the global international production networks of the electronic industry⁸. On the other hand, the territorially defined labor market is also changing. A recent survey on household income in Taiwan by the Auditing Department of the Executive Yuan showed that the annual income of university post-graduates (Masters or Ph.D. level) had increased by 8.67 per cent in 1999 and amounted to NT\$ 1,036,554 (about US\$ 34,000). It was much higher than the income of Bachelor-degree holders (NT\$ 790,358, or about US\$ 26,000) and those with elementary school education (only NT\$ 342,083, about US\$ 10,000). Income disparity based on education level is

widening rapidly. In addition, both uneven distribution across ages and uneven development among regions have been on the increase in recent years⁹. This phenomenon marks the beginning of a profound social and economic transformation in Taiwan under the impact of globalization.

This evolution is a real challenge to the State and to the so-called "new government" that issued from the presidential election in March 2000. If the State fails to respond adequately to current trends of social and economic transformation with effective public policies, social fragmentation or social polarization will intensify. But current policies run in the opposite direction. With the purpose of satisfying the offensive ideology of the new affluent middle class that emerged in the wake of economic development, and to attract international investments, by populist politicians have implemented *controversial and exclusive* policies. And social movements have arisen in which peripheral groups are seeking to defend their rights and identities. These movements include the licensed prostitutes movement supported by militant labor organizations, the mobilization of old squatters in the city center, and the gay and lesbian resistance

to the “ purification ” tendency of the former populist mayor of Taipei, newly elected to the office of President. If we add the political splits due to the crisis of national identity in the recent political restructuring of State power, Taiwan is in fact a divided society. Apart from the newly emerged social fragments mentioned above, one group has made itself more vocal. The indigenous people in Taiwan are and, for a long time, have been a minority group at the bottom of Taiwan's society, even in the reconstruction project that followed the September 1999 earthquake¹⁰. The next section will look at *social inclusion/exclusion* in Taiwan through the issue of the “ urban indigenous people ” and their housing problem in metropolitan Taipei. It will take this case as an example of social fragmentation and polarization in globalizing Taiwan.

Social exclusion is a concept proposed by the social policy think tanks of the European Commission. It was adopted by the United Nations International Labor Office. The social inclusion/exclusion concept refers to the social rights of citizens, which relate to certain basic living standards and to participation in the major social and occupational opportunities offered by society. I have adapted Manuel

Castells definition of social inclusion/exclusion as follows:¹¹

First, social exclusion is the process by which certain individuals and groups are systemically excluded from access to positions that would enable them to enjoy an autonomous livelihood within the social standards framed by institutions and values in a given context. In a word, social exclusion is the process that disenfranchises a person as labor in the context of capitalism. As to social inclusion, it may encompass generous compensations in case of long-term unemployment or disability which, however, are increasingly exceptional in countries with a well-developed welfare state.

Second, social inclusion/exclusion is a process, not a condition. Thus, the boundaries between those who are included and those who are excluded may vary over time. Third, the process of social inclusion/exclusion concerns both peoples and territories. Fourth, the process of social inclusion/exclusion includes a key process, which characterizes some specific forms of relations of production in global informational capitalism. We may call this process “ perverse integration. ”

We shall examine social inclusion/exclusion in the context of the housing problem of urban indigenous people in metropolitan Taipei.

The Housing Question and the “ Urban Indigenous People ” in Metropolitan Taipei

“ Urban Indigenous People ” as Invisible Communities

“ Urban indigenous people, ” a contradictory and complex term in Taiwan, refers to the groups formed as a result of the migration of indigenous people from the countryside and the mountain areas to the city. The population

of “ urban indigenous people ” is not as large as the urban migrants from the ethnically dominant Han population. Their very existence tends to go unnoticed, but the solution to their concrete problems is too complicated for the local technocrats. It is therefore very difficult to solve these problems, even if one settlement was suddenly “ discovered ” a few years ago by the former President. Despite a short period of media attention, the outcome of the President's discovery was almost nil and the housing problem of the “ urban indigenous people ” remained unsolved¹². Their communal settlements are scattered in the outskirts of Taipei's metropolitan area, some of them in the city proper and most of them in Taipei County¹³. Most of the lands on which they live are vacant public spaces such as riverbanks. These communal settlements actually consist of peripheral squatters. Their inhabitants are ghost communities (see Figure 1).

The “ urban indigenous people ” are culturally vulnerable tribal units that still manage to survive vigorously like wild flowers in the urban environment. Most of them work as construction laborers on various sites in metropolitan Taipei. In recent years, globalization brought in foreign workers who gradually replaced them in this coveted niche and created tremendous pressure on their means of livelihood. Indeed, they are the producers of the city. They are industrious workers thanks to whose labor the metropolitan city has been built. However, they seem to be no more than temporary workers and do not receive enough resources to gain access to the product (the built space) of their own labor and have a share in the city they have built with their own hands. If such people are left aside, we may ask what kind of city is the city of Taipei?

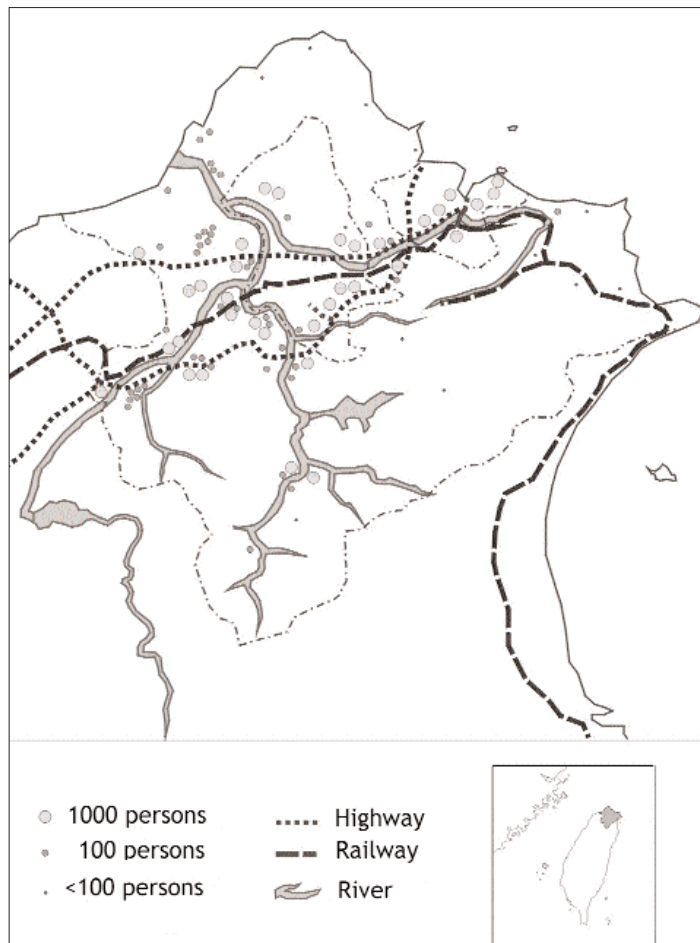


Figure 1: Urban Indigenous Settlements Pattern in Metropolitan Taipei

The Urban Housing Problem

If we examine the urban housing problem of "urban indigenous people" from a global and theoretical perspective, we shall see that these are rather typical issues in other Third World cities, only on a smaller scale in the Taiwanese case. On the one hand, urban migrants in the Third World are generally unable to access the housing market under the terms of commodity mechanisms such as existed in the United States before the 1973 oil crisis. A significant share of the American population was able to purchase houses through the financing mechanisms available on the market. On the other hand, Third World States are most often unable to intervene in the housing market by providing public housing on the same scale as in Europe after the Second World War. Therefore, with the exception of Singapore and Hong Kong where limited possibilities of population influx objectively helped an otherwise active policy of public housing construction, weak social groups in most Third World cities have had to rely on their own efforts, or self-help housing, to solve the issue of accommodation.

These are the historical roots of squatter formation in Third World cities. The "squatter" settlement is not only an official term for "illegal settlement." More importantly, it refers to a construction type in the urban informal sector, which functions, to some extent, as a safety valve for the reproduction of the labor force through self-help. Actually, the policy of "no policy" in Third World States is a specific way to temperate the problem of housing shortage, as in the Mexican experience. And the oxymoron, the "legal squatter" (*hefa weijian*, or "legal illegal buildings") in Taiwan illustrates the specific boundary between formal and informal economies defined by the institutional intervention of the State. In Latin America, the squatter settlements are usually mobilized and organized by different political groups to invade the riverbanks, vacant public land, or church land.

"Land invasion" becomes the major momentum of urban social movements in Third World cities. It has also shaped the urban appearance of these cities. Even today, most jackets of books about Third World housing and cities depict boundless squatter settlements.

In the process of *social inclusion* and *political mobilization*, the squatter settlements do indeed obtain the goods and services expected from the State¹⁸. However, this is only half of the political process for the squatter movement. The other half consists of a trade for political loyalty. In other words, it is an instrument of social inclusion and subordination to the existing political order rather than an agent of social change. This process continuously reproduces the relationship of dependency between State and society¹⁴. Populist democracy and dependent society are the two sides of the same coin in the Third World. The British anarchist architect, John Turner, was deeply moved by Pedro Bethran's successful mobilization of squatters in Peru in 1954. He suggested that the *spontaneous milieu* and the interactive social process of self-help housing are the alternative for human habitat¹⁵. His ideas have had a strong influence on humanist planners such as Kevin Lynch and the education program on housing design in MIT in the 1970s and 1980s.

As a result of this, on the one hand, the World Bank and the United Nations have changed the direction of their policies. The Site and Services Program replaced large-scale public housing projects, which had long suffered from a bad reputation. The past policy of public housing construction not only required huge support from government budgets, but was also difficult to implement effectively owing to a lack of organizational capability among Third World States. For example, public housing units always benefited the middle classes, whereas the public housing settlements stigmatized urban poverty in the form of new urban slums. On the other hand, the myth and the reality of self-help housing have generated a serious

theoretical debate in academic circles. This sends us back to Friedrich Engels' criticism of Pierre-Joseph Proudhon's small vegetable garden¹⁷. The housing question is basically one of consumption of and circulation in the housing market (e.g. speculation) for the reproduction of the labor force rather than one of production itself (e.g. exploitation). Production and consumption have to be analyzed together. And the mediation of the State is a necessary institutional element for the functioning and expression of a capitalist city.

But this debate has not had any impact in Taiwan. The conservative paradigms have been dominant among Taiwan's academics and research institutions, and they prevail in most disciplines. The developmental State has been constituted as the historical vehicle of the project of the elites to rebuild the nation-state. Such academic poverty is part of the social costs of political oppression during the earlier process of growth and modernization. Most scholars and bureaucrats think of the housing question in Taiwan as an issue for Third World countries and, consciously or unconsciously, rely on market mechanisms to elude the State's responsibilities. Certainly, it is what can be viewed as a conservative political position that triggered the famous housing movement in 1989 and unrelenting urban movements that have continued to this day.

Generally speaking, an examination of the urban housing question from a global perspective reminds us that *the improvement of housing and urban services is part of the right to a decent life. It relates to social and political processes rather than simply to the housing market*. Housing is often traded as a commodity in the social and political processes of the intertwined relationship between the State and the informal sector of the economy, as in the Mexican case after the mobilization of the squatter settlements. Only then is it legitimized by the State. However, once the squatters have been mobilized and organized, the political autonomy of the communal sett-

lements can be one of the bargaining chips of political legitimacy in the negotiation with the State as well as a space for resistance against the market.

Is there a Solution?

What then is the answer to the housing problem of the "urban indigenous people"? What form can the improvement project take? Housing is not only a material construction, but also an existential living foothold in the world. Land acquisition and community empowerment may warrant some breakthrough.

The first question is how to obtain land. For instance, to lease a piece of public land as the site of communal settlement is a first and a necessary step for community empowerment. A site is closer to existing conditions in the squatter settlements and it opens more room for specific attention to geographical relations and social networks. For the "urban indigenous people," the use value of the site is more important than the exchange value of the housing units. To lease rather than to buy is critical. First, these people do not have the capital for any such purchase. Second, once the land is privatized, it will be to resist market pressures to resell it for more profitable real-estate operations.

The second consideration is about communal self-help housing. This approach is adequate to meet the specificity of the "urban indigenous people." The community participation process not only ensures the quality of public space, but also strengthens *the community's consciousness of collective solidarity in the struggle for urban services*. The existing spatial layout and character of public housing units are difficult to use and maintain for the "urban indigenous people." They have specific living needs and cultural characteristics. The inadequate public housing project on Orchid Island (Taitung County) is a case in point. Its failure is part of the history of modern architecture.

Conclusion

Ironically perhaps, all these questions problems may well find a natural solution after two generations as a result of the "naturalization" and "social inclusion" of the "urban indigenous people" into the dominant Han culture. The conflicts and housing problem of the "urban indigenous people" have to be understood through the social and political processes of the relationship between State and society in a capitalist city. The solutions to the housing question depend on the way in which resources are allocated by the State. How the State mediates also determines the patterns and characteristics of social structure and dynamics. Furthermore, the global economy makes the urban housing question more complex because the State is unable to handle the increasingly volatile situation generated by globalization. The new contextual pressure creates an opportunity for the State to readjust its structural role and to change the relationship between State and society.

Theoretically speaking, social inclusion/exclusion has to be analyzed in terms of the social structure and social dynamics within the framework of globalization. More specifically, social inclusion/exclusion has combined with the issues of identity politics in the global networked society. If we consider the different forms and origins of identity building, legitimizing, and resistance projects, the dynamics of identities in this sequence show that no identity can be of the essence. The territorial communities of the "urban indigenous people" can build up their own identity and assert the pride of self-denigration (such as renaming Orchid Island as "Tao" instead of "Yami", in the indigenous movement), inverting the terms of the oppressive discourse imposed since the period of Japanese colonization (or, as Manuel Castells proposed, "the exclusion of the excluders by the excluded")¹⁹. This is also a way to go beyond the so-called reciprocal disconnection of social exclusion²⁰. Instead of being a simple-minded norma-

tive notion in the index of the sustainable city, *the processes of social mobilization and social organization as means to defend the right to make a living are critical for a socially sustainable city.*

The people must participate in urban movements, through which common interests and public spaces of the communities are constituted, and new urban meaning may be produced. The struggle of weak social groups for opportunities in regard to urban services and access to these services should be one of the social criteria for the sustainable city. The hidden values of the indices of the sustainable city need to be re-examined. The *analysis* of social inclusion/exclusion is a fundamental key to understanding sustainability. The reasons of the weakness of the underprivileged social groups are usually not rooted in ethnicity itself, but rather in cultural identity, social structure and economic interests. We have to ask what their identities are. Social inclusion has to be analyzed as the legitimizing identity and dominant value of the States hegemony. Social inclusion/exclusion in globalization, however, has to be analyzed together with identity politics. For instance, cultural differences have to be taken into account rather than being considered as an element of cultural diversity for use as a market commodity and social inclusion in hegemony. Sustainability has to be re-analyzed so that its criteria may be reset. On the one hand, there is no sustainability in essence. On the other hand, the openness of the decision-making process for participation by citizen participation should be laid down as a necessary procedural condition. The process of making a sustainable city ensures sustainability in the cities of tomorrow. As a tentative conclusion, the main objective of this paper is not to provide ready-made answers. What I have endeavored to do is to offer some analytical directions for further questioning. History is written once and for all and the struggle must go on.

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10. Chen, Yi-fong, "'Indigenous Peoples' Land Rights, and the Reconstruction of Place Identity after the September Earthquake: Case Study of Ho-Ping Hsian, Taichung County, Taiwan," paper for the Second International Critical Geography Conference, Taegu, South Korea, 9-13 August 2000.
11. Castells, Manuel, *End of Millennium* (Oxford: Blackwell, 2000), pp. 73-74
12. Even after the intervention by the President, most of urban indigenous people inhabiting that settlement were relocated to different public housing units. For them, those isolated housing units are unlivable. The neighborhood was broken up and the community has disappeared.
13. The total population in the metropolitan area is over 40,000. The registered population is about 38,500. Most of them, over 30,000, are in Taipei County (Interior Affairs Ministry, June 2000). The population in Taipei City is about 7,600 to 8,200. Most of them are also scattered on the outskirts rather than in the inner city. The ratio of housing ownership is about 30 per cent, which is the lowest percentage in the Taipei citizens. *Ethnos Minzhu Electronic News*, No. 3, 30 November 2000.
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SINGAPORE



SINGAPORE

<i>Size of the country</i>	600 km²
<i>Climate</i>	Equatorial
<i>Population</i>	4 M
<i>Population density</i>	6 616,5 inhab/km²
<i>Population growth rate (1993 – 1999)</i>	1,9%
<i>Part of urban population</i>	95%
<i>Life expectancy at birth</i>	78
<i>Infant mortality (per 1000 live birth)</i>	4
<i>Access to improved water sources (% of population)</i>	100
<i>Ethnic groups, their percentages in the population</i>	Chinese: 55%, Malaysian: 15%, Indian: 7%.
<i>Official languages</i>	Mandarin, English, Malais, Tamoul
<i>Religions</i>	Buddhism/Taoism: 54%, Islam: 15%, Christian: 13%, Hinduism: 4%
<i>Gross domestic product</i>	95,4 billion USD
<i>Gdp per capita</i>	29 610 USD
<i>Inflation</i>	1,7 % year
<i>Gdp growth rate</i>	6 % in 1999
<i>Gdp repartition in different sectors (1999)</i>	Agriculture: 0,2%, Industry: 35,8% (manufacturing: 25,9%), Services: 64,1%.
<i>Unemployment rate</i>	3.3 %
<i>Illiteracy (% of population age 15+)</i>	8
<i>Tourism</i>	6, 958 M in 1999

SINGAPORE – LONG TERM ENVIRONMENTAL POLICIES

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Introduction

Human activities damage the environment. They generate pollution, deplete resources, cause loss of forests and biodiversity and threaten the water supply. Increasing populations and increased human activities on limited resources now precipitate environmental problems at global levels.

All countries need a sound and effective environmental management system to manage these myriad activities, to ensure that damage to the environment is controlled and, where possible, minimized. The problems are even more acute in cities, where human activities are concentrated, with large populations occupying limited land space and using limited resources. It is therefore essential that cities adopt long-term policies to address their environmental concerns.

As a city-state, Singapore has managed to create a clean living environment with a high standard of public health. Singapore's air and water quality meets WHO (World Health Organization) and US-EPA (Environment Protection Agency) standards, and its water-courses support aquatic life. What is more remarkable is that this was achieved in the

space of some forty years, in the course of transforming herself from a Crown Colony that relied on its entrepot trade for survival, to a newly independent state that embarked on a course of rapid industrialization¹. This was possible because one of Singapore's goals is to have a healthy economy with a clean living environment.

This paper examines Singapore's policies to manage its largely urban environment, with particular focus on the issues that relate to pollution control. Urban environmental management in Singapore starts with careful land use planning, which separates residential, recreational and commercial areas from highly pollutive industrial areas. Environmental management also requires an effective administrative and legal framework, and considerable investments in infrastructure development to deal with the supply of energy and water, the treatment of effluent from industries and the disposal of wastes. This framework must include the provision of efficient transportation systems for the movement of people and goods. It should also be emphasized at the outset that many of the problems that beset cities relate to

the provision of accommodation for an increasing population in an urban setting with limited resources particularly in terms of land space. Although it is outside the scope of this paper, the provision of an effective public housing system is critical in managing an urban population. This has been solved in Singapore, where its public housing system administered by the Housing Development Board (HDB) houses 86% of the population in high-rise

apartments. These apartments are purchased by citizens and permanent residents, who own a leasehold interest in the apartments for 99 years. Home ownership is made affordable by government subsidies and by a system of compulsory monthly contributions by employers and employees (the Central Provident Fund), which can be applied towards payment of the monthly mortgage installments, thus assisting workers in the purchase of their homes².

Strategies in Environmental Management

The Singapore Ministry of Environment (ENV) is charged with pollution control and public health. In the case of pollution control, it utilizes three key strategies in managing the environment, viz. prevention, enforcement and monitoring. Prevention is achieved through careful land use planning and the provision of the environmental infrastructure, coupled with the passing of anti-pollution laws. At the same time, a system of controls has been developed to ensure that the pollution control requirements are enforced. The quality of the environment is monitored regularly to ensure that these measures are adequate³. It can also be said that Singapore is a firm believer in the "Polluter Pays" principle, and this is implemented in many policies, from its very innovative measures to discourage car ownership by making the costs extremely prohibitive, to charging industries whose effluent exceed the permitted limits according to a tariff scheme.

Land-Use Planning and Development Control

Environmental controls in Singapore start first with land use planning. Due to the scarcity of land (660 sq. km of land, 4 million people), Singapore's population density is especially

high: 5,900 people per sq. km. It is thus critical that the use of each square inch/centimeter of land be closely regulated.

The allocation of land for various uses is carefully controlled through the Master Plan, the Concept Plan and the Development Guide Plans. The Master Plan is a legacy from the British, using traditional planning concepts. First drawn up in 1958 as a statutory document, the Master Plan was revised in 1965, 1970, 1975, 1980, 1985 and 1998. As a more flexible plan was needed to deal with the country's rapid development and expansion, the Concept Plan was devised in 1971 as a strategic long-range land use and transportation plan to guide Singapore's development. It took into account critical issues such as population growth, industrial development and the limited supply of land, striving to safeguard and provide land for development needs while preserving the quality of living and working conditions⁴. The fine details were worked out in Development Guide Plans (DGPs) that were drawn up for 55 areas, and indicate land use (via zoning) for every plot of land.

The Concept Plan shaped Singapore's New Towns, the new airport, expressways, main roads and the Mass Rapid Transit (MRT) System.

It is reviewed every ten years and was last revised in 1991 when it had three distinct stages: up to the year 2000, to the Year 2010, and to Year X. It was anticipated that Year X would be when the population would reach 4 million. However, this figure was reached in September 2000, taking into account the foreign population living in Singapore.

A new Concept Plan for Year 2001 is now being worked out. Prominent members of the community have been consulted for their views, in two "focus groups." The first group will examine issues of land allocation while the second group will focus on conservation of heritage sites – the need for identity versus intensive land use. Both groups are working on a projection of a future population of 5.5 millions in Year X⁵.

While land use and development control are all handled by a single government agency, the Urban Redevelopment Authority (URA), there is considerable coordination with other government agencies through committees such as the Master Plan Committee. This Committee which is chaired by the Chief Planner, include representatives from the Ministry of the Environment, National Parks Board, Land Transport Authority and the Ministry of Defense.

Zoning and the Judicious Siting of Industries

All land in Singapore is zoned for a particular land-use. Environmental impacts due to particular developments can be mitigated by firstly, ensuring that such developments are sited in designated areas which are away from residential, commercial or recreational areas, and secondly by ensuring that pollution control measures are incorporated in the design of the development. The grouping of highly pollutive industries also facilitate the provision of appropriate infrastructure to control pollution, manage hazardous substances and dispose of toxic wastes. Control at the planning stage is thus important in the prevention of pollution.

The impact of all developments on the environment is assessed and considered before each development is allowed to proceed. The Planning authorities consult the Ministry of the Environment's (ENV) Pollution Control Department (PCD) on proposed new developments. PCD assesses the impact on the environment and ensures that new industrial and residential developments are properly sited and compatible with the surrounding land-use.

Classification of Industries According to Pollutive Capacity

Pollutive industries and activities are sited away from residential and commercial areas. To guide planners and to help industrialists select suitable sites to locate their factories, or to find suitable industrial premises, industries are further classified into four categories according to their pollutive capacity, judged by the impact of residual emissions of fumes, dust and noise on the surrounding land use. Buffer zones are required to separate them from other areas, so as to minimize their impact on the neighbors.

These categories are as follows:

- **Clean Industries:** These are industries that do not generate any air or water pollution, or noise or smell. No buffer zone is required. These industries include software design and development, assembly and repair of computer hardware, audio-visual, and other equipment, repair of electrical appliances and house ware (not involving spray-painting, electroplating or galvanizing operations,).
- **Light Industries:** These industries generate some pollution and noise. They include biotechnology, manufacture of wearing apparel (not involving dyeing or bleaching operations), printing, publishing, and manufacture of paper products without pulping works or bleaching operations. It also includes the packing of food ingredients,

bottling of syrups and juices and the packing of bottling of medicinal herbs and medicated oil. A buffer distance of at least 50m is required between a light industrial building and the nearest residential building. These factories are prohibited from using liquid or solid fuel burning equipment, and from using large quantities of hazardous substances such as solvents, acids and other chemicals.

- **General Industries:** These industries are pollutive. They are required to install, operate and maintain pollution control equipment to minimize air, water and noise pollution. A buffer distance of at least 100m is required between a general industry building and the nearest residential building. These industries include food processing factories, factories for the blending of detergents and cleaning preparations, hair care products, cosmetics and other toilet preparations; vehicle repair and servicing; cutting, grinding and polishing of marble and ceramic tiles and the manufacture of dry cells and batteries (activities must not include the manufacture of metal electrodes).
- **Special Industries:** These activities are highly pollutive and require a buffer distance of at least 500m to the nearest residential building. Those industries that can potentially cause serious pollution such as oil refineries, petrochemical and chemical plants, facilities for the treatment of toxic industrial waste, etc., must be sited at least 1 km from the nearest residential building. Thus, large chemical and petrochemical plants are sited on offshore islands, to minimize risks. These industries are required to install, operate and maintain pollution control equipment as required by the PCD.

Food industries are also classified into light, general or special categories, depending on their scale of operation. To prevent cross-contamination from residual emissions emit-

ting from neighboring premises, food industries are sited in industrial premises in areas designated as food zones or in areas with compatible industrial uses. Only clean and light industries are allowed near residential areas and within water catchment areas. There are also special requirements for industries that use or store large quantities of hazardous chemicals – they may be required to conduct a Quantitative Risk Assessment (QRA) Study, and/or a Pollution Impact (PI) Study. There are also controls on warehouses that store hazardous or pollutive substances.

Building Controls and Inspections

When a new industrial development is proposed, the planning and development authorities consult the Pollution Control Department (PCD) of the Ministry of the Environment (ENV) on its siting requirements as well as its compatibility with the land use in the surrounding areas. At this early stage, PCD also checks to ensure that the level of environmental management and control of the proposed development is acceptable.

The Building Control Act requires that all developers must submit their Building Plans for the building works to the Building Plan and Management Division of the Building and Construction Authority (BCA) for approval. The BCA will not approve unless these plans are first submitted to and approved by other authorities such as the Fire Safety Bureau, National Parks Board, and the PCD of ENV. PCD processes the building plans to ascertain their environmental impact. A proposed industry is only allowed to set up and operate in Singapore if it is able to comply with emission standards, manage its wastes and can be sited in a suitable industrial estate. All plans must first be vetted by ENV officers, to ensure compliance with pollution laws and requirements. PCD will approve Building Plans subject to compliance with their requirements on sewerage, drainage, environmental health and pollution control.

Upon completion of construction, ENV officers

inspect the premises to ensure that it incorporates the requisite pollution controls. Factories are not allowed to operate until they have received clearance from the ENV. Thereafter, they are inspected by ENV officers, the frequency of such inspections increasing with the degree of pollutive capacity.

The move is towards self-monitoring. A Source Emission Test Scheme was implemented after January 1997, whereby industries are required to conduct their own emissions tests or engage accredited consultants to do so. This enables industries to monitor their air emissions regularly and to take measures to ensure they comply with the regulations.

Air Pollution

The main sources of air pollution in Singapore are stationary sources (such as from power stations, oil refineries, industries), mobile sources (motor vehicles), and other sources (such as open burning of waste materials and cross-boundary pollution, particularly from the burning of forests in Indonesia).

Air Emission Standards

Air emission standards for factories were imposed in 1972 with the passing of the Clean Air Act and the Clean Air (Standards) Regulations. Industries are classified in categories according to pollutive capacity. Industries with a high capacity to pollute and classified as Scheduled Premises are not allowed to operate without prior permission from the Director of Pollution Control. They are also sited away from residential areas.

Cleaner Fuels

The sulfur content in fuels used by industry is regulated (not more than 2% by weight) so as to minimize the content of sulfur in the air. Industries and hotels with fuel burning equipment sited near urban areas are required to use fuel with even lower sulfur content (0.05% or less), or town gas.

Open Burning

Open burning to dispose of wastes has been prohibited since 1973 under the Clean Air (Prohibition of Open Fires) Order⁷.

Vehicular Pollution and Singapore's Transportation Policy

Lead in petrol has been progressively reduced from 0-84g/l to 0-15 g/l since 1st June 1987. Unleaded petrol was introduced in January 1991, and phased out by 1st July 1998. Exhaust emission standards are prescribed for both petrol and diesel vehicles. Drivers of smoky vehicles are prosecuted for breaking the law⁸. To ensure that cars on the road are kept road-worthy, a system of periodic mandatory inspections is established where cars are tested for emissions. As old and inefficient diesel-driven vehicles generate large amounts of pollutants, a new tax incentive scheme was introduced in February 1999, allowing companies to claim a one-year tax write-off for their new buses or goods vehicles if these are purchased to replace old diesel-driven vehicles.

Singapore's land transport policy has contributed to a reduction in vehicular emissions and a better quality of life for the people. Three basic tenets guide this policy:

- Minimizing the need to travel through integrated land use and transportation planning;
- Promoting a viable and efficient public transport system that integrates the Mass Rapid Transit (MRT), Light Rail Transit (LRT) and bus services;
- Managing the growth and use of public vehicles.

Singapore is unique in having taken very innovative steps to curb its car population, by a series of measures aimed at making car ownership highly prohibitive in terms of onerous costs both in its ownership and in its usage. Cars are subject to very steep import duties, registration fees and a vehicle quota system that requires all car owners to bid for a "certificate of entitlement" (COE) which only lasts 10 years. Entry into the Central Business District

(CBD) and into selected expressways is prohibited except on payment of a fee⁹. These restrictions reduce the number of cars on the road, which in turn, reduces pollution and facilitates smoother traffic flow.

At the same time, an efficient system of public transportation is provided, via the mass rapid transit trains, light railway transit system, and buses and taxis. All these measures have improved the air quality, as there is less congestion on the roads. At the same time, they have contributed to greater economic efficiency as fewer man-hours are expended in travel time. It has also enhanced the quality of life, as the time saved can be devoted to more pleasant activities. Schemes for the sharing of cars is encouraged¹⁰.

Monitoring

The monitoring of air quality is essential for the effective implementation of a city's environmental management policies. In Singapore, ambient air quality is routinely monitored through the Telemetric Air Quality Monitoring and Management System (TAQMMS) that comprises 19 remote monitoring stations linked to a Central Control System via dialup telephone lines. Sixteen stations monitor ambient air quality while three stations measure roadside air quality.

Industries are encouraged to self-monitor for air emissions and trade effluent¹¹. In January 1997, a scheme was introduced which requires industries to conduct source emissions tests. This scheme seeks to ensure that industries monitor their air emissions regularly and remedial action if required. At the same time, it raises awareness and helps to ensure compliance with the prescribed air emission standards. ENV conducts regular inspections of stationary sources to ensure that pollution control equipment are properly maintained and operated. They also conduct source tests on gaseous emissions, fuel analyses and smoke observations of chimneys¹².

Tax Incentives

To encourage companies to use less pollutive

equipment, Singapore provides tax incentives, in the form of 100 per cent tax write-offs, for companies that convert to less pollutive equipment, such as new equipment that reduce air emissions, or reduce noise levels. Such equipment must first be inspected and duly certified as meeting the criteria laid down under the laws, before they qualify for these incentives.

Water Pollution

As a city-state, the main sources of water pollution are domestic wastewater, both sewage and sullage, and industrial effluent. There are also some commercial farms that generate pollutive wastes (chicken farms, dairy farms). Again, the Minister of Environment applies the three principles of Prevention, Enforcement and Monitoring while at the same time building and constantly improving on the environmental infrastructure. Streams in Singapore are categorized into controlled and uncontrolled watercourses. The formers are sources for potable water, and their catchment areas are protected.

Water pollution is controlled first, by the provision of sewerage infrastructure to collect and treat all wastewater and a good waste management system to control pollution at source. Second, industries are required to pre-treat their effluent to the standards stipulated, before discharge into the sewerage system¹³. Third, industries that store or use large quantities of chemicals cannot be sited within water catchment areas.

License to Discharge

Industries must first apply for a license to discharge, giving details of the type of trade or business, the processes used, the materials/chemicals used, layout of the plant and machinery, the estimated amount of water consumed, the physical, organic and chemical nature of the effluent and the direction of its flow.

The Discharge of Trade Effluent

Singapore has a public sewerage system that serves all industrial estates and residential pre-

mises.

All wastewater must be discharged into the public sewerage system. Industrial wastewater must first be treated to specified standards before discharge into a sewer or watercourse. Industries that generate large quantities of acidic affluent must install a pH monitoring and shut-off control system. Trade effluent that exceeds the required standards for biodegradable pollutants (as determined by their biochemical oxygen demand (BOD) and total suspended solids (TSS)) can apply for permission to discharge directly into the public sewers, on payment of a tariff (another example of the "polluter pays" principle). This tariff is levied to recover the costs incurred in treating the additional pollution load at the sewerage treatment works.

The system is continuously reviewed to ensure it keeps up with Singapore's needs. As sewerage treatment works take up valuable land, the long-term solution proposed is a deep tunnel sewerage system, which uses deep tunnels as gravity sewers to eliminate the need for pumping stations. This will reduce the need for sewerage treatment works and free up land for other uses. Phase I for this Deep Tunnel sewerage project commenced in March 99.

Farm Wastes

The major farm waste is from poultry. To ensure that farm wastes do not pollute the land and waters, pollution from poultry farms is controlled by requiring that poultry be reared in covered sheds and the dung removed in solid form. These are then used as fertilizers. Pollution from agricultural and horticultural activities comes from the application of fertilizers and pesticides. Those that are highly toxic and persistent are not allowed to be imported into Singapore.

Waste Management

The management of solid wastes is a major problem confronting all cities. In Singapore, due to the lack of space, almost all solid wastes

that cannot be re-used or recycled are incinerated, and the ashes deposited into a landfill site. Singapore has four incinerators. The latest at Tuas, was recently opened in November 2000. At a cost of S\$1 billion, it is one of the largest in the world. Waste heat generated from the process is used by the plant and the remainder sold to Singapore Power.

A new landfill site was developed in an offshore island, Pulau Semakau at a cost of some S\$610 million (US\$360m) and commenced operations on 1 April 1999. Wastes from the main island are collected by a very efficient municipal refuse collection system, and then transported via barges, to the island. This new facility only has a lifespan of 30 years. With severe limitations on land space, the key to managing solid wastes is to reduce wastes at source. A Waste Minimisation Unit was formed in the Ministry to look into measures to reduce waste generation and waste recycling.

While waste minimisation and recycling continue to be promoted, with ENV encouraging the private sector to set up recycling/processing facilities, there is little recycling of domestic wastes (apart from newspapers). There is no system for the return of bottles, although some machines encourage the return of aluminium cans. Presently, 40.3% of the wastes generated are recovered for recycling, mainly wastepaper and ferrous scraps. But improvements are on the way. It has been announced that with the move towards privatising the waste collection industry, all waste collectors that bid for future projects must undertake the recycling of wastes¹⁴.

Hazardous Substances

The import, sale, use, storage and transportation of hazardous substances are controlled by ENV under the Environmental Pollution Control Act (EPCA) and the EPC (Hazardous Substances) Regulations. ENV issues licenses for the import and sale of hazardous substances. Permits are required for the use and storage of hazardous substances. Stringent

conditions are imposed for the storage and management of these substances. ENV conducts surprise inspections of premises that store hazardous substances, to audit their inventories and ensure they comply with the conditions.

A Safety Audit Scheme was introduced in October 1996, to encourage industries that handle and store large quantities of hazardous substances, to identify and rectify systematically and regularly any weakness in their management systems and practices in the handling of these substances. Detailed rules regulate the transportation of hazardous substances and ENV conducts road checks with the Land Transport Authority to ensure that tankers and lorries carrying hazardous substances comply with the requirements.

Toxic Wastes

The control, treatment and disposal of toxic industrial wastes are regulated by ENV under the Environmental Public Health (Toxic Industrial Waste) Regulations. Only approved companies may handle these wastes under license from ENV. Such wastes include spent oil, waste solvents, spent etchants and chemical wastes. 70% percent of toxic industrial wastes is recovered or reclaimed for industrial use, while the remaining 30% are treated for disposal by landfill.

Singapore is party to the Basle Convention and passed the Hazardous Waste (Control of Import, Export and Transit) Act in 1997 to implement the Convention.

The Singapore Green Plan

The first Singapore Green Plan was conceived in 1992, and presented at the UN Conference on Environment and Development at Rio, in 1992. It focused on six areas of concern: environmental education; environmental technology; resource conservation; clean technologies; nature conservation; nature conservation and environmental noise. Representatives from government bodies, industry, educational institutions, the private sector and non-government organizations were invited to serve on committees. The recommendations of the committees were implemented in the Singapore Green Plan Action Programmes, published the next year, in 1993.

The advent of the new millennium has prompted a review of the Singapore Green Plan. The Singapore Green Plan 2000 is expected to be revealed to the public later this year. This time, the focus falls on four areas, viz.:

- Environmental Education
- Resource Conservation and Waste Minimization
- Environmental and Clean Technology
- Nature Conservation

Committees focusing on these four areas have been formed, again comprising members drawn from various sectors. The four committees review the developments since the First Singapore Green Plan, address the changes that have since taken place, anticipate the future development of Singapore and try to recommend policies that can help ensure that such development is not prejudicial to the environment. More importantly, this new Green Plan will help to ensure that the quality of life in Singapore will continue to improve, along with an improved environment. It is expected that the Reports of these four new Committees will be released very soon.

Future Concerns and Challenges

The Need for Water

One of Singapore's major concerns is the supply of water. Singapore's reservoirs only supply about half of its needs. Ground water supply sources are prohibited for individual use and it is now an offence to dig for underground water, although this was not uncommon in the past. The remainder of Singapore's water supply is obtained from Malaysia, through its nearest state, Johore. All water is supplied through pipelines and treated before it reaches the consumers. Singapore has water treatment plants in Johore, which treat and resell the treated water to Johore. This arrangement has increasingly come under criticism from Malaysians, some of whom feel they are being exploited. Negotiations for extension of the water supply contracts are highly sensitive, particularly as some Malaysian states face water shortages.

While water re-use and water conservation measures continue to be promoted, Singapore has to explore the option of using desalinated water from the sea, to provide more options and to reduce its dependence on water being supplied from Malaysia. The first tender has already been called for a desalination plant. At the same time, the possibility of obtaining water from another neighbor, Indonesia, is being explored.

Reduction of Greenhouse Gases

As a small low-lying island state, Singapore is concerned with climate change particularly as it may result in higher sea levels resulting in loss of land and coastal erosion, and flooding. As Singapore lacks natural resources, it is heavily dependent on fossil fuels for primary activities such as power generation and transportation. Due to its size, Singapore does not have the option of hydro or geothermal energy sources. The only viable alternative energy

source at present, is solar energy. Some private homes and a few commercial facilities use solar heating for the production of hot water, including the Flight Kitchen Building at Changi International Airport. To help mitigate the increase in greenhouse gas emissions, Singapore has undertaken some initiatives, such as the following¹⁵:

- Liberalization of the energy sector – started in 1997, this aims to promote competition so as to lead to a more efficient energy sector.
- Changing fuel mix – Singapore is trying to move away from heavy dependence on fossil fuels towards greater use of natural gas. It has entered into agreements with Indonesia for the supply of natural gas, to be stepped up over time.
- Supply-side management – Power Generation Efficiency: Singapore encourages power generation plants to use the latest technologies, such as the combined cycle gas turbine (CCGT) and some gas turbines have already been converted into CCGT plants.
- Demand-side management – companies are also encouraged through tax incentives, to adopt energy-efficient technologies and less pollutive equipment. A special scheme has been set up for small and medium size enterprises to provide partial financial grants for consultancy studies.
- Building sector – Since 1979, energy conservation standards for the design of buildings have been incorporated in the building code. The Building and Construction Authority (BCA) is in the course of reviewing and updating energy conservation standards for buildings to make future buildings more energy efficient, to take into account the latest technologies for building materials that reduce heat gain into a build-

ding, and technological advances in lighting equipment and accessories. The BCA is also embarking on a project to develop Energy Efficiency Indices (EEI) for commercial buildings.

- Public housing – the Housing and Development Board (HDB) which houses 86 per cent of Singapore's population in high-rise apartments has adopted many energy efficient measures in its designs. These include maximizing natural ventilation to minimize the need for air-conditioning and providing sunshades for apartments to reduce direct sunlight into living areas. Energy-saving measures are also undertaken in its mechanical and engineering services, such as: a variable-voltage, variable-frequency lift drive system for lifts to save energy; automatic switch-off of ventilation and lighting in lifts that are not in use; use of low-loss ballasts and energy-saving fluorescent tubes for lighting in multi-story car parks; use of energy-saving lamps for public lighting in parks, playgrounds and landscaped areas; public lighting is switched on and off by use of photocells.

Nature and Heritage Conservation

Another challenge for Singapore is whether it can continue to keep its promise under the Green Plan, of conserving at least five percent of its natural areas. Presently only three per cent are legally protected as nature reserves or national parks. The remaining two per cent have no legal protection. There are no laws mandating environmental impact assessments for development projects. Singapore also faces

a problem of rapid destruction of its old buildings, to make way for new developments.

In the recent Concept Plan Review, projecting a population of 5.5 million in Year X, it was revealed that some 16,000 hectares of land would be needed for future development, of which 8,000 hectares would be needed for housing, 6,000 hectares for industries and 2,000 hectares for parks. However, only 12,000 hectares of land will be available, leaving a shortfall of 4,000 hectares. Three scenarios were postured to resolve this dilemma:

- Building denser and taller buildings similar to those in Hong Kong
- Encouraging industries to go high-rise
- Providing fewer and smaller parks/developing some of the nature areas and parks into housing and industries

The two focus groups comprising informed laymen drawn from different parts of the community, have soundly rejected alternative three, preferring the option of building taller buildings with denser land use so as to conserve precious space. Their recommendations include preserving the off-shore islands in their natural state for as long as possible, capping the number of golf courses at the present 22, decentralizing by developing regional centers as alternative commercial hubs and preserving old neighborhoods that are rich in character and culture. The report also called for an independent conservation body to be set up as a Heritage Conservation Trust with the President as Patron, which should be involved in planning and the evaluation of all conservation proposals and lead compulsory environmental and social-impact studies near conservation sites¹⁶.

Conclusion

In conclusion, it must be emphasized that Singapore's experience is unique because of its special circumstances. What is clear is that efforts to manage the environment in any country must stem from policies that can be determined only after a thorough examination of the problems from a wide variety of perspectives. While the sources of pollution in cities may be largely similar, stemming from industries, power plants, incinerators, motor vehicles and burning of wastes, the solutions may differ depending on the resources of the country, and the special circumstances. For example, Singapore has had to resort to incineration because land is too precious for landfills. What is clear is that the policies to address pollution must include land-use planning, effective governance and the building of the environmental infrastructure.

In the case of vehicular pollution, while there must be stringent laws on vehicular emission standards, long-term policies to address vehicular pollution must relate to the transportation system. Alternative means of transport must be provided, which must be efficient and less pollutive. City planners must re-think traditional planning concepts, where the population is required to commute to the city each morning to work, and back to the suburbs in the evenings. Such systems are no longer workable, particularly in the context of fast-developing cities. Cities must be built for greater efficiency. People must live near their place of work. This reduces the need to travel and saves

time, leading to less congestion on the roads, and increased productivity. Town planners must plan for new towns that are completely self sufficient, thus reducing the need to venture into the city. Alternative means of transport particularly via a mass rail system would be essential. There must also be efforts to improve the roads and rail linkages to ensure greater efficiency.

Political will and commitment are essential for these policies to succeed. There must be follow-through when governments change. Fundamental policies to manage the environment must be carried through, and constantly improved upon to meet changing needs and circumstances.

There should be also be public involvement in the process. Citizens should be encouraged to play their part in safeguarding the environment. Environmental education is a necessity, and the help and expertise of non-governmental organizations should be harnessed. NGOs should be seen as working in partnership with industry and government organizations.

Finally, countries that have successfully managed their environment should offer to share their expertise and help developing countries build capacity in environmental management. A clean environment benefits everyone. Environmental pollution is a matter of global concern. The environment must be viewed beyond national barriers and geographical boundaries.

Notes:

1. Singapore obtained self-government in 1959, and became a sovereign, independent nation as of 9th August 1965, after a short-lived alliance with Malaysia in 1963-1965.
2. See Housing and Development Board Annual Reports, particularly the latest *Annual Report* (Singapore: Housing and Development Board, 1999-2000).
3. See Ministry of the Environment Annual Reports, particularly the latest *Annual Report* (Singapore: Ministry of the Environment, 1999). Also see *Singapore, My Clean & Green Home* (Singapore: Ministry of the Environment, 1997).
4. See *Living the Next Lap – Towards a Tropical City of Excellence* (Singapore: Urban Redevelopment Authority, 1991); Sumiko Tan, *home.work.play* (Singapore: Urban Redevelopment Authority, 1999).
5. See *Skyline, "Consulting the Community on Singapore's Future: Bringing Life Back to Heritage Buildings"* (Singapore: Urban Redevelopment Authority, September-October 2000).
6. Despite the repeal of the Clean Air Act in 1999 by the Environmental Pollution Control Act, the standards prescribed by the Clean Air (Standards) Regulations still apply, until these Regulations are repealed.
7. This is now contained in the Environmental Pollution Control (Prohibition on the Use of Open Fires) Regulations, 1999 (S 161/99).
8. The law governing emissions from motor vehicles is contained in the Environmental Pollution Control (Vehicular Emissions) Regulations, 1999 (S 291.99).
9. The fee is automatically deducted via an electronic system. Each vehicle is fitted with an electronic gadget called the IVU or "In Vehicle Unit." A pre-paid cash card is slotted into the IVU. Each time the vehicle passes an electronically operated gantry point (these have been set up at the entrance of the CBD and at the entrance to selected expressways), a fee is automatically deducted. A vehicle that did not have a cash card slotted in, or had a card that did not contain a sufficient amount of money for the sum to be deducted, will trigger an electronic camera that will take a picture of the car's number plate. The owner of that vehicle will then receive a summons for entering a restricted area without making appropriate payment. In practice, the offence can be compounded by paying a fee comprising an administrative charge of \$10 and the actual amount for entry at that particular time. The use of electronics has enabled fine-tuning of the fees that can be levied, so that entry fees need not be standardized (as in the past) but can vary from time to time, depending on road conditions.
10. One innovative scheme was recently introduced by the National Trades Union Congress, entitled NTUC Income Car Co-operative Limited, a not-for-profit cooperative where members pay a joining fee and can apply to use a car at any time, upon payment of a fee. They can make bookings via phone or via the Internet, and collect their car at eight different sites spread throughout the land. See <http://www.carcoop.com.sg>
11. See S. 37, Environmental Pollution Control Act, 1999. This applies not just to air emissions but also to trade effluent and hazardous substances.
12. The power to conduct such inspections and prescribe controls is contained in the Environmental Pollution Control Act, Parts III and IV, sections 6-14.
13. The effluent standards are contained in the Environmental Pollution Control (Trade Effluent) Regulations, 1999 (S 155/99) and the Sewerage and Drainage (Trade Effluent) Regulations, 1999 (S 170/99). See also The Code of Practice on Pollution Control, Ministry of the Environment, Third Edition, Feb. 2000 (available on ENV's web site at <http://www.env.gov.sg>).
14. See Speech by Mr. Lim Swee Say, Acting Minister for the Environment, at the Opening of the Tuas South Incineration Plant on 25 November 2000 at <http://www.env.gov.sg/info/press/main.html>.
15. See Singapore's Initial National Communication under the UN Framework Convention on Climate Change, dated August 2000, published by Ministry of the Environment.
16. See "Concept Plan: First review unveiled," "A Map of the Future", *The Straits Times*, 24 November 2000.



PEOPLE’S REPUBLIC OF CHINA

SHANGHAI

<i>Size of the country</i>	<i>9 597 000 km² (66% is covered by mountains)</i>
<i>Population</i>	<i>1 264 500 000</i>
<i>Population density</i>	<i>132 inhab/km2</i>
<i>Population growth rate (1993 – 1999)</i>	<i>1 %</i>
<i>Part of urban population</i>	<i>31 %</i>
<i>Life expectancy at birth</i>	<i>70</i>
<i>Infant mortality (per 1000 live birth)</i>	<i>31</i>
<i>Access to improved water sources (% of population)</i>	<i>83</i>
<i>Ethnic groups, their percentages in the population</i>	<i>Hans: 92%, others: 8% (55 minorities)</i>
<i>Official languages</i>	<i>Chinese (mandarin)</i>
<i>Gross domestic product</i>	<i>980 billion USD</i>
<i>Gdp per capita</i>	<i>780 USD</i>
<i>Inflation</i>	<i>1,4 %</i>
<i>Gdp growth rate</i>	<i>7,5 %</i>
<i>Gdp repartition in different sectors</i>	<i>Agriculture: 17,3 %, Industry: 49,7% (manufacturing: 37,8%), Services: 32,9%.</i>
<i>Illiteracy (% of population age 15+)</i>	<i>17% (Male : 9%, Female: 25% (1995)</i>
<i>Tourism</i>	<i>51 M visitors (1996)</i>
<i>Urban area</i>	<i>Beijing 10,8 M Shanghai 12,9 M</i>

BUILDING A SUSTAINABLE ENVIRONMENT FOR SHANGHAI

ZHANG Min
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Shanghai City Development Research and Information Center

Introduction

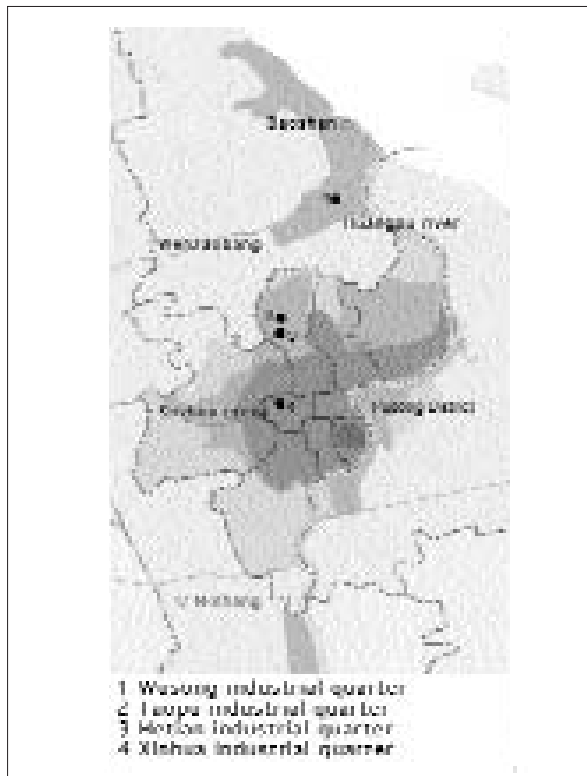


Figure 1. Shanghai urban area

Shanghai is the major economic center of China. The municipality covers a total area of more than 5,000 sq. km and is home to only one percent of the national population. Yet, the city produces five percent of the national GDP. In the 1990s, its ten-percent growth rate ranked first in the nation. The major contributor to the local GDP is the secondary sector (industry and construction), followed by services.

Shanghai sits in the middle of the Chinese north-south coastline. The East China Sea lies to the east, while Hangzhou Bay borders the municipality in the south. Its neighboring provinces to the West are Jiangsu and Zhejiang. The Yangzi river sets the limit to the North. Water resources in Shanghai are abundant. The major waterway that flows through the city is the Huangpu River. Its major tributaries are Suzhou Creek, Hongkougang, and Wencaobang. Furthermore, a dense network of small rivers and canals runs through the municipal territory (see figure 1).

In the late 19th century, Shanghai's privileged location attracted huge amounts of domestic

and foreign capital. These investments triggered industrial development in the city. By the late 1930s, there were already more than 5,000 industrial enterprises of varying size and the population reached 3 million. As early as 1930, Shanghai had become the major financial and trade center in East Asia. After 1949, the Chinese central government designated Shanghai as one of major industrial bases of China¹.

Thereafter, the major focus of the Shanghai economy until the mid-1980s was industrial development which, in the absence of controls, has induced several environmental problems like industrial exhausts and liquid waste discharge.

In the next sections we shall first discuss environmental problems in Shanghai. Lesson will be drawn from this past experience. Finally, we shall examine the issues and challenges of environment work in the near future.

The Scope of Environment Deterioration

The emission of sulfur dioxide (SO₂) into the atmosphere and the discharge of industrial waste into the environment, especially rivers, are the two major environmental problems in Shanghai. These emissions and discharges have seriously polluted the city's natural environment.

In 1983, the quantity of sulfur dioxide in the air was around 0.1 mg per m³. This was 1.67 times the national standard. In the late 1980s, the quantity of sulfur dioxide increased to 0.14 mg per m³. "Acid rain" became a frequent phenomenon in the municipality². Rivers also suffered severe degradation. In the late 1950s, some sections of Suzhou Creek had turned black and malodorous all year round. At the confluence of Suzhou Creek and the Huangpu, a clear demarcation line, in terms of color, could be seen between the waterways. Yet, water in the Huangpu itself was far from clean. In 1963, water near the intake of the Yangpu

Water Plant, which was located in the lower section of the Huangpu, turned black and foul-smelling for 22 days in that year. Thereafter, year after year the period of black and smelly water gradually increased to 49 days per year³. The issues of sulfur dioxide emission and discharge of industrial waste had to be solved in order to maintain or recreate a sustainable environment.

In the 1980s, it became apparent that the key cause of Shanghai's environmental pollution was the high density of industries in the urban area. The local authorities initiated a new policy to encourage state-owned industrial enterprises to move to the neighboring rural areas. This policy, which was also connected to the nation-wide policies of economic reform, stimulated industrial activities in the municipality. In particular, township enterprises (*xiangzhen qiye*) mushroomed in all the rural towns and farming areas. However, this transformation was not accompanied by measures for the protection of environment or by the rigorous enforcement of existing regulations. Many township enterprises took to discharging their waste directly into the air and the waterways. Some waterways were cloaked with the accumulation of industrial waste to a point where the flow of water was stopped. The disorderly discharge and dumping of industrial exhausts and solid wastes only increased the effects of pollution from the already heavily polluted urban areas on the air and water resources in the rural areas. Economic development was causing new problems to the entire municipal territory. To put a brake on these negative trends, a set of comprehensive measures had to be implemented to protect the environment and, at the same time, sustain economic growth.

Building a Sustainable Environment

To build a sustainable environment calls for an effort that includes legislation, planning, financial investment, management, and law enforcement. Individual measures must be part of a comprehensive plan.

Before 1976, there was no measure or framework for a comprehensive treatment of industrial waste in Shanghai. Waste treatment activities were limited to a few industries where industrial wastes might cause fierce environmental damage to the environment. These industries included papermaking, chemicals, dye, leather, metallurgy, medicine, etc. In the early 1980s, because of the fast growth of the economy, coupled with various environmental problems, the Shanghai municipal government realized that it was time to rehabilitate the environment in a comprehensive way. It started to work on an environmental protection master plan, a regional environmental protection plan and a few specially focused plans.

In 1982, a task force was set up to prepare a technical study for a "Comprehensive Protection Plan for the Huangpu River." Due to the significant increase of organic pollution in the river, the supply of drinking water to the population was seriously under threat. Close to 800 experts from both China and overseas joined in the designing of the project. The task force eventually proposed a strategy and a scheme of action for the preservation of water resource in Shanghai⁴.

At the same time, the government started to formulate an "Environmental Protection Master Plan of Shanghai," which covered 11 urban districts (*qu*) and rural counties (*xian*) in the municipality⁵. The plan addressed the following aspects: regulation of the geographical distribution of the population in the Shanghai region, rationalization of the industrial layout and structure, reduction of the pollution load on the environment, and new criteria to define a functional areas (industrial vs. residential areas).

The Shanghai Environmental Protection Bureau (Shanghai huanjing baohuju) (SEPB) was founded in March 1979 to take charge of all environmental protection work in the city. In 1986, all the districts and counties in the municipality had to set up their own local environmental protection bureaus. Under the supervision of the Shanghai Environmental Protection Bureau, these bureaus were to take up environmental protection work at the local level. They assigned environment inspectors to the neighborhoods (*jiedao*) and townships (*xiang*) under the jurisdiction of the local government to assist the heads of neighborhoods and townships to manage environmental protection work. In this way, a network for environmental management was organized as a three-tier structure under the supervision of the Shanghai Environmental Protection Bureau⁶.

In 1979, the State Council promulgated the Law of Environmental Protection of the People's Republic of China⁷. In accordance with the law, the Shanghai municipal government and SEPB adopted a series of local regulations to provide the legal basis for local environmental protection work. The major regulations include "Shanghai environmental protection regulation" (Shanghai shi huanjing baohu tiaoli) and "Protection regulation for upstream water resources of Shanghai Huangpu river" (Shanghai shi huangpu jiang shangyou shuiyuan baohu tiaoli). To reinforce their capacity for environmental management, the local authorities also adopted a series of environmental protection rules such as "Assessment rules for environmental impact" (Huanjing yingxiang de pinggu biao zhun), "Rules for discharge permission and fee" (Paiwu xuke he shoufei biao zhun), etc.

Government Financial Input in Environment Protection

In the mid-1980s, environmental protection work in Shanghai entered a stage of comprehensive improvement at the municipal level. Government funding for the protection of environment increased significantly. From 1980 to 1985, total governmental support for environmental protection was 0.62 billion RMB (US\$75 million). From 1986 to 1990, the total amount more than doubled to reach 1.43 billion RMB (US\$173 million). From 1992 to 1996, it reached the impressive figure of 20.17 billion RMB (US\$2.43 billion)⁸. Most of the money went to projects for a comprehensive rehabilitation of the environment. Even allowing for the high rate of inflation during a part of the period, the local authorities have made a substantial investment in the rehabilitation of the environment.

In 1985, Shanghai started to restructure its economy. In particular, the government strongly encouraged investment in services, which caused the share of secondary sector output in local GDP to decline quite significantly. In 1978, industry accounted for 77.4 percent of the local GDP. Its share dropped to 59.1 percent in 1990 and 48.4 percent in 1999⁹. This restructuring of the local economy, with its emphasis on non-polluting activities, helped to promote and facilitate environmental work in the municipality. Yet, it could not by itself solve the problems inherited from the past. The latter had to be tackled through specific policies that we shall present in the next section.

The Protection of Water Resources

The Huangpu is the major source of drinking water for the Shanghai population (see figure 1). Its increasingly polluted stream therefore required a determined effort. The first stage of the project for water diversion and protection in the upper reaches of river was initiated in 1985. It was completed within two years and

benefited four million local households. The second stage of the project, started in 1994, was completed in 1997. The project moved water intake upstream and expanded the capacity of the intake to five million tons per day. At the same time, the government invested 0.2 billion RMB (US\$24 million) in 12 giant industrial polluters along the upper reaches of the river, with the view to closing them down or to relocating them away from the area. Eventually, these measures resulted in a 60-percent decrease in pollution.

Suzhou Creek is a tributary of the Huangpu and a major element of the local waterway system. It had been seriously polluted by industrial and residential waste discharge for several decades. To rehabilitate the ecology of the Suzhou Creek, the government invested 1.6 billion RMB (US\$193 million) in 1988 in the first stage of the Sewage Confluent Project. This project included a 33.39-kilometer pipeline for the collection and discharge of both industrial and residential wastes in a 70.57 sq. km concentration area along the creek. The pipeline led to a new waste-treatment plant. After thorough processing, the liquid waste from the concentration area is directly pumped into the sea. The project was completed in 1993, and started improving the condition of Suzhou Creek in great measure.

While the project was being implemented, the government set up a "Comprehensive Rehabilitation Office" (Zonghe zhengzhi bangongshi) to deal with the pollution of the tributaries of Suzhou Creek. The objective of the Office is to cleanse the entire water system of Suzhou Creek and to give it a clean appearance¹⁰. The mid-1990s saw the beginning of the second stage of the Sewage Confluent Project. Six billion RMB (US\$723 million) were invested to build a new pipeline system for the treatment and discharge of the industrial waste

that came from the western areas of Shanghai. This waste used to be directly discharged into Suzhou Creek and other rivers of Shanghai.

Comprehensive Control of Air Pollution

By the 1970s, Shanghai had already transformed most of its industrial boilers. It helped alleviate air pollution to some extent, but small-sized industrial and non-industrial boilers were still scattered in large numbers in residential areas. In 1982, Shanghai set itself the goal of making the central city an area free of black smoke. By the end of 1985, 21,508 small-sized industrial and non-industrial boilers had been transformed, and the goal of the municipal government had been basically achieved. In the later 1980s, the SEPB started creating " smoke-and-dust monitoring zones " in the central districts of the city. By 1992, such " smoke-and-dust monitoring zones " covered the whole central area of Shanghai.

Thanks to these measures, the amount of dust in suspension in the air has decreased significantly. In 1995, the average quantity of dust in the air was 14.3 tons per sq. km. per month. It was 1.45 ton less than in 1994. In 1996, it was reduced by a further 0.49 ton and 0.53 ton in 1997. Altogether, over a period of three years, the government has succeeded in reducing dust in the air by 15.7 percent. At the same time, new gas supply facilities were being installed in most residential districts in the city center to ease the pollution that resulted from the use of coal as the major source of energy (cooking or heating) by individual households. Finally, in the mid-1990s, the SEPB turned its attention to reducing fumes from buses and cars. As a result, most taxis in Shanghai have installed LPG equipment.

Noise used to be a serious problem in Shanghai. In the 1980s, the SEPB adopted regulations on noise standards and required enterprises that created noise in downtown Shanghai to improve their production pro-

cesses and meet the new standards. By 1990, 67 million RMB (US\$8 million) had been invested in noise-easing activities, creating 123 quiet residential quarters covering 87 percent of the downtown area.

Comprehensive Treatment of Heavily-Polluted Industrial Quarters

Shanghai harbors the structure of a traditional industrial city. Industrial quarters are actually made up of areas where a high density of factories is combined with an equally high population density. Some areas of Shanghai were seriously polluted by various industrial discharges from this industrial concentration in the city. The Xinhua Road, Hetian Road and Taopu industrial quarters were representative examples of this very unhappy mix (see figure 1).

The Xinhua Road industrial quarter is located in the western part of the central city and covers an area of 2.2 sq. km. Some 110 industrial factories for chemicals, papermaking, metallurgy and medicine, etc. were scattered in the area, which was also home to around 70,000 residents. In 1986, the government invested 0.45 billion RMB (US\$55 million) to clean the area. A total of 407 environmental projects were completed, including the relocation or closing down of most of the factories that caused severe pollution. It reduced dust in the air from a monthly 24.5 tons per sq. km. in 1985 to 11.94 tons in 1993. Before this policy was carried out, black smoke and bad odors floated in the air and colored liquid waste covered the surface of the roads. Now, the area has become a beautiful, quiet and clean residential quarter.

The Hetian Road industrial quarter is located in the northern part of the central city and covers an area of 0.85 sq. km. It used to have 50 industrial factories for chemicals, daily consumer goods, electrical machines, industrial instruments and medicine. There were also several thousand households and three middle schools

in the area. In 1987, the government invested 1.08 billion RMB (US\$130 million) to help relocate 13 industrial enterprises as well as 2,367 households. Moreover, 233 environmental projects were implemented in 22 industrial enterprises. After eight years of environmental treatment, industrial wastewater discharge has been reduced by 65 percent and exhaust emissions by 62 percent.

The Taopu industrial quarter is located in the northwestern corner of Shanghai and covers an area of 3.1 sq. km. It was built on farming land in the 1950s to the benefit of major pharmaceutical companies. Large-scale "workers' villages" (xincun) were built around the factories to facilitate the movement of employees commuting from home to the workplace. The residential and production

functions were therefore intimately mixed in the area. Industrial pollution also had a direct effect on the local residents who had long complained about this unfortunate state of affairs.

In 1987, the government started cleaning the area. Up to 1995, the total investment for environmental rehabilitation reached 38 million RMB (US\$5 million). The largest sewage treatment factory in Shanghai, with a treatment capacity of 60,000 tons per day, was built in the area. Four steam boilers with a steam capacity of 20 tons per hour were installed in the area to concentrate the heating supply.

Altogether, from 1980 to 1995, total government investment in the environmental rehabilitation of industrial quarters in Shanghai amounted to 8 billion RMB (US\$1 billion),

Challenges and Solutions

Thanks to government efforts since 1985, the environmental situation in Shanghai has improved significantly. The high rate of economic growth and massive urbanization in the city, however, have placed the environment under increasing pressures. To protect it from further deterioration, two issues need to be addressed. They will be discussed in the following section.

Fund Shortage and Focus

Since the mid-1980s, the environmental work in Shanghai has mainly focused on the environmental problems inherited from the past. From 1949 to the mid-1980s, the largest part of government funding went into economic construction, especially in the development of industrial production. Urban infrastructures and environment protection were neglected. Environmental work in the 1980s and 1990s

could hardly do more than ease the existing environmental situation to some degree. Many environmental problems still remain or may even develop due to further economic development.

To solve these problems within a reasonable span of time, massive investments will have to be made. According to recent calculations, environmental rehabilitation from 2001 to 2003 will require 50 billion RMB (US\$6.5 billion). Government resources will not be able to cover this expenditure. Therefore, beyond technical considerations, the shortage of funds appears as a major challenge for the local authorities. The Shanghai municipal government is currently considering schemes for a diversification of funding for environmental protection. According to these schemes, 35 percent would come from industrial enterprises and district governments, 35 percent from the

central government, investment by overseas governments, and bank loans, 10 percent from government bonds and 20 percent would come from a municipal foundation for environmental protection. Except for funding from the central government and local government, financial support for the environment would rely on non-governmental and overseas funds.

How to attract such non-governmental and overseas capital in the Shanghai environmental sector is a hot topic in government research nowadays. Currently, many sectors of the Shanghai municipal apparatus are facing a situation of fund shortage. Several years ago, some of them started to transform their finance system to attract non-governmental investment. They gradually established market-funded operations. Many municipal projects have been activated with non-government capital. However, the environmental sector in Shanghai has long been supported solely by the government. In recent years, some environmental projects have called for public involvement. For example, to ease air pollution in the Shanghai suburbs, the government banned the burning of wheat straw and encouraged wheat-straw recycling. In 2000, the total investment in the program for wheat-straw recycling reached 4.8 million RMB (US\$0.6 million), of which 23 percent came from the central government, 46 percent from the municipal government, and 31 percent from the concerned farmers.

The treatment of the daily output of rubbish is another example of public involvement. Currently, most waste is simply transported to landfills without identifying or removing toxic or useful items. This has caused serious environmental problems, while land shortage is limiting a further expansion of landfills (which would mean sacrificing fertile farmland). To reduce the amount of waste, Shanghai is going to build several incinerators. The Shanghai Jiangqiao Incineration Plant is currently under construction. The project started in 1998 and will be completed in 2002. The total invest-

ment is 0.75 billion RMB (US\$90 million), of which, the Spanish government has contributed US\$32.7 millions. Although there are other examples of diversified fund-raising, the systematic operating system that will ensure long-term funding for environmental work in Shanghai has yet to be designed.

It is expected that, with the transformation of the financial system, the financial sources will eventually diversify and the financial situation in the sector of environment work will gradually improve. At present, the full-scale rehabilitation of the environment is not feasible due to the limited funds available. Shanghai's environmental plan will therefore focus on a few central issues that we shall discuss in the next section.

Water System

Currently, the entire river system in the central part of the city is polluted in various degrees. Some waterways have been soiled by daily rubbish for many years. In 2000, the government has invested 0.5 billion RMB and rehabilitated 1141 waterways for a total length of 2560 km. Yet, there remain 107 areas with dirty waterways in central Shanghai. In 1999, 95.7 percent of industrial wastewater was treated before discharge, while only 50.4 percent of household wastewater were treated. The remainder simply went into the river system without treatment.

In the past, environmental work in Shanghai has focused on industrial wastewater. With the growth of the city and increase in the daily consumption of water, wastewater has become a major burden on the environment. In the rural areas, livestock farms are also becoming a major object of concern. While livestock farms have not received government permission to discharge their wastewater into the river system, many still do so. Finally, water supply is itself another pollutant of the river system in Shanghai. There are 12 plants in the city and their wastewater is directly discharged into the river system without any

treatment. Environmental work on the river system should therefore focus on the above issues.

Quality of the Atmosphere

Coal has long been the dominant primary source of energy in Shanghai. In 1999, the total consumption of coal in Shanghai amounted to 40 million tons that generated 500 billion m³ of exhaust gas (90 percent of it was of industrial origin). The exhaust gas from motor vehicles and the burning of wheat straw are other air pollutants. Therefore, the environmental plan will pay full attention to the control of the emission from coal burning, especially from desulfurization treatment in power plants, as well as to measures to limit exhaust gas from motor vehicles and the burning of wheat straw.

Solid Waste Treatment in Shanghai

At present, solid waste in Shanghai is moved to landfills without any form of pre-selection of recyclable items or collection of toxic products. While there are a few measures for waste reduction and recycling, there is so far no comprehensive scheme to reduce the harmfulness of certain wastes to the environment. In the outskirts of Shanghai, there is no systematic collection of garbage, a lack of effective measures for the treatment of "white waste" and refuse from construction, and no facility to process toxic or hazardous wastes. This sector should therefore be a major focus of the environmental plan.²

Efficiency of Environmental Work and Public Involvement

As mentioned above, Shanghai has set up a three-tier network for environmental management to ensure the enforcement of the legislation on the environment. In practice, we found that there was an overlapping of responsibilities in the system, which has led governmental organizations to "pass the buck" among one

another and to low efficiency in environmental work. Organizational restructuring and the enhancement of law enforcement by the local executives are urgent tasks to be undertaken. From the history of environment protection in Shanghai, it appears that the government has long been a dominant force of the sector. It was considered that the protection of the environment was a responsibility of the government. Although the government has in recent years encouraged public involvement in the sector, it has actually failed to make more than a symbolic move in that direction. The public awareness of environmental protection is very weak, leading to widespread irresponsibility about the environment among enterprises and residents. To ensure the success of environmental work in Shanghai, the government should explore legal means and harness the public education system to raise the public awareness. The following measures are suggested:

1. Environmental training for the administrative staff of government organizations and enterprises;
2. The introduction of environmental education into the teaching materials in primary schools to raise environmental awareness from childhood;
3. Starting an environmental protection column in the newspapers to give more prominence to environmental concerns in the media;
4. Encouraging local communities to organize voluntary groups for environmental work in neighborhoods.

At present, although several national and local regulations on environment are in force in Shanghai, there is still a lack of detailed measures for their implementation in many sectors. In particular, the following regulations are urgently needed:

- Regulation on the management of environmental sanitation, especially for daily waste management;
- Regulation on sewage management;

- Regulation on the conservation of drinking water resources;
- Regulation on the prevention of air pollution, especially by exhaust gas from motor vehicles;
- Regulation on the management of green areas and forest growing;
- Regulation on the reduction of package waste;
- Regulation on a comprehensive rehabilitation of the environment;
- Regulation on the management of solid-waste recycling.

Conclusion

Since the mid-1980s, the municipal government has made repeated and decisive efforts to protect the environment from further deterioration in Shanghai. This has improved the environment to some degree. Yet, environmental work in Shanghai still has to match the level of development of the local economy. With the urbanization process underway in Shanghai, environmental problems will become more acute. If the government remains the only investor in the

environmental sector, the shortage of funds will become a crucial issue in the near future. Currently, public awareness of and involvement in environmental issues are being encouraged. However, public involvement in Shanghai has not yet been included in a clear agenda. Therefore, the mobilization of the public about environmental issues and a change in behavior need to be part of the government's agenda.

Notes:

1. *Shanghai jingji nianjian* [Shanghai Economy Yearbook], (Shanghai: Shanghai jingji nianjian bianjibu, 2000), pp. 28-41
2. *Shanghai huanjing baohuzhi* [Historical Gazetteer of Shanghai Environmental Protection] (Shanghai: Shanghai shehi kexueyuan chubanshe, 1998), pp. 192-215
3. *Shanghai huanjing baohuzhi*, pp. 158-168
4. *Shanghai huanjing baohuzhi*, pp. 168-170
5. *Jiaqiang shanghai huanjing baohu he jianshe de jueyi* [Decision on the Enhancement of Environmental Protection and Construction in Shanghai] (Shanghai: Shanghai shizhengfu, 1999), p. 3
6. *Shanghai gaige kaifang 20 nian* [Twenty Years of Reform in Shanghai] (Shanghai: Shanghai renmin chubanshe, 1998), pp. 506-525
7. Shanghai keji lishiguan, *Shanghai huanjing baohu fagui daquan* [The Complete Regulations of Shanghai Environmental Protection] (Shanghai: Shanghai keji lishi ziliao, 1995), p. 183
8. *Shanghai tongji nianjian* [Shanghai Statistics Yearbook] (Shanghai: Shanghai tongji nianjian bianjibu, 2000), p. 102
9. *Shanghai jingji nianjian*, pp. 55-56
10. *Shanghai huanjing baohuzhi*, p. 168



MEXICO



MEXICO CITY

<i>Size of the country</i>	1 958 000 km²
<i>Population</i>	99, 6 M
<i>Population density</i>	50,8 hab/km²
<i>Population growth rate (1993 – 1999)</i>	1,7%
<i>Part of urban population</i>	74 %
<i>Life expectancy at birth</i>	72
<i>Infant mortality (per 1000 live birth)</i>	30
<i>Access to improved water sources (% of population)</i>	83
<i>Ethnic groups, their percentages in the population</i>	Half-caste (Indian+Spanish): 60%, Amerindians: 30%
<i>Official languages</i>	Spanish
<i>Religions</i>	Catholic: 89%, protestant: 6%
<i>Gross domestic product</i>	429 billion USD
<i>Gdp per capita</i>	4400 USD / Hab
<i>Inflation</i>	9,6%
<i>Gdp growth rate</i>	3,5%
<i>Gdp repartition in different sectors (1999)</i>	Agriculture: 5%; Industry: 28,2% (manufacturing: 21,1%), Services: 66,8%.
<i>Unemployment rate</i>	4,1% (1996)
<i>Illiteracy (% of population age 15+)</i>	9 %
<i>Tourism</i>	9 M visitors (1996)
<i>Population of Mexico City</i>	17,9 M

TOURISM AND CULTURAL HERITAGE IN MEXICO CITY

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Introduction

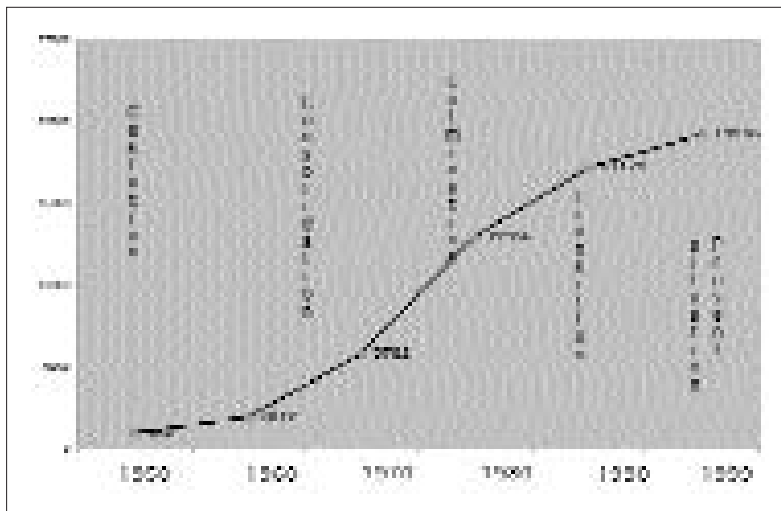


Figure 1. The Stages of Development of International Tourism in Mexico (Unit: thousands)

Tourism, which is a sector not well known to social scientists and often underestimated by them, has reached a level of sustained growth in developed societies¹. Some countries like Mexico have also joined in the phenomenon of mass tourism implanted in capitalist societies after the Second World War (see Figure 1).

The expansion of international tourism has been overwhelming. Since 1950, the tourist activity world-wide has been growing at a stable rate of 7.1 percent annually, with the number of tourists increasing from 25 million in 1950 to 563 million in 1965. At the same time, international tourist revenues have grown by over 12.4 percent annually, from U.S. \$ 2,100 million to 401,000 million².

The effects of the world crisis first felt at the end of the 1970s did not play a major role in the macro-trends of tourism, although it contributed to slowing down its pace, both in numbers of tourists and in international tourist expenditure. But it is evident that, given the context of the deceleration of the economy in general, the performance of tourism has been quite satisfactory.

During the last two decades, one of the most relevant changes in the dynamics of tourism has been the growth of interest in forms of tourism that strongly differ from the mass beach model associated with the Fordist phase of post-war capitalist development. Among these forms, urban tourism stands out. As Cazes and Potier have said:

" in a kind of cyclic logic, the cities are trying to rediscover the amenities that had defined their attractiveness before the devastating tide of industry and circulation, renewing a tourist function nowadays forgotten that had largely preceded the

*functional development of beach or mountain resorts.*³"

It is in this context of renewal of urban tourism that we shall examine the development of tourism in Mexico City, its main features, the impact on the urban economy and the location of the main tourist infrastructures. Furthermore, we shall also examine the new outline of the official project for tourism in Mexico City. Lastly, we shall discuss the benefits and the risks that would come from an increase of tourism in the Historical District of Downtown Mexico City, with special focus on traffic, personal security, pollution, and other uncontrolled urban problems.

Dimensions and Characteristics of Tourism in Mexico City

Although the three large Mexican cities (Mexico, Guadalajara and Monterrey) account for 30 percent of the total national supply of hotel rooms, Mexico City alone has 27.1 percent of the total and almost 70 percent of the rooms available in the three metropolises. Mexico City (Federal District and the surrounding municipalities⁴) currently has 731 hotels with 52,248 rooms in all categories⁵. It is undoubtedly the country's major tourist center in terms of supply in the hotel sector (see Table 1).

Likewise, the Federal District has a great capacity for attracting receptive tourism, as was confirmed in 1997 with the arrival of 1,740,044 foreign tourists — 21.3 percent of the national total — more than half of whom (50.3 percent) stayed in five-star hotels while 40.3 percent patronized three-star and four-star hotels. Altogether, over 90 percent of the receptive tourism inflow in the Federal District headed towards higher-class hotels (three-star and above)⁶.

Nevertheless, it is well known that the average length of stay in the Federal District is 1.98 days

for domestic tourists and 2.48 days for foreign tourists, as against an average in all destinations of 1.95 days for domestic tourists and 3.76 days foreign tourists. This difference is clearly due to the length of stay at beach resorts (5.13 days for foreign tourists and 2.43 days for domestic tourists). The difference between the Federal District and the beach destinations stems from the weight of business tourism in the capital, which tends to reduce the average length of stay, for both domestic and foreign tourists. Of visitors⁷ to Mexico City 88.3 percent are nationals, while the rest come from other countries. International flows from the United States account for 45 percent, Europe for 3.6 percent and South America for 0.9 percent (see Table 1)⁸.

On the other hand, between 1995 and 1997, the flow of domestic tourists decreased. All the indications are that this was due to conditions in Mexico City itself — namely insecurity, pollution, street hawking, etc. — decisive factors that inhibit the arrival of tourists. In turn, receptive tourism in the Federal District has

Table 1. Hotel Activity in the Federal District of Mexico City (1994-1997)

Year	1994	1995	1996	1997
Rooms	17,976	39,856	40,188	39,008
Available rooms	6,564,433	14,397,069	14,671,781	14,178,592
Occupied rooms	3,860,095	9,135,464	8,367,753	8,246,433
Occupancy rate	58.80	63.45	57.03	58.16
Total tourists	2,263,559	7,889,411	7,379,020	7,345,086
National tourists	1,456,983	6,203,578	5,736,494	5,605,042
International tourists	806,576	1,685,833	1,642,526	1,740,044
Tourist nights	5,535,319	16,390,311	15,436,383	15,385,496
National tourist nights	3,542,409	12,124,639	11,296,382	11,072,226
International tourist nights	1,992,910	4,265,672	4,140,001	4,313,270
Density (tourist/room)	1.43	1.79	1.84	1.87

shown a slight increase of close to 50,000 people in three years.

The number of foreigners staying at top-level hotels, especially five-star hotels, has increased remarkably in the last three years. This may be related to the stimuli given to business activities by the recent economic revival and the desire on the part of foreign visitors to stay at places that provide better services and more personal security. The devaluation of the peso against the American and Canadian dollars in 1995 have certainly also played a role⁹.

Estimating the impact of tourist activities on the urban economy is very complex. This is due to the fact that tourism is not an isolated activity, defined and characterized by a specific category in the statistics. On the contrary, income from tourism hinges on four central components: the transportation of tourists (international, domestic and even local, for example in tourist taxis), lodging; the presence of tourists at restaurants, bars and so on and, finally, recreational activities during their stay (visits to historical or archaeological sites, museums, urban circuits, etc.).

The complex of earnings from tourism has led to its impact being determined through estimates. A first estimate is that of the share of Branch 63 (temporary lodging) in the gross domestic product of the Federal District: estimates show that the share has risen from 5.8 percent in 1995 to 7.02 percent in 1998¹⁰. Using indicators such as the number of jobs per room, Hiernaux and Rodriguez estimate that there are close to 20,000 hostelry jobs in Mexico City, of which 6,650 are located in the Historical District, with 12,007 rooms (23 of the metropolitan total)¹¹.

One of the main characteristics of tourism is its capacity to have a substantial multiplier effect in terms of indirect employment in tourist activities. It can be safely said that one direct job generates about three indirect jobs¹². Indirect jobs develop out of the demand generated by tourist activities in other economic activities (banking, professional services to hotels, even agriculture, etc.).

Because of these potential benefits, promoting tourism is now recognized as part of a core

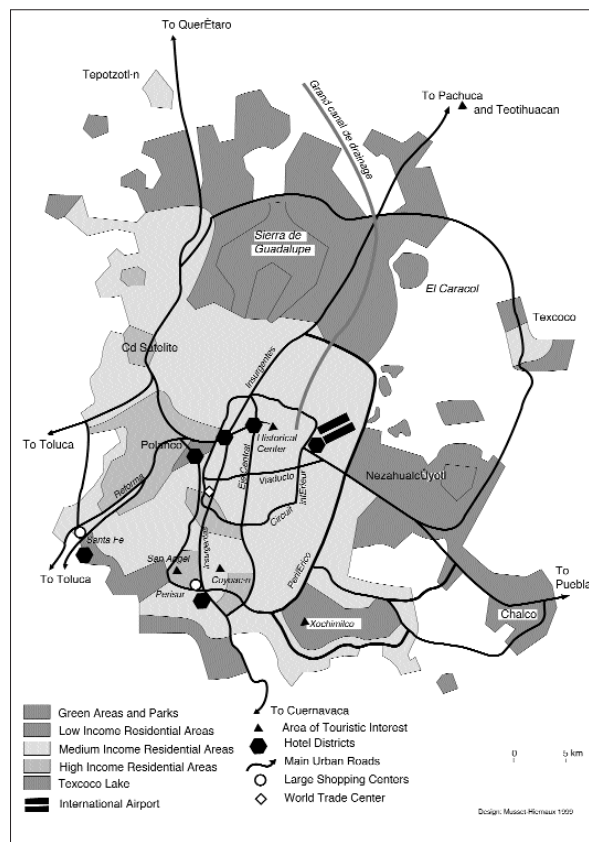
strategy to generate employment, attract investments and stimulate the economy of the cities, and is tipped to become the new " growth engine " of urban economies¹³.

Location of the Infrastructures for Tourism

Tourist activities in Mexico City are mainly concentrated in areas that have tourist infrastructures (hotels and restaurants) and tourist sites. Of the metropolitan total of 731 hotels and 52,248 rooms available, 80.8 percent of the former and 84.5 percent of the latter are located in the Federal District. Moreover, hotels in the surrounding municipalities are located in Tlalnepantla, Naucalpan and Teotihuacán.

In turn, hotels in the Federal District show a marked concentration. Of 591 hotels, 67.8 percent are located in the Cuauhtémoc District¹⁴; 7.4 percent in Miguel Hidalgo and 6.6 percent in Benito Juárez (see corresponding chart and Map 1). The Historical District alone accounts for 91 tourist quality hotels and 12,007 rooms, 90 percent being above the three-star category. In spite of this, it is possible to foresee the emergence of three nuclei: Perisur, with hotels along the peripheral freeway and on Insurgentes Avenue, the recently-begun Santa Fe Mega project, and, finally, the International Mexico City Airport (AICM), with several top-class hotels. These three groups are a response to the increase, that began in the 1990s, in economic flows between Mexico and the rest of the world, causing an accelerated growth of business tourism and activities such as entrepreneurial congresses, seminars and so forth.

Although Mexico has witnessed a slight diversification in the location of hotels since the opening up of the Mexican economy (with NAFTA), hostelry is predominantly located in the Cuauhtémoc District, including the Historical District. It is in fact along the Paseo de la Reforma that the construction of new hotels has been taking place recently. This has created a tourism-hotel corridor that runs from the



Map 1: Tourism in Mexico City

main square, Zócalo, to the Chapultepec Park. The overwhelming concentration of tourist attractions along this axis also needs to be recalled. The museums are mostly found in the Historical District and in the Chapultepec area. The best restaurants are located in the downtown area, Reforma, the " Pink Zone " (" Zona Rosa "), Polanco and along Insurgentes Avenue. The national heritage buildings in the Historical District also reinforce the great attraction of this axis for tourists and foster the creation of infrastructures towards this axis.

However, tourist attractions are not located only in the Historical District and along this axis. There are at least five important sites among the most visited places: Xochimilco, a symbol of traditional identity, much appreciated by both

Mexicans and foreigners; Teotihuacán, one of the oldest and most impressive archaeological sites in the Mexico Valley; and above all the internationally famous Coyoacán, whose attraction stems from its intense urban weekend life, along with several museums that reinforce its cultural position (Trotsky's House and Museum, Frida Kahlo's House and Museum and the Museum of (Popular) Cultures).

San Angel, with its Saturday Bazaar has become the center of the arts-and-crafts trade, along with the Museum of the El Carmen Convent, the Diego Rivera Museum-Study, outstanding restaurants and pleasant walks in the well-kept colonial district. Lastly, the Shrine of Guadalupe, which regularly attracts domestic and foreign tourists, is especially visited on December 12th, even if the pilgrimage does not yield as much in hotel occupancy as the more classic forms of tourism¹⁵.

The Shaping and Morphology of the Tourist Space

A little studied dimension of tourism is what is known as "residential" and weekend tourism. Mexico City is an important generator of this kind of activity as every weekend, holiday and vacation period sees thousands on the highways heading towards privately-owned houses or nearby holiday resorts such as Valle de Bravo, Ixtapan de la Sal and Malinalco, still the main destinations in the State of Mexico, while some also head toward the State of Morelos.

The growth of Cuernavaca is due not only to a certain industrial and tertiary deconcentration away from Mexico City, but also to the great number of country houses, hotels and water resorts that attract the metropolitan visitor. This phenomenon has spread to every social class thanks to the variety of prices and types of tourist attraction available. It has extended beyond Cuernavaca and includes the Cuernavaca-Cuautla axis, the southern part of the capital of Morelos towards Jojutla and Tequesquitengo, and Tepoztlán, a traditional

village, in the north of Morelos State with a growing population of New Age hippies and a pre-Hispanic sanctuary.

Residential and weekend tourism has certain consequences beyond the sectors of tourism and travel: on the positive side, there is the rise in the employment rate, economic overflow and the stimulation of activities such as the construction industry and, on the negative side, the saturation of urban infrastructures and the increasing lack of water in the Cuernavaca Valley.

The development of tourism in the metropolitan and Central Region has had obvious consequences for the structuring of the metropolitan space. The creation of an axis of modernization in the central areas of the city, where tourism and modern activities are associated, has contributed to changing the physiognomy of these areas. The possibility of a rapid growth of urban tourism opens new alternatives for the revitalization of the Historical District. Yet it is also desirable to avoid the "museumification" suffered by many other cities, as well as a gentrification in which the recycling of the Historical District would result in an exclusive space for the more affluent classes¹⁶.

The fact that tourism attractions are not totally centralized in the Historical District also opens up the possibility for other districts and municipalities of consolidating their local economy through the development of tourist amenities. Nevertheless, lodging is still a fairly concentrated activity and visits to others sites have to be made by taxi or public transport. The supply of facilities for excursions to different sites is not yet well developed and tourists are forced to use their own initiative to reach them.

The existence of tourist attractions in the metropolitan area and the Central Region makes for the building of a tourist space of regional coverage that will benefit the consolidation of non-central spaces and the generation of economic activities in the outskirts where they are badly needed.

New Programs to Increase Tourism in Downtown Mexico City

Until 1998, the Federal government was in charge of promoting the development of tourism in Mexico City, while places like Teotihuacán depended on the promotion efforts of the Regional Government (The State of Mexico) and the Federal government. This was due to Mexico City's dual pattern of institutional tutelage. On the one hand, there were no local authorities *per se* in the Federal District. It was governed by a Regent appointed by the President. The Department of the Federal District, which administered the city, did not establish an agency for tourism. On the other hand, after the 1960s, the city started expanding toward the neighboring State of Mexico, which had its own institutions for the development of tourism in its territory.

The fact that tourist activities were dependent on the federal authorities hindered both support for a specific policy on tourism and the development of such a policy. The priorities for the national economy lay in fostering places of high tourist growth like Acapulco and, later, Cancún, Ixtapa and Los Cabos, and promoting investment in these places. These were destinations planned, built and promoted by the Mexican Government at the beginning of the 1970s (Acapulco had been the traditional center of Mexican tourism since the 1940s).

The recent democratization of the Federal District has led to the creation of a local government with characteristics similar to those of the provincial governments, but with some dissimilarities as well. The 1997 reform paved the way for the election of a new center-left government (inspired by social-democracy). This government, headed by Mr. Cuauhtémoc Cárdenas, decided to bring in a specific law on tourism for the Federal District and set up a Tourism Authority to promote tourism in the city. It started functioning at the beginning of 1998.

It was quite clear to the new government that the development of tourism in Mexico City could be an important factor in the economic reactivation of the city, which had been badly affected by the Federal Government's economic policies and reforms of the last fifteen years. By contrast, the cities in the central and northern regions of the country had experienced more significant growth.

Mexico City's Tourism Authority therefore lost no time in applying new programs to bolster tourism. At the end of 1998, it was decided, in an agreement with the Universidad Autónoma Metropolitana Xochimilco (Mexico City), to study tourism trends and consolidation strategies in the Historical District of Mexico City.

General Programs for the City

One of the government's aims for the 1997-2000 period has been to reinforce tourist activities because of their substantial effects on employment, the building industry and economic development in general. Moreover, boosting tourism has been seen as a revitalizing factor in urban life, which has been deeply affected by the economic crisis, insecurity and disastrous conditions of traffic and pollution. The Tourism Authority envisaged the possibility of encouraging integral tourism towards the city, especially toward the urban poles of tourism mentioned earlier.

Another decisive factor was the position of the Authority, which differed from that of the Federal Government in emphasizing the promotion of international tourism in Mexico City with a view to garnering foreign currency. In other words, the government of the city saw tourism as an inclusive activity designed to attract both international and domestic tourists. In the same way, it is felt that access to the city's tourist sites should be extended to all of the city's inhabitants. The sheer size of the

city itself (more than 1500 sq. km) meant that it was not necessarily possible for the inhabitants of the metropolitan region to visit the centrally-located tourist sites.

To achieve this goal, the Tourism Authority of the city launched a program called "Live your city." It aimed to promote both public knowledge about the genuine attractions of Mexico City, especially its tourist amenities and areas, and access to them. The program initially took the form of independent activities by the local government, geared toward the internal promotion of the important tourist sites, aimed, *inter alia*, at obtaining a greater awareness of the quality of the city among its own inhabitants. On the other hand, the Tourism Authority was trying to set up extensive tourist circuits to cover the city's main natural and cultural attractions. These circuits were to rely on special public transport and the city's great traffic avenues, offering the possibility of smooth transportation between sites.

The Promotion of Tourism: A Strategic Program for the Historical District

The Historical District covers an area of approximately 10 square kilometers in the middle of Mexico City, around Zócalo, the city's main square beneath which lies the heart of Tenochtitlán (the ancient capital of the Aztec empire before the Spanish conquest)¹⁷.

The rich heritage of this Historical District is unquestionable. Apart from its rich Aztec heritage, of which only a tiny fraction has been brought to light by excavations, the district was also the political and economical center of the city built during in colonial times. Its position was reinforced at the end of the XIXth century and the beginning of the XXth (under the dictatorship of Porfirio Díaz, known as the *Porfiriato* period). These reasons explain the fact that a special study of the Historical District was commissioned in order to foster and consolidate tourism in this major area of the city. The main strategies and actions that emerged from

this study will be examined below.

Several reference documents define the guidelines for action by the current administration of the Federal District: the government program "A City for Everyone," the 1998-2000 Government Plan, the Strategic Plan for the Regeneration and Integral Development of the Historical District of Mexico City issued by the Trust Fund of the Historical District of Mexico City (Fideicomiso del Centro Historico de la ciudad de México) and, the program "Live your City" by the Tourism Authority.

All the documents point to the need to consolidate and expand tourist activities in the Federal District, especially in the Historical District, because of their obvious positive effects on direct employment and, through the multiplier effect, on a great many other related activities. Likewise, the Strategic Plan notes the importance of achieving a symbiotic relationship between tourist development and the regeneration of the Historical District.

Based on these considerations, a number of major strategic guidelines have been defined to direct the institutional tasks related to tourist activities in the Historical District:

1. Creating a positive image of the Historical District through tourism. To achieve the renewal of urban centralization as mentioned in the Strategic Plan, it is essential to recreate a more positive, more vital and stronger image of the Historical District. Such an image should be based on an assessment of the historical heritage and of centrality itself.
2. Developing tourism for all, that is seeking to encompass both domestic and receptive tourism. Similarly, every level of tourism should be taken into account, whether luxury, traditional or low-cost tourism. Finally, the strategy recommends supporting tourist activities well as sightseeing in downtown Mexico City.
3. Developing a tourist district inside the Historical District. The strategy includes a proposal to develop a district oriented

towards tourist activities, as defined for similar industrial districts (such as those in the Third Italy). A kind of entrepreneurial local world, with an industrious atmosphere and a shared system of values, are some of the actual characteristics of the Historical District. Every feature that fosters the creation of a "tourist environment" suitable for the development of tourism will be supported in order to reinforce district integration.

4. Making a joint effort to develop tourism: democratic management is planned for tourism in the Historical District. This strategy encourages the participation of every group that lives in Mexico City and makes it so that it can become a "City for Everyone." Great importance is attached to promoting interaction between tourism entrepreneurs and public institutions as well as to encouraging the participation of the inhabitants of the Historical District in efforts to develop tourism in their area.

The first step was to determine the strategies and actions that would erase the negative image of the Historical District. Two levels of action have been defined: the first relates to measures that will improve the general conditions (security, pollution, traffic, economic and social problems) in the Historical District. The second step is the definition of a set of six specific strategies to guide the framing of proposals and modes of action (see Table 2).

The Strategic Plan has also laid down several objectives to guide the strategies that underpin the renewal of the Historical District through tourism. In other words, the development of tourist activities is expected to support the projected revival of the Historical District in the following aspects:

1. The generation of new infrastructures: tourism is a way to achieve a positive effect on the flow of resources that will generate useful investments for the renewal of the Historical District. These infrastructures will also bring additional support to tourist activities.

vities.

2. The optimization of the existing infrastructures: there are several unused and under-utilized infrastructures, in both abandoned and semi-abandoned buildings. This is partly a consequence of the outward migration of people and economic activity. With the development of tourism, these infrastructures could be restored or better used.
3. The modernization of the downtown urban economy and the generation of new jobs: given the nature of the activities generated by tourist services, the modernization of the economy in the Historical District may be achieved through tourist-driven activities with the introduction of new technologies and the creation of a better-trained work force.
4. The restoration of historical buildings to be used by activities directly or indirectly linked to tourism (inns, hotels, museums, crafts centers, etc.): a substantial part of the heritage in the Historical District is under-exploited and faces immediate destruction unless alternative uses are defined very soon. With this in view, several proposals are being prepared. The guidelines will hinge on the will to rescue the built-up heritage.
5. The revival of downtown centrality through the development of tourist activities: the development of modern activities that are profitable and beneficial to the restoration of the Historical District will also contribute to the revival of a partially lost centrality. All this is also considered to be suited to the renewal of the demographic base of the Historical District, attracting new investments and the emergence of a recentralization effect in the city.
6. The generation of a positive international image that will benefit the development of the Historical District and attract investments in other sectors.

The modernization or restoration of historical buildings for the medium-income and high-income population: with the presence of new commercial and cultural activities related to tourism, the medium-income and

high-income population will be motivated to return to the Historical District for prestige occupations (trade, high-level services, offices, etc.) as well as for residential purposes.

Table 2. Specific Programs and Strategies for the Renewal of the Historical District

a. Rescue, Conservation and Assessment of the Historical and Cultural Heritage

- A program for institutions to " adopt " facades for renewal.
- Specific lighting for facades.
- The homogenization of existing urban facilities: telephones, news-stands, lottery stands, valet modules etc.
- Sign-posted pedestrian walks.
- Evening opening hours at museums.
- Complementary activities in restaurants, such as book presentations, cultural exhibitions and exhibitions related to the Historical District.
- The creation of new museums, such as the Museum of Low-Income Housing (" Museo de la vecindad ")
- Encouraging the creation of cultural centers for different countries: Spain, Chile, Colombia etc.
- Increasing the commercial, tourist and cultural use of traditional housing.
- Giving tax incentives to rescue forms of (popular) housing and turn them into new forms of dwellings (the concept of tourist and working-class housing).
- Attracting representation offices of the State Governments.
- Permanent program to rescue, maintain and clean squares and public areas.
- Linking the Church to the tourist-cultural activities.
- The creation of linkages between cultural activities and tourism (e.g. Historical District Festival).

b. The Improvement and Development of Tourist Services

- High-level specific training for tourist jobs.
- Specific programs for tourist guides in co-operation with the National Institute of Anthropology and History, universities, etc.
- The creation of a specialized magazine on the options and alternatives of the Historical District.
- The preparation of guides for occasional visitors.
- The preparation of a neighborhood register for consultation, invitations and making decisions.
- Establishing tourist information booths (Alameda and Zócalo).
- Developing a special service to assist tourists with legal advice.

- Linking educational centers (such as universities and technical schools) to the development of tourism through social service programs, academic research, practical activities for tourist students, etc.
- The revival of the Official Mexico City Bookstore with brochures and books about the city.
- Building hotels for low-income groups.
- Developing a program of inns and youth hostels.
- Increasing transportation facilities between the hotel zone on Paseo de la Reforma and the Historical District.
- The development of integrated packages (dinner and show, plus transport etc.).
- Safe local transport services (such as the " Safe Cab " Initiative)

c. Development of the Product

- Centers for the production, teaching and sale of arts and crafts.
- The integration of activities of indigenous groups in tourist zones. Organizing itinerant performances by the " concheros " (Indian dancers) in public squares.
- The establishment of thematic circuits (culture, commerce, gastronomy, etc.) using the existing street-car program (the tramway system) as means of transportation.
- Encouraging cultural and artistic projects (art galleries, high quality cinemas).
- Providing pedestrian spaces for second-hand booksellers during weekend street sales.
- The integration of existing commercial markets and malls as options for tourist shopping (San Juan, Mixcalco, Lagunilla, Merced, Pino Suárez, Meave...).
- The rescue of the business tradition and vocation of the Historical District through specialty occupations such as tailoring, footwear and jewelry shops.
- Developing a portfolio of new semi-tourist businesses (postcard business, snack bars, gastronomic counters, cybercafes, etc.).

d. Marketing the Historical District

- Making intensive use of the status of Heritage of Mankind given to the Historical District by UNESCO in 1984.
- Using television space to promote the Historical District
- Improving existing radio program.
- Creating and developing of Internet pages.
- Transforming the negative image of the center through media campaigns.
- Preparing an album of collector's stamps on the historical heritage.
- Setting up a Cultural Tourist Program for children.
- Publishing brochures on tourist services.
- Development and selling software on the attractions of the Historical District in CD, DVD and video formats.
- Establishing the concept of the Historical District as a differentiating element, e.g. by incorporating it into the address of establishments.
- Installing information computer terminals in hotels and museums.

e. Institutional Management

- Permanent follow-up meetings on tourist activity in the Historical District between local authorities, universities and entrepreneurs.
- The presence and permanence of the Historical District Festival. A permanent task for the sponsors.
- The creation of an Advisory Council on Tourism in the Historical District.
- Monitoring compliance with the regulations (on traffic, markets, street trading, etc.)
- Sanctions against pollution-creating establishments (waste, garbage, trash, etc.)
- The incorporation of the area's education centers into a common project.
- The creation of a new tourist police force in the Historical District.
- The participation of businessmen and neighbors in important decisions on tourism, i.e. relating to street ways, official celebrations, etc.

f. Financing the Development of Tourism

- Looking for resources for the restoration of historical monuments.
- Using a part of the 2% hotel tax for the specific promotion of the Historical District.
- Subsidized system of purchase and sale of heritage sites for their restoration.
- Adoption by companies of heritage sites (" Adopt a building ")
- National Lottery raffles for the conservation of the Historical District.
- Preparation of a catalog of investment opportunities and alternatives.
- Acknowledgement and incentives to outstanding investors.

Conclusion: Benefits and Risks

Several of the actions proposed in the program, which was launched in June 1999, have already been implemented. Some of them, like the Tourist Street Car (Tramway), have also been set in motion in the Coyoacán area outside the Historical District.

In general terms, it may be said that the program has been very well received by the entrepreneurs who feel that, for the first time, real co-ordination has been achieved between representative institutions and the city authorities who work for its development in line with Federal interests but have a more locally-oriented vision. The Tourism Advisory Council of the

Historical District of Mexico City was set up in 1999 to improve communication and contacts between entrepreneurs and the local government, to adjust tourist policies and programs. In the same way, at the beginning of this year, a new Tourism Institute was created with the specific objective of promoting the city, and especially the Historical District, as an international tourist destination. This is relevant to the improved co-ordination of action.

Nevertheless, it can be said that not everything is positive. The Safe Cab program implemented in 1999 was aborted by the existence of strong interests against it among the different taxi

trade unions. Likewise, it is extremely difficult to co-ordinate the different government offices involved in the Historical District so that they adapt their approaches in unison to the tourist project proposed by the Tourism Authority. Their divergent interests complicate the task of moving ahead to consolidate the tourist project for the Historical District.

On the other hand, it is true that the structural problems of the city have been alleviated. And yet there are no viable short-term solutions: delinquency has decreased through more intensified and effective police action and better surveillance, but it is nevertheless a titanic task which can hardly be completed within a few years. The Ministry of Security and Police recently announced a 25-percent decrease in breaches of the law since 1997, but the main target of the offenses is tourism.

The issue of street vendors who take over many places of tourist attraction is also a matter of major concern for the development of tourism. Nobody can deny that a certain amount of street hawking is favorable to tourism, but the actual number of vendors in the Historical District is so great that it affects the heritage of the city and makes it difficult to reach important sites. The government of the city has taken steps to reinforce surveillance to prevent street vendors from setting up in major streets. At the same time, the presence of armed guards with shields and helmets does give the impression of a state of siege, and this is clearly not auspicious for tourism.

Another central problem is the depopulation of the downtown area. Less than 200,000 people now live in the Historical District. This is the consequence of the expansion of commercial activities and buildings, as well as of living conditions, both exacerbated in turn by depopulation itself. A vicious circle has set in by which the reduction in the number of businesses in the area makes it less attractive and drives away more local residents, even further reducing trade possibilities. Because of depopulation, the Historical District of the city is

practically deserted after certain hours, and is not very appealing to the tourists who stick to their hotels. The area is even dangerous, and the lack of night life does not encourage the opening of restaurants or respectable businesses for the local population.

Finally, downtown traffic is still heavy, not because of the population, but because of the daytime concentration of employment, which is still dense in the Historical District. The inflow of commuters generates pollution and traffic jams in the narrow thoroughfares of the Historical District.

Even if these problems are affecting the development of tourist activities, it looks as if the trend towards a change and (re-evaluation) of the Historical District has now been set in motion. Several entrepreneurs have placed stakes on the improvement of the downtown area. For instance, a five-star Holiday Inn Hotel and two brand-new youth hostels have been built, and several restaurants and high-quality stores have opened recently. A chain of multiplex cinemas is planning to open several cinemas downtown. Finally, the restoration of housing in historical buildings is continuing apace, while developers have started building medium-level housing in the main core of the city with a serious concern for their architectonic integration.

The effects have been immediate. A positive and dynamic image of the Historical District is being generated to the benefit of the development and consolidation of tourist activities in the area.

Lastly, it is also important to note the latent risk that the downtown area will become more expensive as a result of tourist activities. The remaining population may not be able to continue living downtown, and this will bring about the transformation of the central space into an open-air museum area. This could be paralleled by a possible "gentrification" of the downtown area, e.g. with the recovery of popular spaces by high-income segments of the population, members of the upper middle

classes and “yuppies.” Yet, the strong presence of lower-income groups, which is more marked among local workers and street vendors than in the population itself, seems to indicate that gentrification may not happen in the near future.

The risk, however, is latent in the long run, especially in view of a new preference for downtown urban life among the high-income social groups, which may be tempted to preserve their insertion in the local culture as a social and economic competitive advantage in an otherwise globalized work-style and lifestyle. From this perspective, the rich cultural heritage of Mexico City may provide a strong motivation for moving to the Historical District. For the current central-left government, it is

clear that the possibility of gentrification does not conform to its vision of the city. At the same time, the will to modernize the city, eliminate poverty and improve living conditions in the Historical District, may lead to an involuntary gentrification. Such a trend will be observed and eventually controlled through a permanent monitoring of the evolution of tourist activities in the Historical District.

Finally, there is no doubt that tourism is the main activity that will allow the Historical District of the city to recover its heritage. In the programs undertaken by the government, it is clear that the actions to encourage tourism play a decisive role by tangibly improving the image of a city with an extraordinary historical heritage.

Notes:

1. A tourist is a person who travels from his permanent residence for at least 24 hours and stays away for the night to carry out non-profit activities related to the use of spare time. There are several different forms of tourism: beach tourism, cultural, religious, sports and even business tourism. International tourism is the one that crosses international borders, being either "receptive" (people entering a country) or "egressive" (people leaving on holidays).
2. World Tourism Organization, *Turismo Panorama 2020: Nuevas Precisiones* [Tourism Panorama 2020: New Precisions] (Madrid: World Tourism Organization, June 1998).
3. Cazes, Georges, Françoise Potier, 1996, *Le tourisme urbain* [Urban Tourism] (Paris: Presses Universitaires de France, Collection Que Sais-je?, 1996).
4. Mexico city — the largest metropolis in Latin America — has grown up to near 19 millions inhabitants in 2000. It includes the Federal District with 16 delegations or districts with elected mayors, and 27 municipalities, which are part of the surrounding State of Mexico. Therefore, Mexico City is a major conurbation under two political entities.
5. 1997 figures. The re-classification of hotels carried out in recent years causes a big leap in statistics between 1994 and 1995, from 17,922 rooms, to 39,856. This clearly does not arise from a process of opening up new rooms but from the revision of the categories and the lax granting of the "tourism lodging" category to a greater number of lower-level hotel facilities.
6. It is worth mentioning that an undefined proportion of receptive tourism does not lodge in hotels, having relatives or friends in the city. This is a growing situation due to the current boom of "Chicano" tourism (Mexican-born Americans).
7. When referring to visitors, receptive tourism is included, as well as national tourism and sightseers (people who are not tourists but who visit the city without staying the night, mostly residents from the Central region). The sightseers represent almost 22 percent of the visitors in Mexico City.
8. BIMSA, *Estudio del mercado turístico en la ciudad de México* [Study on the tourism market in Mexico City] (Mexico, Secretaria de Turismo, 1997).
9. NAFTA and, more generally, the wide opening of the Mexican economy since the 1980s, have generated a substantial increase in international tourism, as a result of business tourism. 58 percent of total (national and foreign) business tourists have a positive appreciation of Mexico City, while 67.8 percent stated that Mexico City was like what they expected and 16.7 percent even considered it better than expected.
10. Data reported by the General Direction of Research and Registration of Tourism Services of the Federal District Government (April 1999).
11. Hiernaux-Nicolas, Daniel, Rodríguez Woog, Manuel, *Tourism and Absorption of the Labor Force in Mexico*, Working Papers, (Washington, D.C.: Commission for the Study of International Migration and Cooperative Economic Development, 1990), p. 14.
12. Hiernaux and Rodríguez, *Tourism and Absorption of the Labor Force in Mexico*.
13. Metropolis, "Un réseau de villes pour un monde de citoyens" (synthèse des travaux des commissions permanentes), paper presented at Metropolis Meeting 99, Barcelona, 16-19 March 1999; Judd, Dennis R. Y, Susan Fainstein S. (ed.), *The Tourist City* (New Haven: Yale University Press, 1999).
14. As noted in endnote 4, the Federal District is divided, in "delegaciones." Thanks to the actual democratization process of the city management, the new governor of the Federal District has recently been elected for a six-year term, while the "delegates" hold 3-year terms. But the "delegaciones" are not full municipalities since their constitution is different. Therefore we prefer to translate the concept of "delegación" as "district" as long as the constitution of full municipalities is not achieved.
15. Three million pilgrims visit the Shrine of Guadalupe every year on 12 December, although many of them are locals and therefore do not count as tourists.

16. Erasmus University of Rotterdam and Ca' Foscari University, Venice, " Tourism Management in European Heritage Cities: Networking the Practices and Sharing the Experiences " (Rotterdam: Joint Project of UNESCO Venice, mimeo, December 1998).
17. The central core of Mexico City was declared " Historical Monuments District " on 11 April 1980 by the Federal Government. It includes a

9.7 sq. km are, with 668 blocks, 9,000 plots and more than 1,500 protected historical buildings. In 1984, the area was also declared Patrimony of the Mankind by Unesco Fideicomiso del Centro Histórico de la Ciudad de México, *Programa para el desarrollo integral del Centro Histórico de la ciudad de México* [Mexico City: Program for the Development of the Historical District of Mexico City, 2000], p. 8.



NEW ZEALAND

CHRISTCHURCH

Size of the country	271,000 km²
Population	3,8M
Population density	14 inhab/km²
Population growth rate (1993 – 1999)	1,2%
Part of urban population	85 %
Life expectancy at birth	77
Infant mortality (per 1000 live birth)	5
Access to improved water sources (% of population)	87
Official languages	English, Maori
Religions	Anglican: 22%, Presbyterian: 16%, Catholic: 15 %, other Christian: 6 %.
Gross domestic product	53 billion USD
Gdp per capita	13 780 USD / capita
Inflation	Inflation
Gdp growth rate	4,2 %
Gdp repartition in different sectors	Agriculture: 9 %, Industry: 19%, mines: 2%, services: 65%.
Unemployment rate	6,3 %
Illiteracy (% of population age 15+)	0
Tourism	1,5 M visitors (1997)
Urban areas inhabitants	Wellington: 331 000 (9,2 % of the total population) Auckland: 26,5 %, Christchurch: 26%

CENTRAL CITY REVITALIZATION AS A FLAGSHIP FOR A SUSTAINABLE CHRISTCHURCH

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Christchurch, New Zealand is a medium sized city of 350,000 people whose new mayor set a goal for central city revitalization, as a flagship for urban sustainability.¹ As with many cities, over the past few decades the primacy of Christchurch's central city as the economic and social powerhouse of the city has been eroded for numerous reasons. This paper explores the importance of community vision, the challenge of establishing public-private partnerships, and integrating transport and land use interactions to achieve central city revitalization and urban sustainability. Crea-

ting a balanced mix of council leadership, governance and community participation to establish a vision and strategic program for success is presented. This paper outlines the progress and approach taken to date in this project and some of the proposed projects and policies central city revitalization will need to take if it is to be successful. Finally, the paper touches briefly on the need to develop an overall urban development approach including "urban villages" for future city development, which supports central city revitalization.

Introduction

In 1999, the Mayor of Christchurch made a challenge to the city² that revitalizing the central city is a key to the long-term well being of the entire city. The contention is that the economic, social and environmental health of Christchurch depends upon a strong central city "heart" to attract more people, activities, investment and tourism for the city's and the region's future prosperity.

In physical and social terms the central city of Christchurch is the heart of Christchurch as well

as the Canterbury region, and the South Island of New Zealand. Local and international visitors pass through Christchurch at some point in their journeys - in fact most will visit the central city to see what's unique about Christchurch including such features as:

- Cathedral Square (the original settlers city square and church)
- the old University setting converted in the 1980s into a thriving Arts Centre

- the café “ strip ” on Oxford Terrace which now incorporates three city blocks and a strip of cafes and bars alongside the city’s river front
- the unique shops and urban spaces included in the Cashel Street pedestrian mall or
- the Botanic Gardens and scenic Avon River. In fact, it is these unique elements of the central city which make it special, and which will require support and celebration if the “ heart ” and city are to survive in the future. However, like a number of cities overseas the central city is facing the prospect of slowly becoming an undesirable place for central city activities such as residential living, shopping, playing and investing. The issues and recent trends are further addressed below.

The City’s challenge as stated by the Mayor is to improve the quality of life in Christchurch, including the city’s social, environmental and economic sustainability and specifically the contribution, which the central city makes to the city as a whole. Specific objectives for central city revitalisation include making the central city more:

- Culturally vibrant
- Economically strong
- Environmentally sustainable
- Socially active
- Safe

Development of a Central City Strategy and the Mayoral Forum

The Mayor of Christchurch, Garry Moore, and the City Council raised the revitalisation and economic regeneration of the central city as a key challenge in 1999. To provide broad-based community leadership and input the Mayor convened the Central City Mayoral Forum. The Forum is chaired by the Mayor, and members

include senior politicians, members of the business association, local community leaders from the arts and social services, and central city residents.

The Mayoral Forum’s mandate is to⁵ :

- Work in partnership with the City Council and the Christchurch Community to develop a Central City Concept Plan.
- Lead the public consultation and stakeholder input into the development of the Concept Plan.
- The Concept Plan will present a physical vision and strategy for central city revitalisation.
- The Forum will collaborate with the Council on issues relating to the Council’s core initiatives (streetscape, traffic management, etc.); the Concept Plan will also provide direction for future initiatives and general strategies for the Central City Board (a newly created development agency to facilitate joint venture projects).
- The Central City Board will act on behalf of the Council to provide leadership, to act as an initiator or investment catalyst on appropriate projects and to actively market and participate in, through development projects, the revitalisation of the Central City.

The structure of the Forum, City Council and future development agency the Central City Board are outlined in Figure 1.

The Central City Concept Plan and Strategy

Both the City Council and the Central City Board need a clear sense of direction for the future of the central city. The Central City Concept Plan and Strategy will create a long-term vision, building on existing strengths of the central city and develop a programme and project priority to achieve that vision. It will also build on the kinds of innovative private,

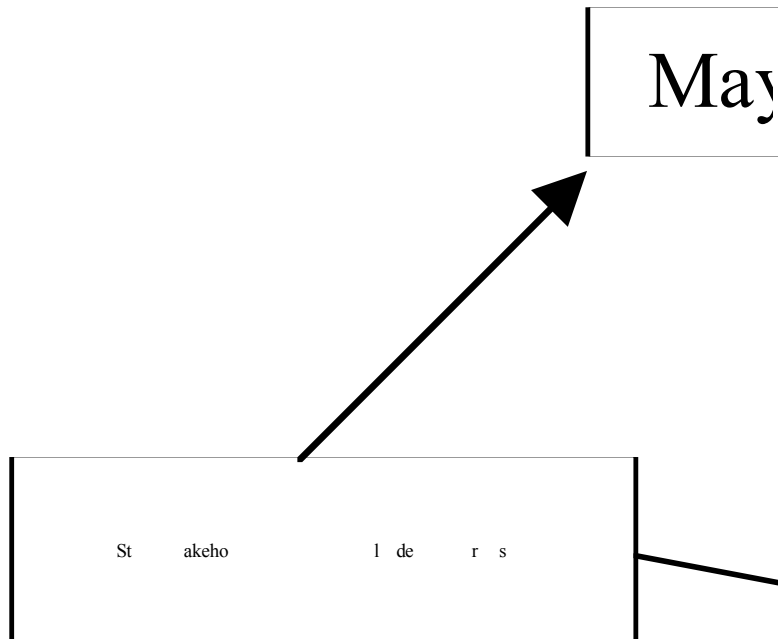


Figure 1: Structural Relationship of the Mayoral Forum, City Council, Concept Plan Development and Central City Board⁶

community and public partnerships that have been key to many success stories in Christchurch and elsewhere (see below).

The Central City Concept Plan and Strategy will connect Council activities and private development opportunities, providing incentives and reducing the barriers to revitalisation. Specifically the Concept Plan will give direction:

- To the City Council on priorities for public projects.
- To the Central City Board on future projects.

It will also create incentives to private landholders and developers for projects, and generally establish vision, direction, and leadership for projects over the next 25 years.

Recent Trends and Issues

As with many New World western cities, prior to extensive use of the private motor car and associated urban expansion, the central city of Christchurch had been the city's economic, job and cultural centre. However, expansion of the city including significant growth in suburban malls, the shifting of the University in the 1960s to a suburban location, and continued residential expansion to new green field areas has generally resulted in a declining use and economic activity in Christchurch's central city⁸. As a result Christchurch's central city over the past few decades has diminished in its importance in terms of jobs, residential population, and overall commercial turnover. This has led directly to an overabundance of commercial floor space, decreases in the financial viability of many areas, and a general decline in foot-traffic in some areas of the central city. Combined with increases in some social problems (crime, youth "boredom," increases in graffiti, etc.), there are areas of the central city that are viewed as reasonably undesirable for both commercial investment and activity, and residential living (see below)⁹.

Stiff competition from Auckland, Australia and beyond has seen many head offices heading away or being taken over by other companies outside the region. The extensive expansion of local suburban malls has also dramatically changed the kind of retail conditions facing central city businesses with a general shift toward more restaurants/cafes and a shift away from retailing, finance and manufacturing.

Between 1991 and 1996 the proportion of jobs in the central city of the city-wide total declined from 19.0 percent to 16.6 percent¹⁰. During the same period there was 16 percent growth in the residential population although from a very low base of only 5,670 people¹¹.

Some specific issues and trends are identified below.

Social and Environmental Issues and Trends

- Safety - The central city is not as safe at night as it should be where 61 percent of people feel unsafe after dark in the central city¹²;
- Infill development has caused a number of concerns among residents including lack of privacy, building heights, loss of trees and gardens;
- Traffic growth has increased by about 18 percent between 1991 and 1996, with forecast traffic growth to increase by over 40 percent in the next 20 years with significant increases in congestion, costs of road upgrades and needed improvements in public transport, cycling and pedestrian facilities;
- Noise complaints have increased by 170 percent since 1991;¹⁵

Population Issues and Trends

- Central city residential population – since 1991, over 1,000 units were built within the central city (four avenues) leading to a 16 percent increase in the number of central city residents between 1991 and 1996 although from a very small base (whereas Christchurch total population grew by 7 percent between 1991 and 1996);¹⁶
- Population growth city-wide population growth has slowed from 2-3 percent in the mid-1990s to less than 1 percent in 1999¹⁷ – suggesting that goals to significantly increase the residential population in the central city may require changes in national migration policies;
- Household size continues to decline – suggesting a need for more houses in general and a greater range of housing types (e.g., townhouses and apartment/unit dwellings, mixed use facilities, etc.).¹⁸

Business Issues and Trends

- Commercial/retail business investment in new building is significantly higher in

outlying suburban centres than in the central city (over the past seven years four of the major malls have redeveloped or applied for redevelopment consent);¹⁹

- Significant commercial/retail floor space in the central city is under-utilised, with ground floor vacancy at about 11 percent with significantly higher vacancy rates implied on 2nd and 3rd floors of older commercial buildings;²⁰
- Office space vacancy rates improved from 30.6 percent in 1993 to about 19 percent by 1995 (partially due to significant conversions of previous office space to hotels and to a lesser extent apartments); however office space vacancy has remained static between 1995-2000 at about 19 percent with much higher vacancy rates in the east of south portions of the central city (average 24 percent) compared to lower vacancy rates in the west and north (average 9 percent);²¹
- Central city has one of the largest commercial areas in New Zealand²² – which provides both an opportunity for improving use of existing commercial areas and a threat with continued shift in commercial trading to suburban premises;
- Central city has the highest concentration of businesses and employment in Christchurch although as a proportion of the total this figure has been declining consistently over the past few decades (business activity accounted for 17 percent of city wide total in 1999);²³
- The number of new businesses established in the central city decreased by 0.5 percent between 1997 and 1999, whereas city-wide there was a 3.6 percent increase: numbers of central city businesses showed declines in finance/insurance, retail/wholesale trading, and manufacturing with slight increases in restaurants/cafes and business services.

In summary, there are a number of issues facing the central city, including: social issues

like safety, cultural and community well-being and an apparent need to increase its population base particularly with a stated desire for more central city resident; environmental issues like improving winter time air quality²⁴, a need to improve public spaces, and

address issues like noise and infill; and economic issues in order to ensure the central city is a better place to invest. Many of these issues are addressed below in the development of specific proposals for improving Christchurch's central city.

Previous Success Stories, Building Community Vision and Improving Outcomes

Previous Public/Private Partnerships

In Christchurch, there have been a number of successful public-private partnership in the central city over the past few decades which have resulted in a series of successful redevelopments most of which have occurred in areas west of the city's main street²⁵. Generally these "partnerships" have involved the City Council investing in improvements to public space areas, combined with private development investments in adjoining private land areas. For example:

- In 1977 Cashel Street Pedestrian Shopping Mall was created by closing off the street and building what at that time was the largest car-parking building in the central city. Over-time redevelopment in private land uses has resulted in what is now the central city's premier retail shopping area with the highest retail floor space rents and highest foot traffic of anywhere in Christchurch.
- In 1987 the Council closed off one street in a five lane intersection, leased the previous street space for a five star hotel (the Park Royal) and developed the remaining area into one of the premier central city parks, Victoria Park. The area has become one of the more successful and vibrant tourist

areas, and significantly added to the city's green space in the western area of the central city.

- In the early 1980s, the previous University campus, now known as the Arts Centre, redeveloped and refurbished historic buildings to cater for an arts, crafts, and cultural centre for the city. In 1993 the adjoining street, Worcester Boulevard was upgraded, traffic calmed, and a small heritage tram loop was built. Over the past 15 years, this combination of private and public investment resulted in a rejuvenation of neighbouring residential areas, significant increases in both local and international tourists, and a thriving weekend arts market.
- In 1998 the owner of an entire block of shops which fronts the Avon River approached the Council seeking traffic calming and footpath widening of what was then a two lane road with car-parks on both sides of the street. The council narrowed the road to one lane, took out the car parking, and widened the footpath. At the same time the developer redeveloped all of the stores as restaurants, cafes and bars. The block quickly became the premier restaurant and outdoor eating area in Christchurch with extensions recently completed for the next two blocks.

It is these success stories between public and private enterprise in the " west " which the Council should attempt to stimulate in the " east " area of the central city. Some of the key determinants of these successes include: provision of an excellent mix of quality public spaces, excellent transport/traffic access, appropriate traffic calming and improvements to pedestrian areas, upgrading historic buildings, and generally reasonably extensive public investment.

Development of the Central City Strategy and Concept Plan

The policies and suggested strategies developed in this paper are about creating future opportunities for the central city of Christchurch. In early 2000, the Mayoral Forum and Council embarked on a wide public consultation exercise in order to identify key issues of concern from the public and stakeholders, and to develop key policies and projects which would over time lead to revitalizing the central city. These are briefly outlined below.

General Steps and Strategic Policy Issues Considered

Overall the process for developing the central city concept plan and strategy involves: 1) identifying key issues, visions and potential improvements through both public and selected stakeholder input, 2) identifying key priority projects and needed policy changes, and 3) developing key recommendations and an achievable action plan on needed changes.

A broad list of policy issues under consideration includes changes to: transport and traffic management including traffic calming and tree planting; parking policies to increase shopping " access " but which decrease commuter congestion; zoning issues which address concerns about infill and improve use of mixed use zoning; heritage building assistance and development of heritage area precincts; incentives to increase residential and

commercial developments; improving the natural environments and public spaces with particular emphasis on creating more spaces in the eastern side of the city.²⁶

Public Consultation and Feedback

A discussion document entitled " Focus on the Heart " released in October 2000 was the first public consultation document in a process of developing a Central City Strategy and Concept Plan.²⁷ The document identified a number of general goals including developing a vision for the " heart of the city " which is environmentally, economically and socially sustainable; and generally making the central city " a vibrant place for people to live, work, socialise, play and invest. "

The document suggests that revitalizing the central city will involve:

- Environmental and design excellence;
- Retaining historic buildings and other heritage features;
- Stimulating and promoting development and investment;
- Creating partnerships and joint venture developments;
- Selling the central city as a destination for residents, tourists, visitors, businesses, and migrants.

The public consultation exercise sought the following outcomes:

- Community " buy-in " to the process and feedback on desired outcomes;
- Business community participation and partnership on future projects;
- Identification of strategies and programme priority projects for the City Council over the next one to five years.

The Discussion Document received over 700 submissions and over 40 public meetings were held during a two-month public consultation period. Generally feedback suggested that many people would like to see a more active and interesting central city area with more people living and playing there, more activities and cultural events, a unique range of shop-

ping and commercial opportunities, more people oriented street environments with improved accessibility with fewer cars, and a safer atmosphere at night. At the time of writing this paper, preliminary analysis of 370 submissions suggested the following key issues:²⁹

- general support for the central city revitalisation project as a high priority for the Council;
- support for a focus to the eastern areas of the central city, those areas with greater "trouble" in terms of commercial rent difficulties, crime/safety, etc.;
- to make the central city more appealing for residential living a series of issues will need to be addressed including improving the natural environment, safety and security, transport and access, and cleanliness and recreation to name a few;
- issues of greatest importance suggest that transport and parking, improving general business and retailing, heritage retention and the ideas for a river promenade were identified as important;
- in terms of green and more "liveable" streets there was quite strong support with preliminary feedback suggesting that the main shopping streets (Colombo St and Manchester Street) and the main arterial roads into and out of the city (the "One-Way" streets) deserve priority attention;
- in terms of making the central city more accessible there were mixed views on whether the central city is accessible currently with specific suggestions to create more/better and free parking, improving pedestrian crossing points and wider footpaths, and significant support for improving public transport (shuttle, tram), and fewer cars;
- the central city is not perceived to be as safe as it should be with a series of issues which will need to be addressed including reducing the impacts of "gangs/skinheads," improving police presence, providing better lighting standards, and reducing crime and "drive-by hoons."

The next section explores in some detail proposed projects as a result of this public consultation.

Proposed Projects and Policy Changes³⁰

“ Precincts ” of the Central City

The central city is made up of actual and potential “ precincts ” or communities of people – from people who live in the central city, to business and commercial communities, to areas catering for cultural, education and tourist activities (see Figure 2). The term precinct in this sense is used quite broadly...essentially capturing the communities who live, work, play, shop and socialize in different areas in the central city.

The concept of identifying precincts is intended to create more recognizable community and diversity within the central city, celebrating the success stories and community visions, and to lead toward developing specific themes or projects within certain areas, which require high priority attention. There are various improvements under consideration including:

- street furniture specific/special to each area;
- developing an advocate or association for each area to promote and organize each precinct;
- providing incentives for certain types of residential and commercial development preferred by each precinct;
- creating specific infill and design guidelines for the residential areas, which support or create identifiable precinct differences.

Residential and Mixed Use Housing

To create and support a lively and active area, it will be critical to have more people living in central city. Slowly, more and more people are choosing to live in the central city with over 1,000 units built since 1991, including increases in townhouses and apartments. However, there are significant opportunities for future residential development. For

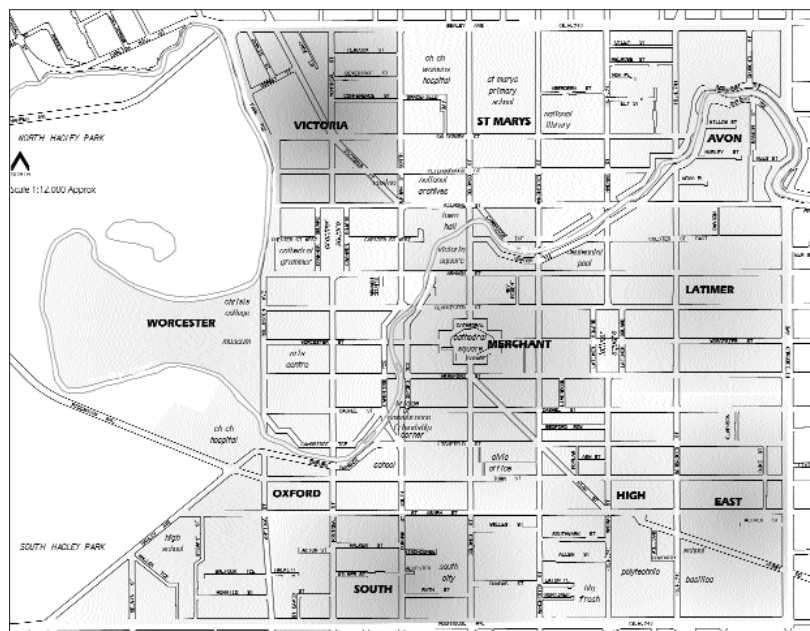


Figure 2: Precincts of the Central City³¹

example, although common in other cities, Christchurch has relatively limited “ mixed use ” development using ground floor commercial and residential living areas above. In addition, there are large numbers of under-utilised commercial buildings in the central city – many of which could be used for inner city living (and/or mixed use). Incentives are currently being explored for:

- converting existing 2nd and 3rd floor commercial spaces to residential units;
- increasing the residential living zone density in certain areas (including converting some of the existing industrial zone areas to mixed use zoning);
- addressing building act and earthquake strengthening requirements to provide financial assistance for converting older buildings, particularly heritage buildings into residential;

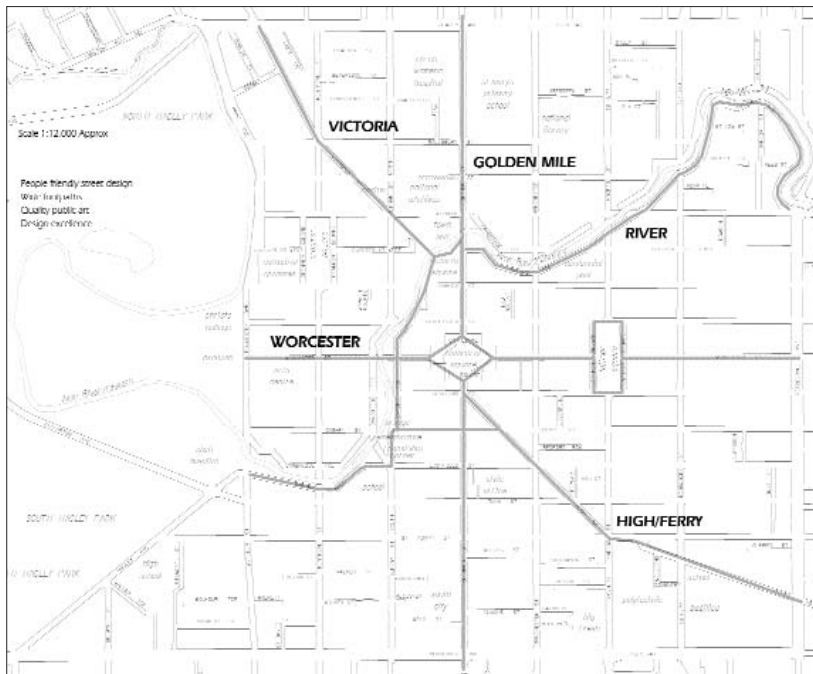


Figure 3: Improving People Linkages

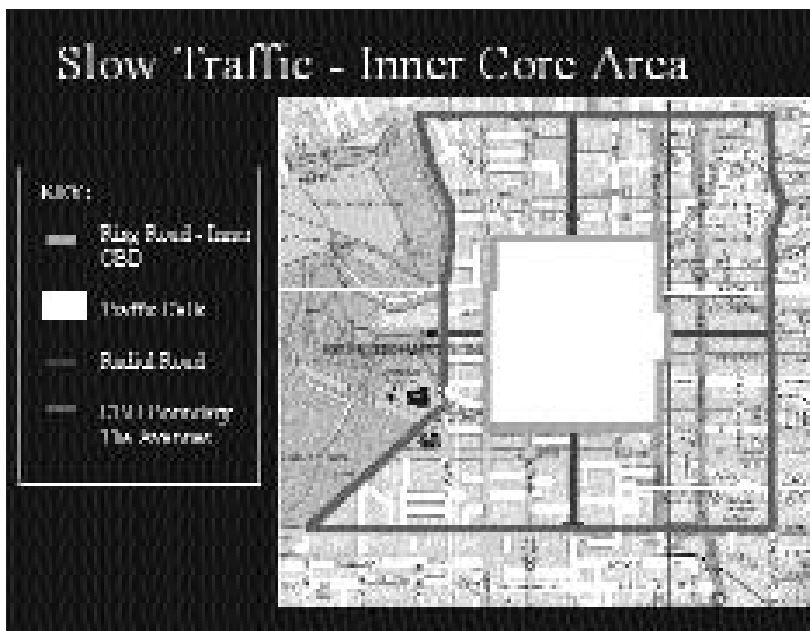


Figure 4: Proposed Slow Mode Core Area for the Central City

- addressing “ problems ” associated with increasing residential populations in the central city including noise requirements (building insulation standards, hours of operation, etc.), and infill guidelines, and more public parks; and
- improving safety through physical programs (e.g. improved street lighting and design) and social programs (e.g., youth crime, increasing police presence, etc.);
- addressing the need for affordable housing in the future especially in areas in the east where currently low-income residents reside.

Transport and People “ Linkages ”

Improving transport access and generally focusing on moving people not just vehicles is a key to successful central city revitalization. Transport strategies and policies proposed include continuing to improve the pedestrian amenity and linkages, traffic calming certain areas, improving parking policies as a tool for traffic management and improving shopping, enhancing cycle paths both on-street and off-street, and improving public transport services, routes and priority.

Many cities, including Christchurch, show that nice places for people to walk generate more foot traffic and provide an incentive for private redevelopment opportunities. In general, the streetscape of Christchurch as in most New World western cities makes up a huge proportion of the public space (generally 25-40 percent) , and provides tremendous opportunity for improving both people linkages and public amenity. Specific streets identified for pedestrian improvements are shown in Figure 3, including wider footpaths, better street lighting, more trees, more public art, improved points of crossing, and general traffic calming.

One of the key themes under consideration is giving greater priority to slow modes (pedestrians and cyclists) in the core area of the central city, essentially using traffic manage-

ment and traffic calming techniques to ensure that once in this designated zone vehicles give way to people (see Figure 4).

Improving public transport in the central city is another proposed change. Currently, Christchurch has a free electric shuttle bus, introduced in December 1998. In its first year of operation the three shuttles in operation carried over one million people operating on approximately a 10-minute frequency. The proposal is now to significantly extend the route to better connect to off-street parking buildings and improving coverage throughout the core business area (see Figure 5), with later extensions into the residential areas in the north, west and east of the central core area (not shown).

This “ package ” of public transport improvements also proposes to make off-street parking buildings free for up to two hours for shoppers, while increasing commuter parking charges to maintain an overall financially neutral parking revenue and to reduce peak time traffic congestion.

River Promenade

The Avon River is one of the few very unique natural features in the central city. Along with the Botanic Gardens, the river provides some of the nicest public spaces in the central city. Over the past few years the council has upgraded some public areas along the river, but not developed a continuous “ promenade. ”

This proposed project would create a river promenade and provide space for strolling, a safe space for young kids and families to walk, cycle, roller blade, etc, and distinct attractions and sites along the river to visit, socialise, eat and generally spend time. The general proposal is shown in Figure 6.

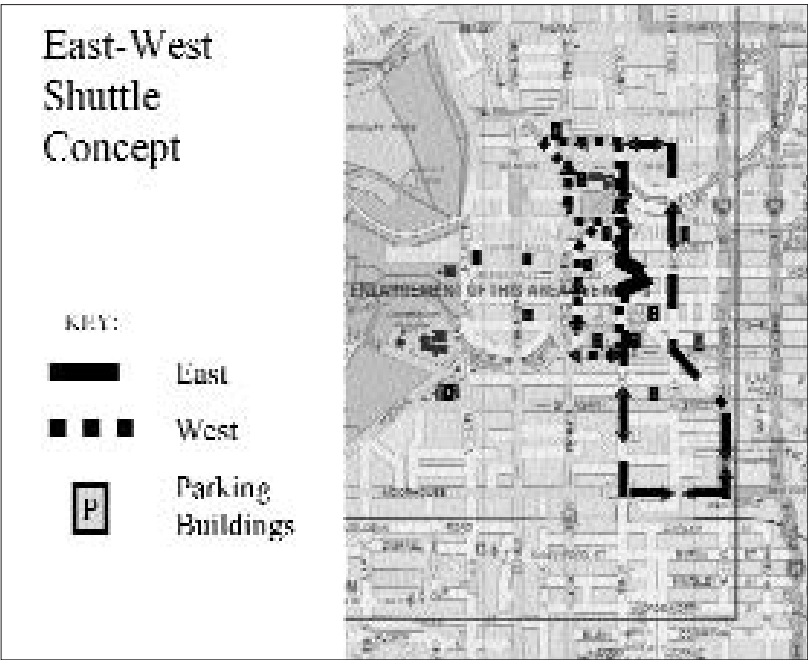


Figure 5: Free Electric Shuttle and Free Two-Hour Shopper Parking

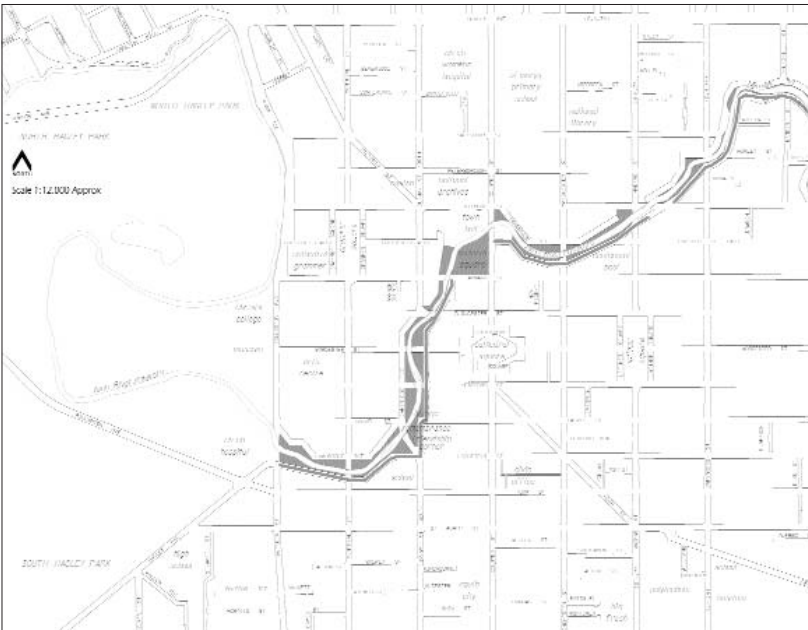


Figure 6: Proposed River Promenade³⁷

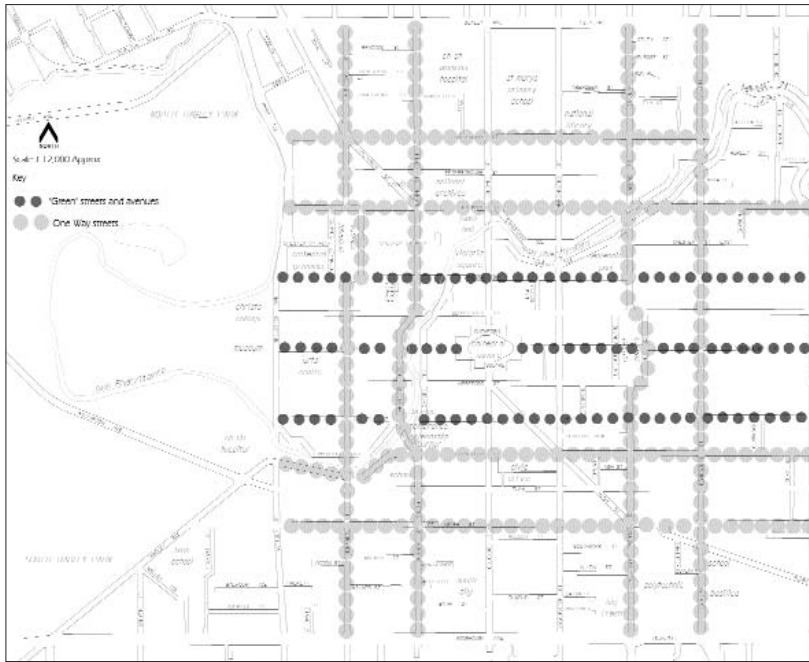


Figure 7: Creating Green “Liveable” Streets



Figure 8: Creating a Heritage Priority Area or Precinct

Creating “Green” Liveable Avenues and Streets

Public streets make up a huge proportion of public space, generally 25-40 percent.³⁸ Many cities have successfully utilized reasonably wide streets to reintroduce nature and green areas into the urban areas by narrowing the carriageway and planting trees. In addition, reducing the impact of traffic, particularly in retail streets and residential areas, has become a high priority to create more “liveable” streets. The combination of tree planting and traffic calming is proposed to provide:

- more green and natural qualities in urban areas;
- better quality public space;
- an opportunity for slowing traffic particularly in high foot traffic retail areas and residential neighbourhoods; and
- a visual connection to other areas (and if extended beyond the central city to other suburbs).

Many of the central city streets, especially in some of the residential areas in the central city, are reasonably wide and could allow for significant tree planting improvements. Trees can also provide an excellent connection between areas in the central city, such as between the central business district and residential neighbourhoods as well as connecting to the larger open space parks such as the Botanic Gardens to the west. These ideas are not new, and many cities including Singapore, Paris and Portland use extensive tree planting to improve both urban amenity and natural connection through what is otherwise generally a “hard” urban space. It is proposed that over the next 5-10 years certain priority central city streets will be significantly tree planted and traffic calmed to improve their amenity.

A Heritage Building Precinct

Christchurch’s central city has the highest concentration of commercial, civic and public heritage and character buildings in the entire

city (of a total of 597 heritage listed buildings citywide, 498 are included within the central city area). It is these buildings which contribute to making the central city's unique character and give it a special sense of "place."

The Council to date has developed a program to assist heritage-building owners with earthquake strengthening and façade retention for specific listed buildings. The proposals contained in the discussion document identify the need to address heritage retention for an entire area or group of buildings, not simply individual buildings. This proposal shown in Figure 8 identifies an entire street block (or multiple blocks) on the east side of the city be developed as a priority program for upgrading not individual buildings in isolation but entire blocks (denoted by the heavy dotted line). The program should address not only building façade retention, but also street furniture upgrades, and assistance with increasing commercial use of the buildings ideally for residential mixed use conversions from what are now generally under-utilized (or in some cases non-utilized) buildings.

Other General Proposed Changes

Finally, not covered in detail in the above proposals, but considered critical to success of the revitalization strategy:

- Significant increases in public art are needed. A financial funding policy should be pursued which requires a 1-2 percent expenditure on any major public capital work project be devoted to public art. For example, if a street is to be upgraded or other major capital works completed, a small percentage of the total capital work for the project should be spent on public art.
- There is a significant need for more open public green space in the eastern part of the central city. The Council should pursue the purchase of one or two large open space areas over the next 2-5 years, possibly as part of a major block redevelopment, to improve the amenity and re-balance the lack of open space in the eastern area;
- Marketing the central city as an international lifestyle destination for future migrants and businesses to increase the overall population and financial investment base of Christchurch.

Urban Development Strategies with Support Central City Revitalization

There is a growing interest in cities worldwide to pursue sustainable urban development, to improve environmental, social and economic performance for this generation and generations to come. Christchurch is no exception to this rule and has recently embarked on a program to pursue sustainable urban development, with the revitalization of the central city as a "flagship" to a sustainable Christchurch.

Imperative in achieving sustainable urban development is ensuring that land uses and transport plans and policies are integrated. This is true within the entire urban area, as well as the sub-centers of the city. How a city physically develops directly affects its economic, social and environmental "sustainable performance."

Improving self-sufficiency of a city and its individual "urban villages," including the central

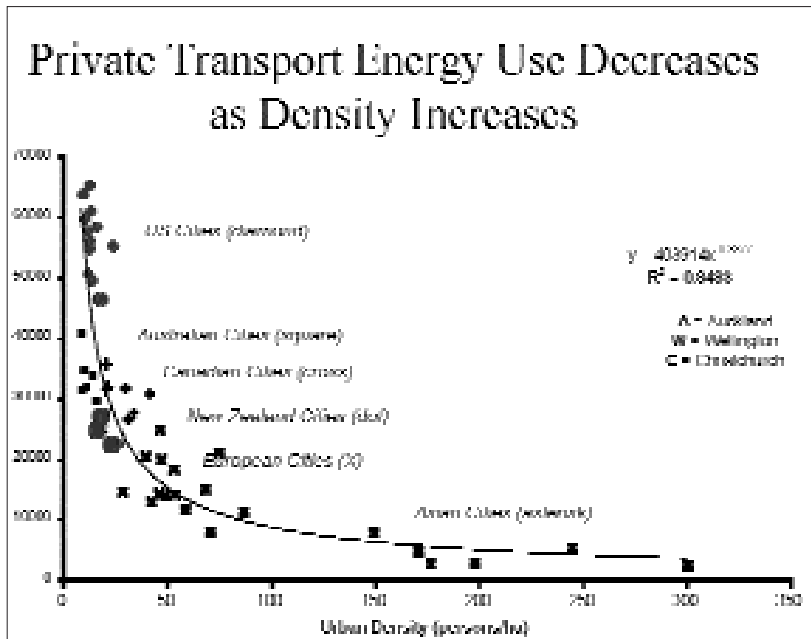


Figure 9: Private Passenger Transport Energy Use and Urban Density (1991)⁴⁷

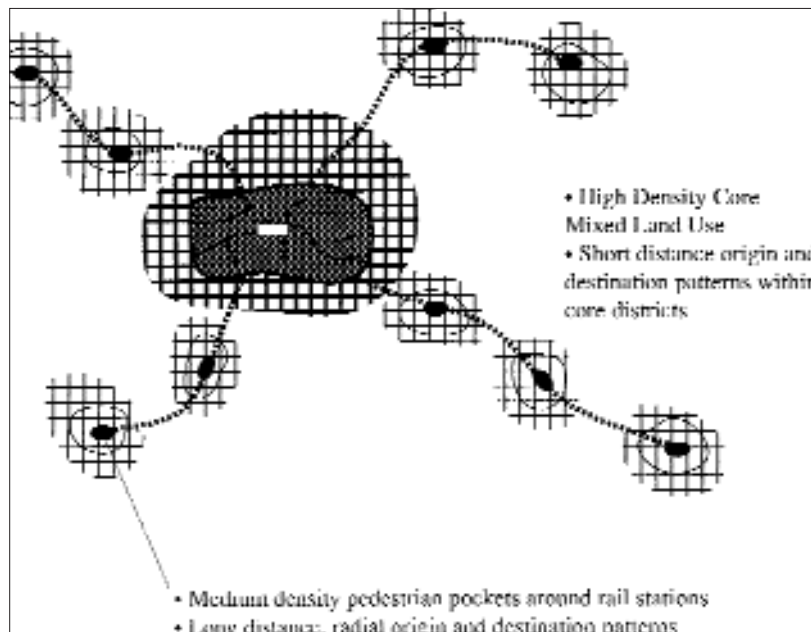


Figure 10: Integrated Transport and Land Use - Nodes and Corridors ⁴⁹

city, within the overall urban fabric is critical toward achieving more sustainable outcomes, particularly with respect to the effects of urban development. Most cities, including Christchurch, are essentially made up of a mix of land uses, including urban villages (or sub-centers), suburban residential areas and often separated industrial/commercial areas. One key to reducing the effects of urban development is to ensure that these urban villages are well connected to each other, and provide as much of a self-sufficient activity and attraction mix as possible. The integration of land use and transport is critical at the local "village" level as well as at the urban/regional level.

The focus of this paper (and project) raises the question: is a healthy central city important to the overall city's sustainable development? Essentially there appear to be two directions for Christchurch's urban development pattern: a healthy central city, well linked to recognizable community urban villages – or a sprawling city with a dying central city heart.

There is a very strong link between urban form and transport outcomes, and vice versa between transport provision and land use. Generally, data show that as cities spread out and become less concentrated (either in total area or in specific locations), there are related increases in travel, associated increases in environmental effects and increasing costs of transport. A number of studies have shown direct relationships between urban form and transport, and associated environmental and economic "costs." For example, data were collected on New Zealand cities and compared to data from 46 other international cities. The link, integration and relationship between land use and transport is critical, and is shown below in Figure 9 in terms of transport energy use.

As an example of the relationship between transport and land use, Figure 9 shows a very strong statistical correlation between urban density and transport energy use – that is as a city increases in density it uses less transport energy. This relationship was first identified by Newman and Kenworthy and the data for New Zealand’s three main cities “ fits ” nicely into this relationship. These relationships also appear to hold true within a city.²⁶

Sustainable Urban Development – A Nodes and Corridors Approach

A “ nodes and corridors ” approach to urban development, shown in Figure 10, suggests that an urban development pattern which links nodes/villages of the city, can reduce the need for travel within each node or village by good design and increases each village’s self-sufficiency in terms of activities and attractions. In general, if a city’s daily activities are brought closer together, into a series of nodes along defined corridors of activities, like “ beads on a necklace, ” there will be less need for travel in general as well as more use of

non-auto modes. And if transport policies and infrastructure development support this nodes and corridors approach then the full benefit of integration can occur. Improved public transport services, the physical design of the nodes (or sub-centres), and the road network can all be supportive of increasing use of public transport, and the inherently shorter trips will then be more easily made by foot or on bicycle. Only with such an integrated and co-ordinated package can alternative modes become attractive options to the convenience of private cars and classic consequences of “ auto dependence. ”

Finally, two policy prescriptions for urban development in Christchurch and elsewhere emerge, to achieve an integrated transport and land use approach, including the design elements included in an urban village concept cities need to :

- facilitate increasing population and commercial activity densities in central cities and select nodes along corridors; and
- pursue an urban area growth management strategy, which supports this integrated approach.

Conclusion

A challenge has been made by the Mayor of Christchurch to revitalize the central city. Currently the central city enjoys some successes, but also shows signs of teetering toward a demise with general declines in commercial investment, increasing concerns about safety, and increases in vacancy rates in commercial and heritage buildings. This paper outlines a few proposed projects and policy changes intended to improve the physical amenity of the central city, provide incentives for future developments, and generally increase the use and activity of the central city. Most of the "successful" areas of the central city of Christchurch are west of the main shopping street, where a mix of public-private partnerships have been pursued resulting in a lively mix of activities, excellent public spaces, and redevelopment in commercial and residential areas occurring over the past few decades. It is many of those same qualities and attributes which residents appreciate in the "west" which can and should be developed in the "east." The proposed changes included in this paper focus on specific public projects and policy changes, and provide a number of possible opportunities for public-private partnerships.

Key recommendations include:

- Creating incentives for increasing the residential living population including conversions of under-utilized commercial and heritage buildings for residential purposes;
- Creating a slow mode core in the central commercial area where traffic is calmed and pedestrians and cyclists are given priority, including general pedestrian improvements to key streets;
- Extending the free electric shuttle, with free 2-hour parking and increases in commuter parking charges to improve use of public transport generally
- Significant streetscape improvements in tree planting and traffic calming;
- Creating a river promenade by developing a continuous footpath and identifying development sites for future activities along the Avon River;
- Creating a heritage precinct area for heritage building redevelopment, including appropriate street upgrades and street furniture, and providing incentives for conversions of under-utilized commercial spaces into residential units;
- Marketing the central city as an international lifestyle destination for future migrants and businesses;
- Introducing a funding policy to include public art as part of all major capital expenditure works;
- Purchase and provision of one or two large public green spaces in the eastern area of the central city; and
- Recognizing that urban development city-wide needs to support a more integrated approach and that a healthy central city supports a more robust and sustainable Christchurch.

Notes:

1. Ideas and statements made in this paper do not represent City Council policy or commitments and are simply the views expressed by the author.
2. The central city is defined by the area within the four avenues: Bealey, Fitzgerald, Moorhouse and Rolleston.
3. Refer to CCC 2000a. Discussion document on Central City revitalisation, "Focus on the Heart," Christchurch City Council, October.
4. CCC 2000a.
5. Mayoral Forum, Terms of Reference, (Christchurch: Christchurch City Council, Strategy and Resources Committee, August 2000).
6. Mayoral Forum 2000.
7. See Newman, P. and Kenworthy, J., *Cities and Automobile Dependence* (Aldershot: Gower Technical, 1989); *Sustainability and Cities: Overcoming Automobile Dependence* (Washington DC: Island Press, 1998) and Bachels, M., Newman, P., and Kenworthy J., "Indicators of Urban Transport Efficiency in New Zealand's Main Cities," a study prepared for a number of New Zealand government bodies (Perth: Institute for Science and Technology Policy, Murdoch University, March 1999); Bachels, M., "Development of Sustainable Urban Transport Energy Policy - Transport and Land Use Planning Implications," unpublished doctoral dissertation, Christchurch: University of Canterbury, March 1999).
8. CCC 1995, Proposed Christchurch City Council Plan, Volumes I, II, and III, Christchurch City Council (note that the city plan is still to be finally adopted).
9. CCC 2000a
10. Bachels, M., Newman, P., and Kenworthy J., "Indicators of Urban Transport Efficiency."
11. CCC 1999b, Christchurch Central City Background Information, Christchurch City Council, Environmental Policy and Planning Unit, Technical Report 99/3, July.
12. CCC 1999a, Christchurch City Council Annual Residents Survey.
13. CCC 1995
14. Bachels, M., Newman, P., and Kenworthy J., "Indicators of Urban Transport Efficiency."
15. CCC 2000b. Christchurch City Update 2000, Environmental Policy and Planning Unit, Christchurch City Council, April.
16. CCC 2000b
17. CCC 2000b
18. CCC 1995
19. CCC 1999b
20. CCC 2000b
21. CCC 2000b
22. 1.6 million square meters, greater than the combined area of all the city's major suburban shopping centers. CCC 2000b
23. CCC 2000b
24. Christchurch has a significant winter time air pollution problem due to high use of wood and coal burners for domestic heating combined with poor residential insulation standards.
25. Public investment "west" of the main street, Colombo Street is estimated at well over \$100 (NZ) million dollars (equivalent to approx. \$40 million US) over a 25-year period, compared to less than \$10 (NZ) million invested in eastern parts of town (equivalent to approx. \$4 million US) (based on discussions with Bill Williamson, previous Town Planner Christchurch City Council, and Sir Miles Warren, architect, personal communication).
26. The east part of the city has only one significant block-sized park, whereas the west part of the city has two very unique and large natural features which the east lacks – the city's largest park (Hagley Park and the Botanic Gardens) and the Avon River.
27. CCC 2000a
28. CCC 2000a
29. CCC 2000c
30. The next few pages explore some proposed projects to improve the central city of Christchurch. However, it should be noted that these ideas and proposed projects are simply proposals at this stage, since this is early in the development of the strategy and concept plan (these do not yet represent Council policy or commitments and are simply the views expressed by the author).
31. CCC 2000a

32. Resulting in a 16 percent increase in the residential population from a very low base of just of 5500 people.
33. See Newman and Kenworthy, *Sustainability and Cities*; Katz, P., *The New Urbanism: Toward an Architecture of Community* (New York: McGraw-Hill, 1994); "Liveable Neighbourhoods: Community Design Code, Edition 1 " (Western Australia Government Sustainable Cities Initiative, 1997); Calthorpe, P., *The Next American Metropolis* (Princeton: Princeton Arch. Press, 1993); Goodwin, P., "Solving Congestion." Inaugural Lecture for the Professorship of Transport Policy, University College London, 23rd October 1997; Holtzclaw, J., *Residential Patterns and Transit, Auto Dependence and Costs* (San Francisco: Natural Resources Defense Council, 1994); Bachel, M., "Development of Sustainable urban transport energy policy."
34. Where the term traffic calming refers to slowing traffic generally and giving greater priority to pedestrians and cyclists.
35. See Bachel, "Development of Sustainable urban transport energy policy"; Newman and Kenworthy, *Cities and Automobile Dependence*.
36. CCC 2000a
37. CCC 2000a
38. See Bachel, "Development of Sustainable urban transport energy policy" and Newman and Kenworthy *Cities and Automobile Dependence*.
39. A typical street in Christchurch is 20 meters wide building front to building front with two lanes of traffic (4 meters each), two lanes of parking (3.5 meters each) and a footpath on each side (2.5 meters each).
40. CCC 2000a
41. CCC 2000a
42. CCC 2000a
43. For example see Newman and Kenworthy, *Cities and Automobile Dependence and Sustainability and Cities*; Holtzclaw, *Residential Patterns and Transit*; Bachel, Newman, and Kenworthy, "Indicators of Urban Transport Efficiency."
44. Bachel, Newman, and Kenworthy, "Indicators of Urban Transport Efficiency."
45. The correlation between private passenger transport energy use and urban density is very strong, with an r^2 or variance component of 0.8483 (an r value or correlation of 0.92), signifying that 85 percent of urban private passenger transport energy use is "explainable" or related to the population density of the city.
46. See Bachel, Newman, and Kenworthy, "Indicators of Urban Transport Efficiency."
47. Bachel, Newman, and Kenworthy, "Indicators of Urban Transport Efficiency."
48. See Newman and Kenworthy, *Sustainability and Cities*.
49. From Bachel, Newman, and Kenworthy, "Indicators of Urban Transport Efficiency". Note the figure is indicative only and does not represent any particular city or geographic region. Specific city or urban areas would need to identify potential nodes and corridors, including an assessment of transport network requirements, in order to develop such an approach.
50. See Katz, *The New Urbanism* and Bachel, Newman, and Kenworthy, "Indicators of Urban Transport Efficiency."
51. Feedback on the Discussion Document (CCC 2000a) showed that based upon 370 submissions analyzed over 80 percent believe that central city revitalization should focus on the "East" side of the central city (CCC 2000c).

Elements for the Debate on Urban Management

SUSTAINABLE URBAN MANAGEMENT BY PARTNERSHIP IN SEOUL, KOREA

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In the age of globalization, localization and democratization, Seoul is searching for effective methods for sustainable development. It is therefore imperative that Seoul, seeking to cooperate with other cities for global environmental protection as well as local environmental conservation, should be committed to implement sustainable urban management by partnership. I believe that Local Agenda 21 is a new type of sustainable urban management system whereby citizens, businesses and local authorities share their roles based on partnership.

Seoul Agenda 21

The basic Environmental Ordinance and the Seoul Environment Charter were enacted in May and June 1996 respectively. They set out the basic philosophy of Seoul's Agenda 21. The City government and the Citizens' Committee for a Green Seoul already formed in November 1995 created the organizing Committee for Seoul Agenda 21 in July 1996. It consisted of 12 members who held 18 meetings until December 1996 to discuss the procedures and means of implementation.

Thereafter, the Seoul Agenda 21 Forum was organized in January 1997. It consists of some 200 members, including citizens from all levels of society, representatives of citizens' groups, experts, academics, members of the press and city officials. It has three co-chairpersons and eight sub-committees on air, water, waste, ecosystems, transportation, urban planning, culture and welfare.

From January to April 1997, members of the Seoul Agenda 21 Forum made field trips to various locations throughout Seoul and held many events including workshops and a public hearing. Seoul Agenda 21 was finally announced on 5 June 1997. Since then, revisions have had to be made. Eight sub-committees worked together from September 1999 to February 2000 to modify Seoul Agenda 21, without changing its original framework. The revised edition of Seoul Agenda 21 was finally made public in March 2000.

This year, the Seoul Agenda 21 Promotion Board was established to oversee and direct its implementation. This Board is under the Citizens' Committee. The Seoul Agenda 21 Promotion Board consists of 30 members, one of whom serves as one of the co-chairpersons of the Committee.

In addition, the City of Seoul is holding an environmental project competition. In order to achieve environmentally sustainable development and realize the green Seoul envisioned in Seoul Agenda 21, the city of Seoul encourages environmentally friendly projects. It provides financial support for selected NGO projects so that individual citizens and civil organizations may more effectively carry out environmental projects. In 2000, a total of 500 million won (about US\$450,000) will be awarded to support some 30 projects by NGOs.

Tools and Approaches: Exemplary Cases

The Citizen's Committee for a Green Seoul, established in 1995, consists of fewer than 100 members, most of whom are environmental experts, representatives of industries and NGOs (three sub-committees: "Seoul Agenda 21 Promotion Board", "Sustainable development Policies" and "Environmental Publicity and Education"). It has three co-chairpersons each one representing NGOs, businesses and the City of Seoul. In order to expand the functions of the Committee, the City gave the Committee authority to check how the local Agenda 21 was being implemented and to review the sustainability of major policies of Seoul.

The new Commission on Sustainable Development (CSD) has the following functions: to prepare sustainable development strategies; to propose environment-friendly guidelines for every administrative field; to evaluate sustainability on proposals for major policies and plans submitted by the Mayor; and to decide on urgent matters and the matters transferred from the Citizens' Committee.

The CSD will debate the sustainability of major policies and plans to be implemented by the city of Seoul to ensure that all the city's policies are long-term oriented and consider the quality of life of citizens. This indicates a shift in the environmental policies of Seoul from the reactive policy of the past to a proactive and preventive one.

Two main examples of these policies can be indicated: the River Restoration Project in connection with the citizens, thanks to the "friends of the Han River Association", and the "Planting of 10 Million trees of life" (to be planted in every possible space).

Next Steps in Sustainable Management of Seoul

The efforts of the Citizens' Committee for a green Seoul were successful in reaping desirable results. The Committee led the drafting of Seoul Agenda 21. It contributed to raising the awareness among students and housewives by environmental education. It drew up environmental maps and surveyed the flora and fauna of the waterfront of the Han River. With the new addition of the function of CSD, the Committee contributed much to the establishment of a stronger and more environmentally friendly Urban Planning Ordinance.

However, there is much room to improve. First, it is required that the development-oriented governance should be changed to be environmentally friendly; second, businesses should increase their awareness of the environment out of their own will; and third, civil organizations which saw a drastic expansion in capacity in recent years should achieve accountability and the power of execution. In short, as the era enters a stage where the government-initiated economic growth model is losing ground and the authorities are getting weaker, the challenges of sustainable management lie on new leadership which can forge effective partnership between government, citizens and businesses.

Finally it must be emphasized that sustainable development planning must go beyond the technical concerns of infrastructures or land use control to cope with environmental issues and the management of public good. To restore the damaged urban environment, it is necessary to transform the system of urban planning process.

SOME NOTES ON URBAN MANAGEMENT

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The ultimate goal of urban management is to increase the welfare of urban society: i) the welfare of the overall urban community, ii) the welfare of each individual group of the urban society – especially the urban poor, and iii) the welfare of the future generations. These goals could be achieved through sustainable urban development:

- sustainable economically, i.e. urban economic output should be greater than its input, so that the overall urban community will be better off.
- sustainable socially-culturally-politically, i.e. the better off should be distributed equally among people with various social-cultural-political backgrounds, so that this will create social-cultural-political integrity and harmony as well as prevent/avoid possible social-political instability.
- sustainable environmentally, i.e. the management should be concerned with environmental sustainability –nature as well as historical buildings/districts– so that this will also be the better off for the future generations.

To achieve the above goals, urban management has to deal with technical processes as well as political decision-making processes. Both processes consist of three major stages, namely planning, implementation, and monitoring. These processes should be conducted through the participation of the related stakeholders. The technical processes involve multidisciplinary professional managers. The political decision-making processes also require the participation of various parties, i.e. the government, business people, the community, and also the mass media.

The problem is that the various multidisciplinary parties which are involved in the technical processes, as well as the political decision-making parties, have different, and in many cases conflicting, priorities. Some of these parties may have high priorities regarding economic sustainability while other parties may prioritize environmental sustainability, etc. There should be efficient, effective, and continuous communication among these various parties for the planning, implementation, and monitoring stages:

- within multidisciplinary parties
- within multi-political decision-making parties
- between multidisciplinary parties and multi-political decision makers

Since the world is becoming smaller and borderless, urban management has to deal with the dynamic and rapid changes of the global forces, as well as with increasing

local pressures. Urban managers should be able “ to do the right thing ” as well as “ to do the thing right. ”. Urban managers should have technical competence as well as a vision of future urban development.

Given these dynamic and rapid changes, continuously up-dated information is needed. In turn, the feedback process involving the planning-implementation-monitoring stages is crucial.

In developing countries, one of the most crucial urban management problems concerns the implementation stage; therefore, a set of pre-conditions should be developed as follows:

- to establish political support and commitment of the stakeholders
- to develop the needed supporting legal resources legal, e.g. availability of the appropriate laws and regulations
 - organization, e.g. coordination among the related organizations (job description, SOP, etc.)
 - human resources, e.g. technical competence as well as ethical and moral values of the needed supporting human resources (clean government, etc.)
 - financial sources, e.g. given the limited resources of the government, the role of domestic/foreign private sector is important; a marketing strategy to attract private investment is crucial
 - information, e.g. integrated and up-dated information related to the dynamics of global forces and local pressures (unfortunately, this is one of the biggest problems in developing countries)
- leadership – those who have the vision, competence, and commitment to achieve sustainable urban development through the stakeholder participation process.

In developing countries, given “ an oriented paternalistic/feudalistic society ”, leadership is the most important pre-condition.

In short, urban management is for the people, with the people, and by the people, i.e. to achieve sustainable urban society through sustainable urban development, and to proceed the planning-implementation-monitoring stages through various stakeholders' participation.

CITIES AS LIVING THINGS

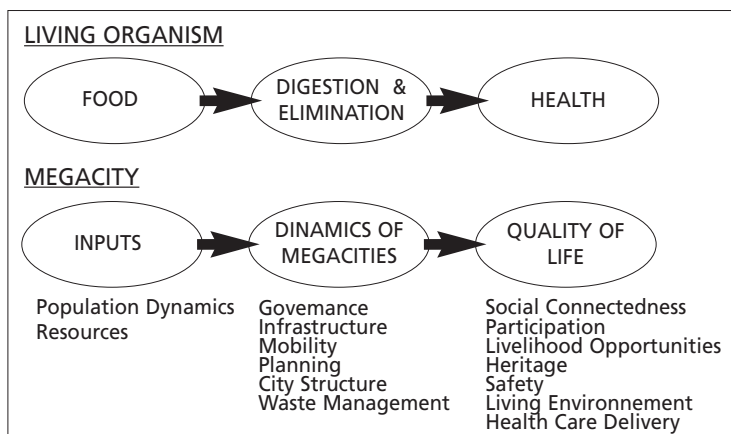
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The APEC Center for Technology Foresight has recently completed APEC-wide foresight studies of " Sustainable Transport for APEC Megacities " and " Healthy Futures for APEC Megacities. " I have been invited here to share with you - very briefly - the results of these studies.

Author, and contributor to the Habitat II Project, Herbert Giardet has described: " A city (as) a living thing. It has a complex metabolism, a voracious appetite and very poor eyesight. Improvements in transportation and communication mean that its feeding ground is now global and the consequences of its consumption distant and forgettable. "

If this is true, then the notion of a " sustainable megacity " can seem a contradiction in terms. And indeed, there are experts who feel that big cities should be prevented, even dismantled, if it were possible to control human choices to such an extent. But our studies found that the goal of a " healthy megacity " was feasible – idealistic maybe but not impossible, even though the threats to sustainability are certainly enormous.

The projects adopted an ecosystem approach to megacities. As the figure illustrates, a megacity can be compared to a living organism.



*The Megacity as a living organism
(a conceptual approach to the key issues identified
in the study)*

The attainment of a sustainable city can be defined as balancing the resource inputs to the city (principally people, land, water, energy and building materials) with the waste outputs (various wastes, sewage, toxins, air pollutants, greenhouse gases etc) while simultaneously improving the “liveability” of the city.

As the diagram shows, there were 15 key issues considered in our study. For each of these issues, we assessed the threats and opportunities for the future, including general discussion of the potential role of technology. For example, with the first issue – population dynamics – we noted that:

- Population projections show that dramatic rates of increase in the urban population can be expected. China provides perhaps the most dramatic example: by the end of this century, China’s urban population is expected to triple;
- Most of this increase is in the poorer economies;
- Much of this increase is attributed to rural to urban migration;
- The “ageing” of the population, already recognized in developed economies like Japan, will start to affect the less developed economies much sooner than many people realize.

What does this mean for our cities? Where will all these people live? How will they be supplied with energy, water, and food? What jobs will they do? Are homes and public buildings suitably designed for elderly people? Looking ahead by 20 or 30 years highlights policy decisions that need to be taken *now*.

Understanding the city as an ecosystem indicates that any solutions must be systemic as well. In order to create healthier megacities, many forces and actors must join (or be joined) together. Humans both affect and are affected by their environment and therefore, actions must be both proactive and reactive, marshalling and responding to dynamic forces. Health experts, for example, must work with transport planners, with pollution control experts and with providers of jobs. And the effects of their actions must be monitored carefully.

Technology can make an important contribution. In terms of “Sustainable Transport,” for example, new electric and hybrid vehicles and intelligent highway systems show great potential, but they are only a part of the solution. One of the most important factors we (and others) have identified is the urgent need to reduce private transportation and boost public transport. The question is – what would it take to make this happen? These are political and cultural questions as well as ones for expert or scientific opinion, which I will leave to the following discussions.

I would like to make a final comment on “foresight.” Foresight is a technique, or set of techniques, used to assess the future. It is not at all the same as forecasting which focuses on certainties and tries to make an accurate prediction of a single future. By contrast, Foresight explicitly recognizes that the future is not certain, and that there is a range of possible outcomes. The difference can be summed up by the question: “*is it better to get the future precisely wrong, through forecasting, or imprecisely right, through foresighting?*” Foresighting techniques bring together experts from different perspectives and backgrounds, challenge assumptions about the way things work, provide fresh insights, and help to reconcile entrenched differences of opinion. Change cannot be dictated but it can be anticipated and managed, and sometimes even steered. That is the goal of foresight – one that I suggest is ideally suited to consider sustainability in any sphere.

URBAN MANAGEMENT

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The Asian Crisis hit most countries in the region in the second half of 1997, after years of a collective economic miracle. Before the shock, growth rates were high, standards of living had improved and domestic consumption was well sustained. The middle class grew and expanded and social peace was maintained. It was undoubtedly true that the poor were still prevalent in Asian societies and the social divide was not really contained (especially between the urban rich and poor). But there was a feeling that economic growth was always forthcoming, which in turn created much optimism and confidence. This was the *mirage* of socio-economic growth in Asia for the past two or three decades!

Secondly, urbanization was rapid before the crisis. The migration of Asia's young and increasingly mobile populations from Asia's countryside to urban centers contributed to this trend. Asia's megacities of more than 10 million people grew rapidly. It is estimated that by 2010, 14 Asian cities will have a population of ten million or more, up from only nine in 1995. Of these 14 megacities, nine are in the Asia-Pacific and the other five are on the Indian Sub-Continent. Because of the rapid urbanization, the governments or local authorities concerned have not been able to provide and maintain good infrastructures for their growing urban populations.

With the crisis and the rapid urbanization, Asian countries experienced a severe shock in 1997-1998. As economic growth plunged into negative territory and the ranks of the poor swelled, the Asian economies began to look very vulnerable and fragile. The first to be affected were the urban centers, where the budding middle class (*nouveaux riches*) suffered the shock of sudden impoverishment. Some managed to return to the countryside where agricultural socio-economic sustenance helped to "absorb" the otherwise unemployed and hungry. Others had no choice but to stay in the cities, which could offer less welfare facilities at a time when they were most painfully needed, and became marginalized; some resorted to crime and other adventures out of sheer desperation. Racial, religious and class differences surfaced and cast doubts on the ability of governments to maintain the delicate social and racial harmony in such diverse countries as Indonesia, the Philippines or Malaysia.

Urban management was stretched to its limits and became critical, with all the related social problems of big cities. The gap between rich and poor, which widened further with the crisis, was a time bomb ticking away, as the growing disparity and increasing marginalization of the impoverished masses bore the seeds of social and political destabilization. This marginalization process has also become the key mobilizing *raison d'être* or rallying point for anti-globalization protesters at the meetings of WTO, World Bank, IMF, OECD or ADB since last year, from Seattle to Prague.

The challenge of providing infrastructure and utilities

Now that the economic recovery has somewhat returned, the embattled developing Asian economies face a mounting challenge in providing key infrastructures and utilities to their rapidly increasing urban populations. There are three reasons:

Firstly, the crisis has clearly focussed attention on sustainable socio-economic development. Gone are the days of "speculative" or "white-elephant" economic projects for prestige or "ego-massaging"! Urban centers must urgently focus their attention on the *sustainability of their economic development*, or the delicate balance between economic development and the socio-environmental needs of urban conglomerates. Basic infrastructures such as roads, water, electricity and telephone are necessary for sustainable economic development, betterment of health protection and social harmony. To shield the environment from spoliation and to preserve it for the future generations, waste and wastewater management have also clearly become crucial aspects of sustainable socio-economic development. The nexus of this whole debate is now focused on long-term planning, so that growth will not be ephemeral or even "speculative" in nature. Infrastructure is therefore the real basis of sustainable socio-economic development.

Secondly, thanks to the wave of democratization that is currently sweeping through the developing world (which in part results from the globalization trend and is spurred on by the IT revolution), power is being increasingly *decentralized* and *devolved to local authorities*, from the center to the provinces, and from the provinces down to municipalities or town authorities. Infrastructure and utilities are thus being "devolved" to the provinces and even to lower levels, as the experience of Indonesia, will amply show. It is hence at the lowest decentralized level that sustainable socio-economic development will now be implemented. This move will undoubtedly empower the local population with a greater say in their own local infrastructures and utilities, and make the local authorities more accountable to the local population.

Lastly, because of the devastating effects of the crisis, the local authorities critically *lack the financial and technical means* to provide such infrastructures and utilities to the local population. Furthermore, there is a fundamental difference between the public and private sectors. The former provides infrastructures and services based on expenditure or taxation, whereas the philosophy of the private sector is to optimize capital based on fruitful investments and development. Because of their financial and technical "deficiency", local authorities now have no other choice than to turn to the private sector to provide such facilities to a more demanding and perceptive urban population. Local authorities also lack the ability to provide such facilities which, in most cases, used to be provided by central authorities, with generous subsidies. How could such local urban authorities harness the technical experience and financial resources of the private sector to help provide such essential services?

Options in Infrastructure and Utilities Provision

There are two types of basic infrastructure development, viz. "hard" infrastructure like roads, rail, seaports, airports and roofs over our heads and "soft" infrastructure or "utilities", like water, electricity, sanitation, solid waste collection, telephonic services and cable.

The developmental models of "hard" and "soft" infrastructures differ. "Hard" infrastructures are considered more "passive" in service provision to customers, as they are built and operated for end-users as and when they need them, as in the case of airports, roads, rail and seaports. In the case of "soft" infrastructures, the operator plays a more "active" role in service provision as the service (water, electricity, waste water and solid waste management) is delivered to customers on a regular/daily basis. The operator needs the constant/daily satisfaction and goodwill of his customers who pay for the continuous service provided. But "soft" infrastructure or services do not mean that capital investments (or sunken capital cost) are less important than for "hard" infrastructure. For example, in providing water, capital cost in the treatment plant and pipe laying is enormous, not to mention the cost of maintaining them.

Developmental models of utilities ("soft" infrastructure) can really fall into *two* categories, i.e. either the private sector provides services through a *contractual relationship* with the (central or municipal) authorities, that remain the sole custodian of the assets, or the private sector becomes the *outright owner* (totally or partially) of the supply company and the assets (as in the case of a full privatization or a joint venture with the public sector). From experiences in the United Kingdom and other European countries, it appears that the asset sale approach (full privatization) is more effective when the public sector entity offered to privatization is involved in an industrial activity or something close to it. An asset sale also works best when there is real competition in providing this particular service. However, this approach becomes questionable when we consider infrastructures, which impinges on the essentials of communal existence. Utilities (or "soft" infrastructure) pertain to this second category, where it may be best for the authorities to retain the outright ownership of such communal assets, and delegate their management to the private sector over a fixed period of time.

The Public-Private Partnership Concept

Therein lies the attractiveness and timeliness of " *Public-Private Partnership* " (PPP) in providing multi-million dollar utilities or infrastructures to local populations. This partnership should bring together, as integral partners, the local authorities (with the prior approval of the central authorities), private sector consortia and their sub-contractors, as well as, in most cases, international organizations and financial institutions, which come in either as guarantors or " part-financiers ". The ADB, IMF, World Bank, ESCAP and others could thus actively participate in building sustainable growth in Asia. In a PPP, each party needs the close support of the others. Each also brings its own skills and complements the others, actually combining their respective strengths in the most effective way.

PPP is the key and solution to " deficient " local administrations (" deficient " financially and technically) in satisfying local demands for utilities, especially in the present " hard-pressed " urban context. Local administrations naturally lack the know-how in the building and operation of power and water treatment plants, incinerators or landfills, because of the rapid modernization of such operational facilities and technology, the huge financial costs involved and continuous advances in industrial management and operations. In this context, they should out-source the building and management/operation of such infrastructure and utilities works to specialized private companies, through arrangements such as concessions, BOO/BOT contracts or delegated management, depending on the degree of outsourcing they desire. Furthermore, being cash strapped, especially after the Asian crisis, they need not raise huge amounts of capital to pay for such services or projects, as it would have been the case had they commissioned them as turnkey projects. However, it is also crucial to realize that the private sector will inevitably ask for a pricing that comes close to the " real " price of utilities. Gone are the days of heavy subsidies for such essential services!

The *five* " drivers " (or advantages) of PPP are better human resource (HR) development and management, better financial management, greater technological innovation, better commercial management and greater customer satisfaction. But this concept needs to be carefully explained to local populations, so as to rally them completely in support of such PPPs. Nationalistic feelings, fear of unemployment or redundancy, and concerns about the indiscriminate rise of utility prices will inexorably fan protests among the local population. All attempts must be made at an early stage to project a smooth " win-win " working relationship between the local authorities and the private sector for the benefit of all, especially the local urban population. A transparent and fair regulatory authority should therefore be established by the local authorities, as an independent institution to handle all the technical criteria (like quality, environmental standards etc) as well as the social aspects (like rates and price increases, retrenchment and compensation, etc). Savings should be achieved as wastage is cut down to the minimum, the labor force and the operational plants are used more efficiently in accordance with the best business practices of the private sector. Such savings should be passed on to the consumers as far as possible, and translated into price reduction or slower increments in utilities tariffs. Once the consumers (local population) feel completely reassured and rally the cause of having a private (either local or foreign) company to provide them with their basic utilities, chauvinistic and nationalistic feelings could be effectively contained. A sound and smooth relationship between the private sector, local authorities, the regulatory body and the customers (local population) is therefore clearly in the interests of all the parties concerned.

Conclusion

The private sector could and should be an erstwhile partner for the local authorities, the people (the local population or the consumers), international, regional or local financial institutions, NGOs and other representative bodies of civil society, in infrastructures and utilities provision, but within a clear and well-defined regulatory framework, so as to achieve both the public and private sector goals of mutual social and economic benefits, as well as the optimal use of capital for such essential and basic infrastructures.

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