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Images and Realities of Cities in the 21st Century: Global Cities, Creative Cities, and Sustainable Cities

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Globality, Sustainability and Creativity: World Cities Contest

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Introduction

Friedmann's seminal article, 'The World City Hypotheses' (1986), postulates the origins of local socio-economic changes in relation to the rise and formation of a spatial hierarchy of world cities driven by mobile capital and transnational corporations. This postulation has led to a plethora of theoretical and empirical research. Many have tried to identify the 'world city hierarchy' through city ranking and have confirmed that world cities are places where global business, finance, trade and government are orchestrated (Beaverstock, Smith and Taylor, 2000; Clark, 1996, p.138; Friedmann, 1986, 1988; Smith and Timberlake, 1993, 1995; Taylor, 2003, 2004). The search for forces of globalization has created in some quarters 'an ideology of globality'. Omae (1995) even hails this as the dawn of a borderless world and the end of the nation state. Yet, Abu-Lughod in her voluminous book on New York, Chicago and Los Angeles (1999) employs *longue durée* comparative and historical analyses to demonstrate that 'history matters': today's developments in these world cities have causal linkages with previous *in situ* events and processes. To Abu-Lughod, there are 'limits to contemporary globalization' (Brenner, 2001, p.128-9).

Abu-Lughod's position departs fundamentally from Friedmann's postulation and Sassen's classic work: *The Global City: New York, London, Tokyo* (1991). Sassen's path-breaking book not only seeks to understand the 'production' of the global economic system and its concomitant 'global control capacities' (2001, p.349), but also to link the three cities' 'structural positions' in the global urban hierarchy to economic and socio-spatial realities within those places (Smith and Timberlake, 1993, p.194). When Sassen argues that 'the development of global city functions in different cities across the world does indeed signal convergence of something', she also maintains that 'this is a highly specialized, institutionally differentiated process' (2001, p.348). Perhaps, as Savitch and Kantor (2002, p.167) argue, 'cities are neither creatures of their bargaining circumstances nor are they masters of their policy choices'. In this age of globalization, policy makers have to navigate local developments amidst constraints at different geographical scales and hence it is important to investigate and untangle 'global-local connections' (Beauregard, 1995) and the 'global-local nexus' (Tickell and Peck, 1995).

Many have researched the global-local nexus in world cities (Eade, 1997; Hill and Kim, 2000; Keil, 1998; Keil, Gerda, Wekerle and Bell, 1996; Knox and Taylor, 1995). However, not many have investigated issues surrounding sustainability, quality of life, ecological modernization, cultural and creativity (Douglass, 2000; Florida, 2005; Landry, 2000; Lo and Marcotullio, 2001; Low, Gleeson, Elander and Lidskog, 2000; Mol, 2001; Ward, 1995), popular concepts that have spread and transformed thanks to the same globalization processes. Lo and

Marcotullio (2001, p.459) observe that ‘within the literature on “sustainable cities” there are limited international comparative studies currently available and even fewer on the influences of globalization’. This paper would like to pick up this challenge and contribute to a continuing debate in this area.

This paper argues that the contents of globality should not just be confined to the economic aspect but should also extend to issues surrounding sustainability and creativity (Ng, 1999, 2002a, 2002b, 2004; Ng and Hills, 2000, 2003). Twenty-first century cities should strive to be sustainable world cities that are creative in developing innovative technology and economic activities (ecological modernization) to further sustainable global and local development. Such cities should be effective and creative in utilising and developing its economic, human, social, cultural and environmental capital. This paper attempts to use quantitative and qualitative measures to position nine identified cities: *Hong Kong, New York, London, Paris, Tokyo, Sydney, Singapore, Taipei and Shanghai*. They were chosen by participants in an engagement activity organised by the Centre of Urban Planning and Environmental Management, the University of Hong Kong back in year 2000 who considered that Hong Kong should have something to learn from these world or aspiring world cities.

The following section outlines the conceptual framework and section three compares and contrasts the nine cities in terms of their global connections, local sustainable development and cultural development and degree of creativity. While most of the comparisons are done quantitatively, qualitative frameworks are also employed to position the nine cities. Section four concludes the paper.

Sustainable Creative World City

Globality

Many cities have strived for world city status: to be commanding posts where headquarters of global business, finance and trade activities converge, through well-connected physical and virtual communication networks (Clark, 1996). Friedmann (1995, p.25), a decade after the publication of his ‘World City Hypothesis’ (1986), argues that ‘world cities articulate larger regional, national, and international economies into a global economy. Cities serve as centres extending their influence into a surrounding “field” or region whose economic relations they “articulate” into the global economy or space of global accumulation. They serve as the organisation nodes of a global economic system’. Many have jumped on the bandwagon of ranking and positioning cities in the global economy (Tables 1, 2 and 3).

Table 1: Typologies of World Cities: Friedmann's Schema

| Friedmann, 1986, pp.69-83 | Friedmann, 1998, p.27 |
|--|--|
| <p>Primary Core Cities</p> <p>London Paris Rotterdam Frankfurt Zurich New York Chicago Los Angeles Tokyo</p> | <p>Global Financial Articulations</p> <p>London New York Tokyo</p> <hr/> <p>Multinational Articulations</p> <p>Miami Los Angeles Frankfurt Amsterdam Singapore</p> |
| <p>Secondary Core Cities</p> <p>Brussels Milan Vienna Madrid Toronto Miami Houston San Francisco Sydney</p> | <p>Important National Articulations</p> <p>Paris Zurich Madrid Mexico City Sao Paulo Seoul Sydney</p> |
| <p>Semi-peripheral Cities</p> <p>Sao Paulo Singapore Johannesburg Buenos Aires Rio de Janeiro Caracas Mexico City Hong Kong Taipei Manila Bangkok</p> | <p>Sub-national/Regional Articulations</p> <p>Osaka-Kobe San Francisco Seattle Houston Chicago Boston Vancouver Toronto Montreal Hong Kong Milano</p> |

Table 2: A Roaster of World Cities (Beaverstock, Taylor and Smith, 1999, p.456)

| Alpha World Cities | |
|--------------------|--|
| 12: | London, Paris, New York, Tokyo |
| 10: | Chicago, Frankfurt, Hong Kong, Los Angeles, Milan, Singapore |
| Beta World Cities | |
| 9: | San Francisco, Sydney, Toronto, Zurich |
| 8: | Brussels, Madrid, Mexico City, Sao Paulo |
| 7: | Moscow, Seoul |
| Gamma World Cities | |
| 6: | Amsterdam, Boston, Caracas, Dallas, Dusseldorf, Geneva, Houston, Jakarta, Johannesburg, Melbourne, Osaka, Prague, Santiago, Taipei, Washington |
| 5: | Bangkok, Beijing, Montreal, Rome, Shanghai, Stockholm, Warsaw |
| 4: | Atlanta, Barcelona, Berlin, Buenos Aires, Budapest, Copenhagen, Hamburg, Istanbul, Kuala Lumpur, Manila, Miami, Minneapolis, Munich |

“Cities are ordered in terms of world city-ness values ranging from 1 to 12. World city-ness values produced by scoring 3 for prime centre status, 2 for major centre status, and 1 for minor centre status for each of the four services.” The four services included are namely accountancy, advertising, banking/finance, and law.

Table 3 Rankings of Cities on Four Network Connectivities

| Rank | Global Network Connectivity | Bank Network Connectivity | Media Network Connectivity | NGO Network Connectivity |
|------|-----------------------------|---------------------------|----------------------------|--------------------------|
| 1 | London | London | London | Nairobi |
| 2 | New York | New York | New York | Brussels |
| 3 | Hong Kong | Tokyo | Paris | Bangkok |
| 4 | Paris | Hong Kong | Los Angeles | London |
| 5 | Tokyo | Singapore | Milan | New Delhi |
| 6 | Singapore | Paris | Madrid | Manila |
| 7 | Chicago | Frankfurt | Amsterdam | Washington, DC |
| 8 | Milan | Madrid | Toronto | Harare |
| 9 | Los Angeles | Jakarta | Stockholm | Geneva |
| 10 | Toronto | Chicago | Copenhagen | Moscow |
| 11 | Madrid | Milan | Sydney | New York |
| 12 | Amsterdam | Sydney | Singapore | Mexico City |
| 13 | Sydney | Los Angeles | Barcelona | Jakarta |
| 14 | Frankfurt | Mumbai | Zurich | Tokyo |
| 15 | Brussels | San Francisco | Vienna | Accra |
| 16 | São Paulo | São Paulo | Oslo | Cairo |
| 17 | San Francisco | Taipei | Prague | Dhaka |
| 18 | Mexico City | Shanghai | Tokyo | Rome |
| 19 | Zurich | Brussels | Brussels | Dakar |
| 20 | Taipei | Seoul | Hong Kong | Santiago |
| 21 | Mumbai | Istanbul | Budapest | Abidjan |
| 22 | Jakarta | Beijing | Warsaw | Buenos Aires |
| 23 | Buenos Aires | Bangkok | Lisbon | Dar es Salaam |
| 24 | Melbourne | Amsterdam | Chicago | Copenhagen |
| 25 | Miami | Warsaw | São Paulo | Beijing |

Source: Taylor, Peter J., (2004), *World City Network: A Global Urban Analysis*, London: Routledge, p.99.

Sustainability

However, it is also true that ever since the conceptualisation of the process of world city formation, there have been incessant reminders that if unchecked, growth-driven world cities would be unsustainable. Friedmann (1986, pp.76-77) argues that ‘world city formation brings spatial and class polarisation’ and ‘world city growth generates social costs at rates that tend to exceed the fiscal capacity of the state’. Clark (1996, p.176) challenges that world cities ‘cannot remain prosperous if the aggregate impact of their economies’ production and their inhabitants’ consumption draws on global resources at unsustainable rates and deposits wastes in global sinks at levels which lead to detrimental climate change’. Keil (1995, p.282) argues that the ‘world city is a place where the global ecological crisis manifests itself concretely’ whereas Sen (1997, p.23) contends that globality has made ‘livelihoods and resource entitlements of poor people insecure’, poor people within and beyond the world cities. According to Bonvin (1997, pp.40-41), ‘in the OECD zone, about one hundred million individuals are living below poverty levels. Of these some five million do not even have a shelter’, not to mention the environmental degradation that has resulted from globalisation such as destruction of the ozone, global warming and depletion of ‘global commons’.

One may even contend that world cities are bound to be unsustainable as can be seen in the Table 4 below.

Table 4: World Cities against Sustainable Development Principles

| Sustainable Development Principles* | World City Reality | Remarks |
|--|---------------------------|--|
| <i>Basic Principles</i> | | |
| Ethical utilization of natural resources | ✖ | World cities being consumptive societies consume a disproportionate amount of earth’s resources. |
| Intra- and inter-generational equity | ✖ | World cities have a dual face, with stark social polarisation within and between generations. |
| <i>Economic Capital</i> | | |
| Long-term economic prosperity | ? | Given the fluctuating global market, long term prosperity is not guaranteed? |
| Restorative economy | ✖ | The capitalist economy often ‘adjusts’ through disruptive market mechanisms. |
| Reforming market economy | ✓/!/? | Depends on which world city one is looking at. More research work is required. |
| Ecological modernization | ✓/✖/! | |
| <i>Human and Social Capital</i> | | |
| Diversities in human resources | ✓ | World cities are places of immigration, a magnet of different types of talents. |
| Cultural diversities | ✓ | |
| Satisfying basic needs | ✓/!/? | While social polarisation exists, there are usually institutions to meet citizens’ basic needs. |
| Equity in governance | ? | Social polarisation, skewed distribution of power struggle. |
| Social cohesion | ? | |
| Equal opportunities | ✖/! | |
| <i>Environmental (Physical & Built) Capital</i> | | |
| Geographical equity | ✖ | World cities have large ecological footprint and are hopeless in terms achieving self-sufficiency in |
| Living within nature’s carrying capacity | ✖ | |

| | | |
|-------------------------|-------|--|
| | | needs. |
| Enhancing biodiversity | * | Development often leads to a decrease of biodiversity. |
| Replace/ Recycle/ Reuse | ✓/*/? | Depends on individual city's efforts. |

* Ng, 2002b, p.9..

Globalisation is inherently ‘unsettling’ and as argued by Friedmann (1995, p.43), a bifocal perspective is required to view globality: ‘one eye directed at the dynamic capitalist system at the core—the space of global accumulation and its articulations—and the other at the fragmented periphery of the excluded’. He asserts that ‘the economic system is unable to hold out the promise of a better life to the vast majority of the world’s population’ and ‘if we continue to ignore it it will bring us face to face with unimaginable grief’ (p.44). Vonkeman (2000, p.21) reports that ‘since 1950, per capita consumption of the poorest 20% of nations has hardly increased in real terms, while in the richest 20% of national per capita consumption of energy has doubled during this period and car ownership has quadrupled’. Similarly, Christine and Warburton (2001, p.116) suggest that ‘the top 20 per cent of the world’s population in the richest countries enjoy 82 per cent of the expanding export trade, and 68 per cent of foreign investment; the bottom 20 per cent get barely more than 1 per cent’. The UNDP’s *Human Development Report 1997* estimated that in the mid-1990s the combined wealth of the world’s three wealthiest families (\$135 billion) was greater than the annual income of 600 million people living in the least-developed countries (Sandbrook, 2003, p.3). In fact, it is argued that a global fund of some US\$150 billion per year for sustainable development would be enough to put an end to absolute poverty, through investment in sanitation and public health, large-scale programmes for environmental protection and restoration, education, housing and family planning (Christine and Warburton, 2001, p.161).

All these challenge world city government’s creativity in moving economic growth towards a more sustainable path, according to the principles listed in Table 4. The role of the state is of particular importance because ‘public policies can make a huge difference for urban outcomes’ (Friedmann, 1997, p.15). Instead of focusing only on the race towards world city status, world city governments should proactively participate in international agreements and national development policies with a view to developing integrated socio-economic and environmental strategies and policies at the local level that allow the state to work in partnership with the private sectors and the civil society. The city government needs to stop neglecting the environmental impacts of production and consumption, pollution and wastes production alongside the depletion of natural resources. In other words, governments should seriously consider the implementation of clean production legislation, policies and programmes (Gleeson and Low, 2000, p.24), steering production activities based on recycling, minimisation of material flows, maximisation of transportation efficiency and utilisation and retention of locally generated capital (Portney, 2003, p.116-123).

At the same time, it is very important for governments to establish and institutionalise processes and governance structures that allow citizens equal access to social and political services and decision making power (Hooghe and Stolle, 2003). As Friedmann (1997, pp.15-16) puts it, ‘a city’s inhabitants must be assured a way of flourishing in the new economic order. Their life space must be defended against developments that tend to favour the few over the many; public services must be provided in adequate measures to everyone regardless of their ability to pay for them; and, the conditions of the environment from city core to far periphery must be protected and enhanced’. Ward (1995, p.303) suggests that city government should be ‘transparent and accountable’: there should be ‘one authority with responsibility for the whole of the city or metropolitan area exercising executive powers over certain macro-level activities such as planning,’ complemented by ‘decentralised and devolved responsibilities and powers’ at the local level to facilitate inclusive participation. The idea is to create a milieu where ideas and wisdom can be shared and found anew collectively for urban innovations.

Culture and Creativity

Creativity is of vital importance in building sustainable cities. Without creative thinking grounded in a unique culture of a specific place, sustainable development is simply not possible as the concept needs to address the long-term management of future development of a present bequeathed to us by the past. To Landry (2002, p.6), ‘cultural heritage connects us to our histories and our collective memories; it anchors our sense of being and can provide a source of insight to help us to face the future’. He even likens ‘cultural resources as the raw materials of the city and its value base’ and creativity through an inclusive participatory process is called for so that the exploitation of these resources can be sustainable culturally, economically, socially and environmentally (2002, pp.8, 20).

Landry puts forward two schema to position a city’s innovation and creativity capacity: the Urban Innovation Matrix and the Creative City Development Scale (Tables 5 and 6).

Table 5: The Urban Innovation Matrix

| |
|---|
| 1. <i>Meta-paradigm shift</i> : Central to this is the idea of holistic integrated thinking and an attempt to understand how impacts of every kind and at every level are inextricably interconnected. It re-conceptualises a city from a machine to a living organism incorporating the notion of metabolism |
| 2. <i>Paradigm shift</i> : a quite basic redefinition of a problem say in a given policy area or perhaps the discovery of a new problem or solution; whereby the objective of policy is itself changed. For example during the last 20 years the notion of traffic planning to restrain rather than facilitate vehicular traffic and the concept of recycling urban economies from declining sectors such as manufacturing into expanding ones such as services or tourism. The annual Finnish snow castle project in Kemi involves a paradigm shift: turning a weakness—coldness and snow and the closure of the paper mill—into a strength—a successful tourism project that now sustains the economy... |

| | |
|----|---|
| 3. | Basic innovation: once paradigm shifts in conceptualizing an issue have occurred a new way of achieving an objective. Examples are the idea that city centres can be pedestrianized.. the ‘festival marketplace’ and associated urban tourism as a means of regenerating central an inner urban areas with the re-use of old buildings formerly designed for the manufacturing or warehousing economy. Zero tolerance as a means of abating crime is another instance. |
| 4. | Best practice: an outstanding example of realization generally regarded as unique. ...the adoption of new forms of combined economic and social accounting to assess the efficacy of urban regeneration projects; environmental auditing; self-help building projects; children-as-planners projects or citizen involvement in city budgeting. |
| 5. | Good practice: a realization that reaches a standard benchmark replicated in a number of other cases that may be easily described in codes of practice or good practice guides. Nowadays adopting consultation procedures within planning is an example. Others include public/private partnerships to achieve area regeneration, the production of annual city reports, well-designed urban furniture, environmentally sustainable housing developments and energy efficient buildings; park and ride systems |
| 6. | Bad practice: a continuation of practice that has recognised weaknesses such as urban motorways severing established residential areas or central shopping areas; creating social housing ghettos; wholesale demolition of old urban structures; neglecting the diversity of the ethnic make-up of cities |
| 7. | Appalling practice: activities which consciously and deliberately work against the principle of creative sustainable and equitable development such as new property developments that totally neglect their urban context and raze traditional communities to the ground; ignoring the demands of the socially excluded and thus exacerbating cycles of decline; providing no consultation procedures for those affected by decisions. |

Source: Landry, Charles, 2000, *The Creative City: a Toolkit for Urban Innovators*, London: Earthscan Publications Ltd., pp.198-200.

Table 6: The Creative City Development Scale

| Scale | Description |
|---------------|---|
| 1 | Creativity not even thought of as significant or relevant to urban affairs or a particular stage of the cycle, say ideas generation or marketing; very basic creative activity; minimal self-consciousness about the issues amongst the variety of actors in the city. No public discussion of creativity or innovation issues. |
| 2 or 3 | The beginnings of a self-consciousness by city decision-makers that innovation questions are important. Some encouragement from the public sector. |
| 4 | Much more pressure for recognition of innovation issues by those active in industry and public institutions. There may be an alternative culture emerging, that beings to create a ‘buzz’ about the city or part of the city... Pressure without and within public institutions to rethink organisation ethos. This is the ‘take off’ level. Some of the creative actors have connections or audiences well beyond the locality. |
| 5 or 6 | Places where a certain level of autonomy has been achieved and individual creators can begin to meet their aspirations within the location either through commercial firms, the education sector or a lively NGO world. Support infrastructures such as a lively research or alternative scene exists; financial networks well-developed; public/private partnerships and mutual sharing between sectors emerging. Evidence of existing success may provide a magnet for others to emulate and lead them to stay in the city. A level of coordinated public intervention is usually introduced, especially in the technology areas. |
| 7 or 8 | Recognition of the importance of the innovation dynamic in both public and private sectors. City in all its guises capable of nurturing ‘creators’ so that they can meet their aspirations largely within the location. Integrated thinking at strategic levels apparent, which expresses itself in creative projects that fit multiple targets such as environmental initiatives combining social, cultural and economic goals. Support structure for activity available right across the five spheres from idea generation, to production, circulation, delivery mechanism and dissemination. The |

| Scale | Description |
|-----------|--|
| | location is an attractor of talent, but still lacks a few high-level resources to fulfil its ultimate potential. Political structure at ease with itself, open to new ideas and strategically focused. |
| 9 | The local is known as a creative centre nationally and internationally. Has practically all facilities, and is nearly self-sufficient. |
| 10 | A virtually self-sufficient place which has established a virtuous cycle of self-renewing, self-critical and reflective creativity. Has high-level facilities and international flagships, and all types of necessary professional services. Is a centre for strategic decision-making about a range of sectors and looked to as a provider of best practices. Capable of competing equally on an international level with any city. |

Source: Landry, Charles, 2000, *The Creative City: a Toolkit for Urban Innovators*, London: Earthscan Publications Ltd., pp.234-236.

Assessment Criteria

We have so far argued that economic globality have led to multi-scalar environmental problems and social polarisation within and beyond the world cities. Local sustainability hinges upon an ecologically diversified and healthy environment, a strong and well-connected community together with a vibrant community-based economy. Such challenges call for a creative capacity grounded in a place's unique cultural and heritage assets. In order to revisit the world city paradigm through these important theoretical lights, a set of assessment criteria is drawn up to investigate the realities of the nine identified world or aspiring world cities (Table 7).

Table 7: Assessment Criteria for the Creative Sustainable World City Contest

| <i>Checklist Questions on Strategy and Processes</i> |
|---|
| Participation in Sustainable Development (SD)-related international conventions |
| National sustainable development strategy? |
| City-wide sustainable comprehensive & integrated development strategy, embracing environmental, economic and social dimensions? |
| Well-resourced commission on sustainable development with executive power |
| Sustainability impact assessment? |
| Visionary leader(s) championing the course of sustainable development |
| Popular support from the civil society |
| Ecological modernisation or industrial ecology practice in production and consumption? |

Table 7: Assessment Criteria for the Creative Sustainable World City Contest (cont'd)

| <i>Indicators</i> |
|---|
| <i>Sustainability: Ecological Modernisation and Quality of Life indicators</i> |
| <p><i>Environmental Concerns</i></p> <ul style="list-style-type: none"> • Ecological footprint • % of government expenditure on environmental issues • Solid waste/head (tonne/head) • Air quality • % of wastewater with secondary treatment • Number of noise complaints • Proportion of work trips using public transport • Death rates of cancer and respiratory diseases per 100,000 population <p><i>Social Equity Issues</i></p> <ul style="list-style-type: none"> • Annual net migration rate per 1,000 population • Cost of living index (New York-100) • Gini coefficient of income distribution (%) • % of households receiving social security assistance • Average number of hours worked per year • % of population holding post-secondary qualification • % of household expenditure on medical services • % of household expenditure on transportation |
| <i>Creativity and Cultural Assets</i> |
| <ul style="list-style-type: none"> • Positioning in the Urban Innovation Matrix (Landry, 2000, see Table 5) • Rating against the Creative City Development Scale (Landry, 2000, see Table 6) • Number of museums • Number of libraries open to the public • Number of listed buildings • Number of films screened annually • Number of book publishers |
| <i>Globality</i> |
| <ul style="list-style-type: none"> • Global Competitive Index by World Economic Forum • Number of Fortune 500 headquarters, international banks and chambers of commerce represented • Rankings in four Network Connectivities identified by Taylor (2004) (see Table 3) • Number of international organisations participated • GDP and GDP per capita (USD at current price) • Average amount traded per day of the equity market in million USD • Value of bond trading in million USD • Market capitalisation of shares of domestic companies in billion USD • Tourism numbers (international and domestic) • Number of internet service providers • Expenditure on R&D as % of GDP |

Source: By the author after synthesising and contemplating upon various issues.

Although this is a rather long list, it is by no means comprehensive, exhaustive or finite. However, it should serve as a good starting point to revisit the realities of our world or aspiring world cities and ascertain if they have the creative capacity to build a sustainable future. The following outlines first the general background of the nine cities, followed by comparisons against the set criteria.

World City Contest¹

Background: Governance & Planning

The nine cities, with the exception of Shanghai (where cities are entrusted with the task of overseeing counties) and Sydney, are of comparable size in terms of area and population. Paris is the smallest in terms of land area and population (105 km² and 2.15 million) and Shanghai the largest (6,341 km² and 13.27 million). While population density in the nine cities fluctuate in the range of 5,000 to 10,000 per km², Paris shoots up to 20,437 per km² when Sydney is only 994 per km² and Shanghai 2,093 per km² (Figure 1).

Figure 1: Background of the Nine Cities

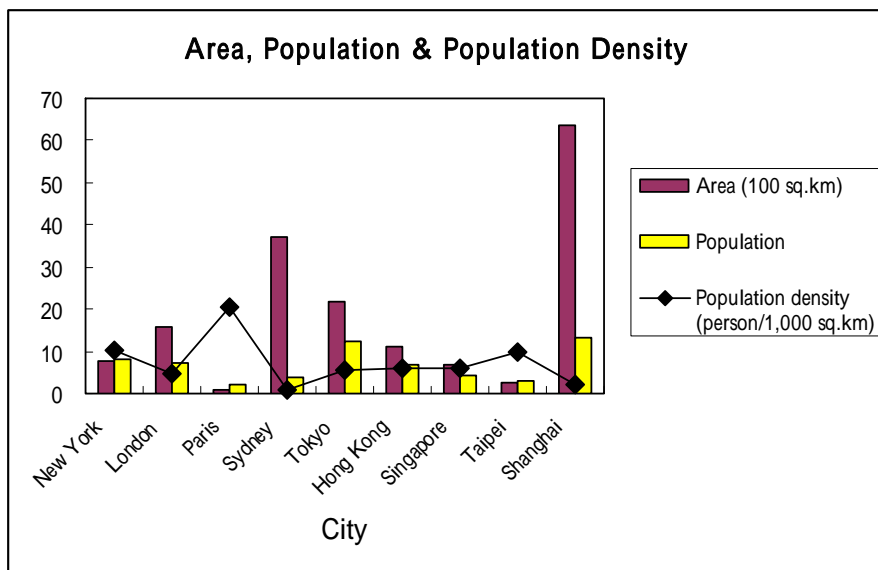
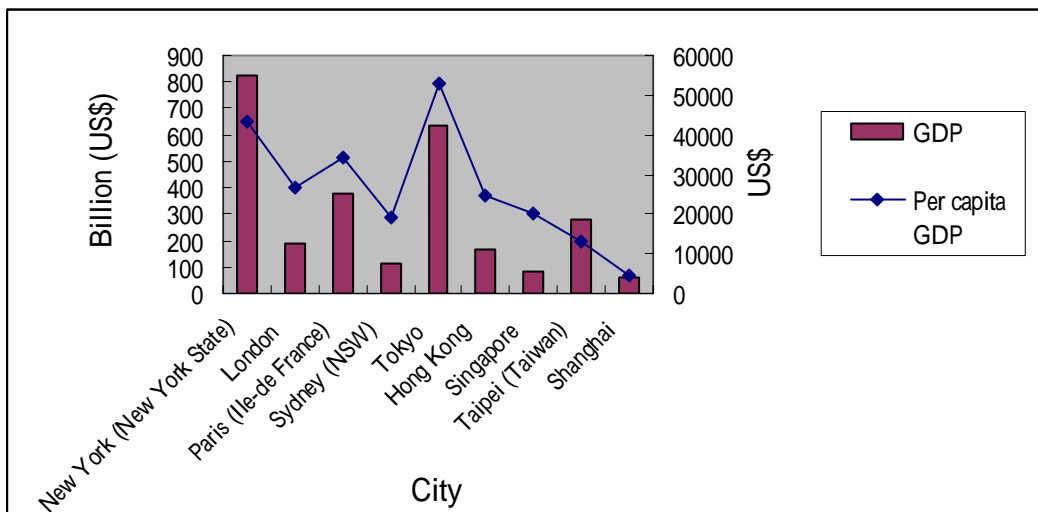


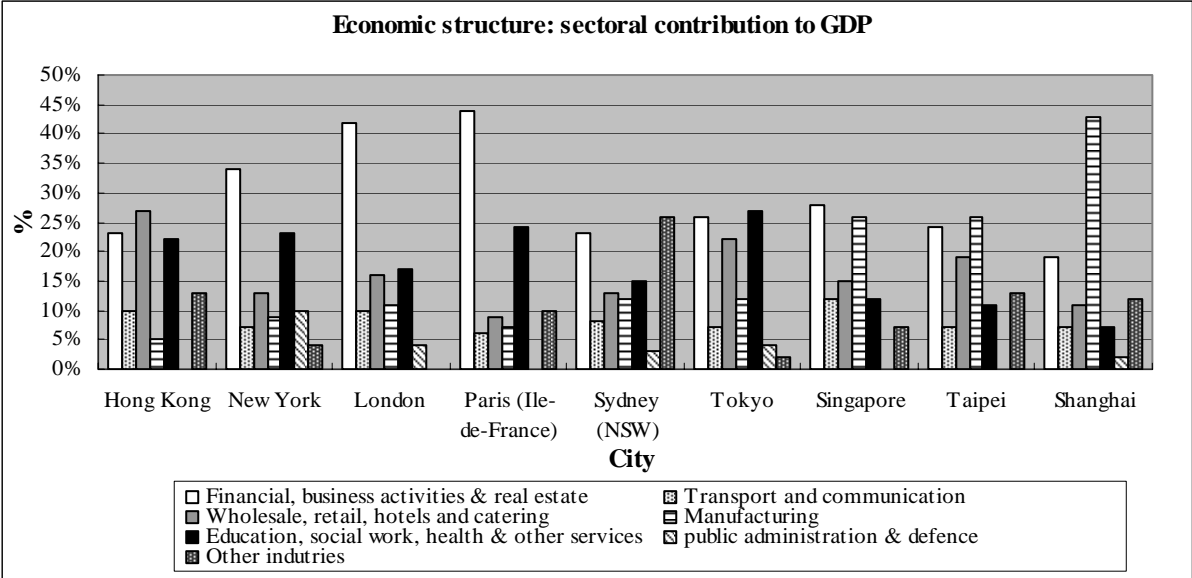
Figure 2: GDP and Per Capita GDP in the Nine Cities



¹ Sources for data used in the figures are listed in Appendix I.

From Figure 2, we can see that New York and Tokyo have much larger economic size. The same is true for per capita GDP, which are the highest in Tokyo, New York, Paris and London. Hong Kong leads among other Asian Pacific cities.

Figure 3: Economic Structure of the Nine Cities



With the exception of Shanghai, financial, business and real estate activities contribute to at least 20 per cent of the city’s GDP (Figure 3). The figures are over 40 per cent in Paris and London and over 30 per cent in New York. Shanghai is still basically an industrial city with manufacturing contributing to over 40 per cent of GDP. Both Singapore and Taipei have over 25 per cent of their GDP originated from industrial activities. For the other cities, education, social work, health and other services play a more important role in contributing to their respective GDP figure. The transport and communication sector plays a more important role in Singapore, London and Hong Kong ($\geq 10\%$) as compared to the rest of the cities (from 5-10%). So all the cities, except Shanghai can be described as service-driven cities.

Except the two Chinese cities, Hong Kong and Shanghai, all the other seven world cities are democratic polities. In Singapore, a parliamentary democracy is led by the dominating People’s Action Party which has been in power since the city-state’s independency in 1965. The mayors in New York, London, Sydney (called Lord Mayor) and Tokyo (called Governor) are all directly elected. Similarly, their legislative bodies are democratically constituted: the 51 New York City Council members are elected from 51 Council Districts; the 24-member London Assembly composes of 14 members selected from Assembly constituencies and 11 members elected on a London-wide bases; the 10-member City of Sydney Council are directly elected; and in Tokyo, the 127 Metropolitan Assembly is also directly elected by the people. In Paris, council members in the city’s 20 arrondissements are directly elected whose

representatives then form the Council of Paris which in turn elects the mayor. Unlike these world cities, Hong Kong has an executive-led government polity, that is, the Chief Executive is elected by an 800-member constituency and the Legislative Council is constituted in such a way that the democratic elements cannot assume majority control. The mayor of Shanghai is elected by the People's Congress of the Municipality, membership of which is all tightly controlled by the People's Communist Party.

As equity in governance is an important principle in sustainable development and an open, transparent, democratic and accountable polity is an important basis for networking and partnership building which in turn will facilitate co-learning and societal capacity building, this paper postulates that the more democratic world cities should in general be more creative and sustainable than those where power is concentrated in the hands of a significant few.

This proposition can be verified by the mode of urban planning adopted in these cities. In Shanghai, planning is the responsibility of the Municipal City Planning Bureau and when the plan is drafted, public participation will take place through consulting relevant administrative departments, representatives from local units or people's congresses of municipality, districts, county, town or township. In Hong Kong, the general public are not involved in the planning process until a draft plan is gazetted. The statutory planning system in general is top-down and expert-led. The People's Action Party-led Singaporean government also exercises very tight control over urban planning and the decisions of the Ministry of National Development is final but in recent years, views of the general public are solicited in the updating of their Master Plan and the Concept Plan. The updating of the 2001 Concept Plan involved two focus groups of professionals, interest groups, industrialists, businessmen, academics, grassroots and students, who in turn consulted the rest of the community, before they submitted a final report to the Minister of National Construction.

The mode of urban planning is different in the more democratic polities. Although Taipei is similar to Hong Kong where the general public are not allowed to be involved until a draft plan is exhibited for 30 days for comments, citizens can participate in "Neighbourhood Improvement Programme" and the "Community Planning Programme". With these programmes and the regulations on community participation and implementation, authorities initiating planning related changes in the community would need to engage the public or even hold public hearing. The process is similar in Tokyo. When a plan is formulated, the government needs to provide details to the public, especially those directly affected stakeholders and consult them for two weeks and after this, interested parties can submit written comments. Similar to Taipei, community-led planning is a standard practice called Machizukuri (Nishimura, 2005).

In developing over 20 projects as part of the updating of the New City Plan of Sydney, the general public are provided with all the necessary information in the public engagement activities. The Institute of Urban Planning and Development of the Paris Ile-de-France Region has worked with multi-disciplinary teams such as urban planners, architects, economists and demographers, and grassroots organisations in the formulation of plans for Paris. In London, citizen participation is stipulated in the planning legislation. Similarly citizen participation is allowed in the formulation of the strategic London Plan. In New York, the well known ULURP or Uniform Land Use Reform Process allows for community participation in making development decisions within a specific timeframe.

Strategies and Processes related to Sustainable Development

Table 8 roughly outlines whether strategy and processes exist to advance sustainable development in the nine cities. Answers to the checklist, however, should not be taken too seriously at this stage as information is extremely fragmentary and a lot of which is in a language foreign to the author. This problem is particularly serious for Paris and Tokyo. Furthermore, the perception and actions on sustainable development is also place and culture specific and hence a lot more research is required in this area. Anyway, we can argue that London seems to lead in terms of policy rhetoric and resource inputs to sustainable development, followed by Taipei and Sydney (though Australia has been declined ratification in the Kyoto Protocol). Shanghai has an action plan for implementing China's Agenda 21 and Tokyo has proclaimed her desire to be a zero waste world city (Fujita and Hill, forthcoming). Yet, for the market-led polities of New York, Hong Kong and Singapore, they are not subscribing to the targets set by the Kyoto Protocol. Although sustainability rhetoric is also adopted in these cities, there seems to be not much happening in terms of sustainable development actions across various sectors in these cities.

After gaining some rough ideas about the progress of these cities in terms of rhetoric and resource inputs in sustainable development, let us review their performance according to the criteria set in Table 6. It seems that London and Taipei are very serious in moving their cities towards sustainability. While New York probably has the most transparent development control process within a mode of governance that facilitates multi-stakeholder engagement, it has yet to display a determination to move towards the path of sustainable development. Since most of the information and data on Paris are in French, English information is scattered and patchy. Not much is known about the state of environment in Paris. However, since

sustainability issues are taken very seriously at the European Union level, one can assume that Paris needs to work hard towards sustainability. Same is Tokyo—since the author cannot understand Japanese, only English information is used to appreciate sustainable development there. While Shanghai has strong rhetoric (compliance to Kyoto Protocol, for instance), she is not much different from Singapore and Hong Kong. Emphasis seems to be on development rather than sustainability concerns. Let us now look at the results of the contest.

Table 8: Sustainable Development Strategy and Processes in the Nine Cities

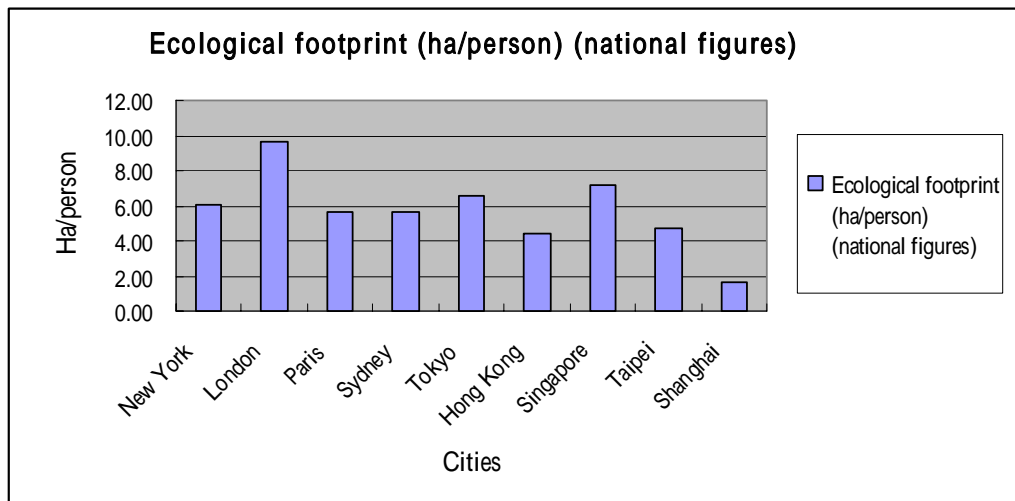
| Checklist Questions on Strategy & Processes | New York | London | Paris | Sydney | Tokyo | H K | SG | Taipei | Shanghai |
|---|----------|----------|-------|--------|-------|-------|-------|--------|----------|
| Participation in SD-related international conventions: Kyoto Protocol | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✓ |
| National sustainable development strategy? | ✗ | ✓ | ✓ | ✓ | ✓ | * | ✗ | ✓ | ✓ |
| City-wide sustainable comprehensive & integrated development strategy, embracing environmental, economic and social dimensions? | ✗ | ✓ | ? | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ |
| Well-resourced commission on sustainable development with executive power | ✗ | ✓ | ? | ? | ? | ?✗? | ✗ | ✓ | ? |
| Sustainability impact assessment? | ✓ | ✓ | ? | ✓ | ? | ✗? | ✗ | ✓ | ✗ |
| Visionary leader(s) championing the course of sustainable development | ? | ✓ | Some? | ✓ | Some? | ✗ | ✗ | ✓ | ? |
| Popular support from the civil society | Some? | ✓ | ? | ✓ | Some? | ✗ | ✗ | ✓ | ? |
| Ecological modernisation or industrial ecology practice in production and consumption? | Some? | ✓? Some? | Some? | ✓ | ✓ | Some? | Some? | Some? | Some? |

* China has developed a *National Agenda 21* in 1994. However, under the ‘One Country, Two Systems’ formula, Hong Kong is not affected by the national development policies.

Note: The above assessment is a preliminary assessment by the author after studying relevant government websites in individual city. The author has better understanding of the Asian cities (except Tokyo). See Ng, forthcoming.

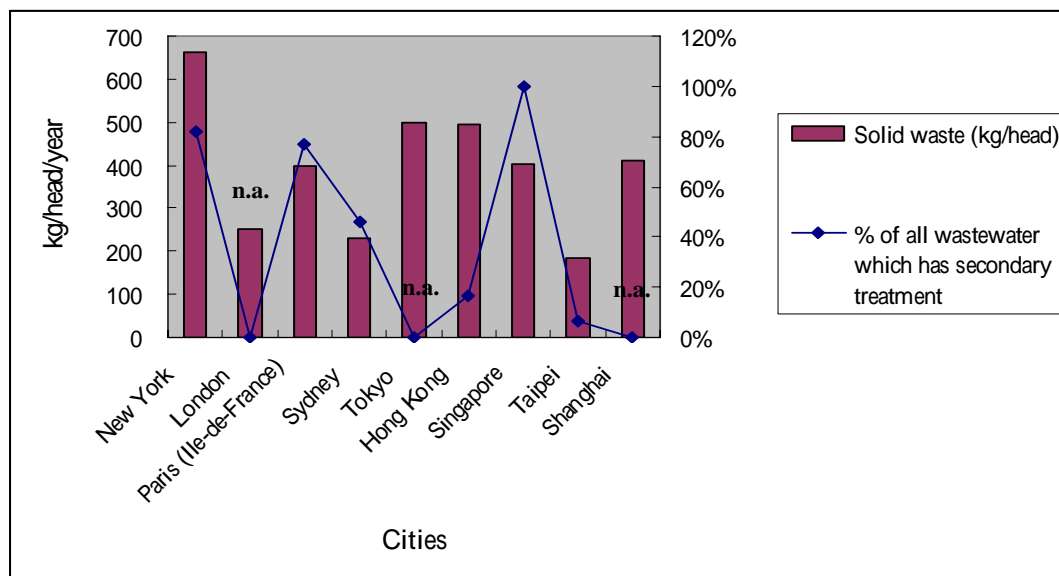
Sustainability and Quality of Life Indicators
Environmental Aspects

Figure 4: Ecological Footprint (national figure)



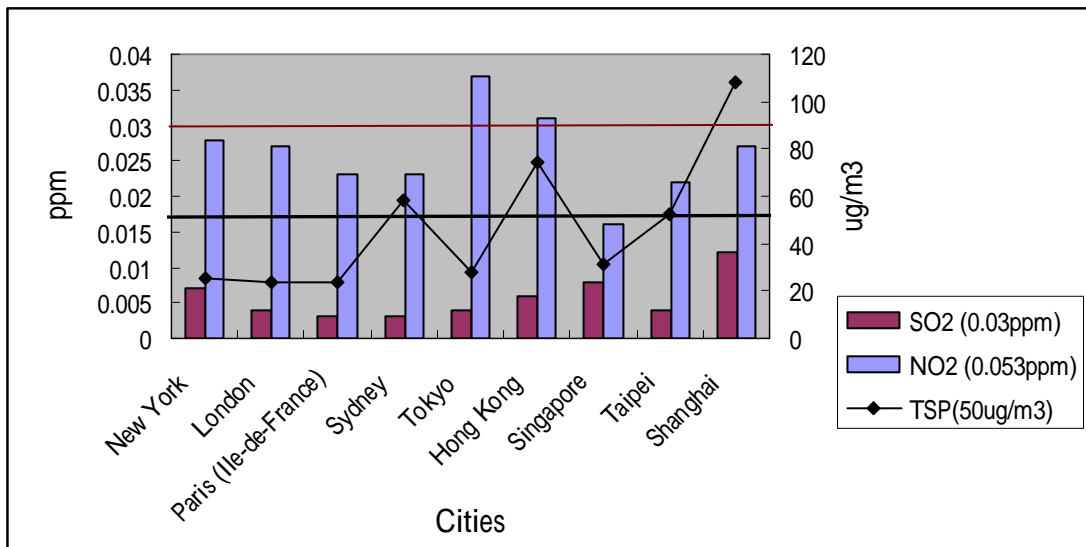
Since the ecological footprint data (Figure 4) are all national figures, we can only say that UK, Japan, Singapore and USA are having a much larger footprint when compared to the rest. However, if we review the amount of solid waste produced, we might be in a better position to see if policy rhetoric on sustainable development had an impact on actual outcomes. Figure 5 shows that Taipei, Sydney and London produce the least amount of per capita solid waste. New York on the contrary produced the highest per capita solid waste. The consumptive cities such as Tokyo and Hong Kong produce 400 strong kg per capita waste, followed by Singapore and Shanghai.

Figure 5: Per capital Solid Waste and Wastewater Treatment in the Nine Cities



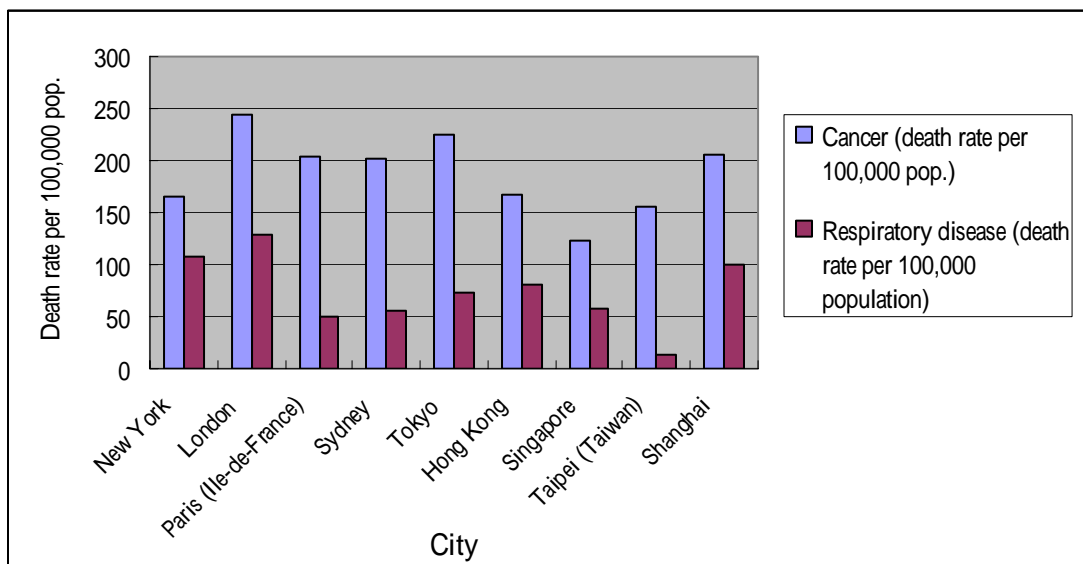
In terms of wastewater treatment, the situations in Hong Kong and Taipei are not satisfactory at all, especially for Taipei where ‘blue water’ is one of their goals. Singapore has secondary treatment of all their wastewater whereas New York and Paris also manage to treat properly a high percentage of their wastewater (Figure 5).

Figure 6: Air Quality in the Nine Cities



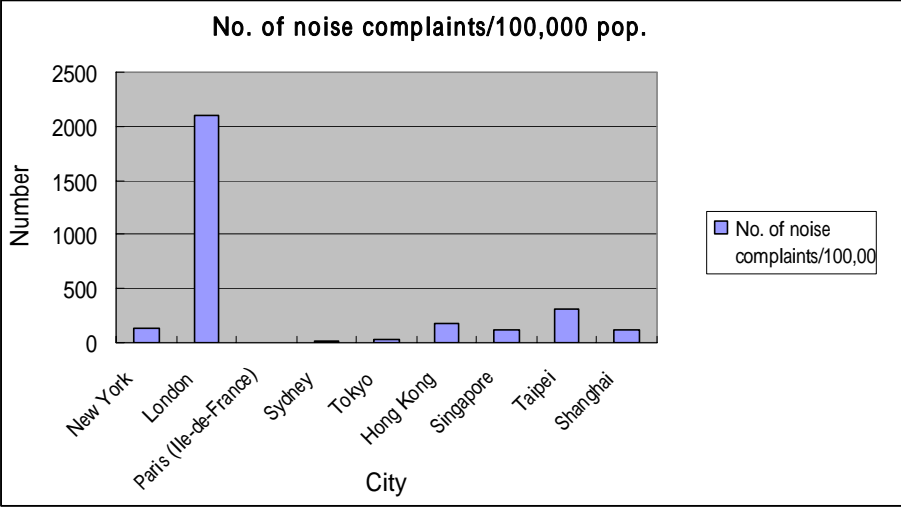
From Figure 6 above, one can see that all the cities are fine with SO₂ and NO₂ emissions. However, Sydney, Hong Kong and Shanghai have exceeded standard for TSP (total suspended particulates) whereas Taipei is a borderline case. Figure 7 below shows the number of deaths caused by cancer and respiratory disease in the nine cities. It is rather surprising to find that a much large number of people have suffered from respiratory disease in New York and London where the quality of air is not as bad as say in Hong Kong. It seems that more people died of cancer in the western cities as well with the exception of Shanghai, still a largely industrial city.

Figure 7: Deaths caused by Cancer and Respiratory Disease in the Nine Cities



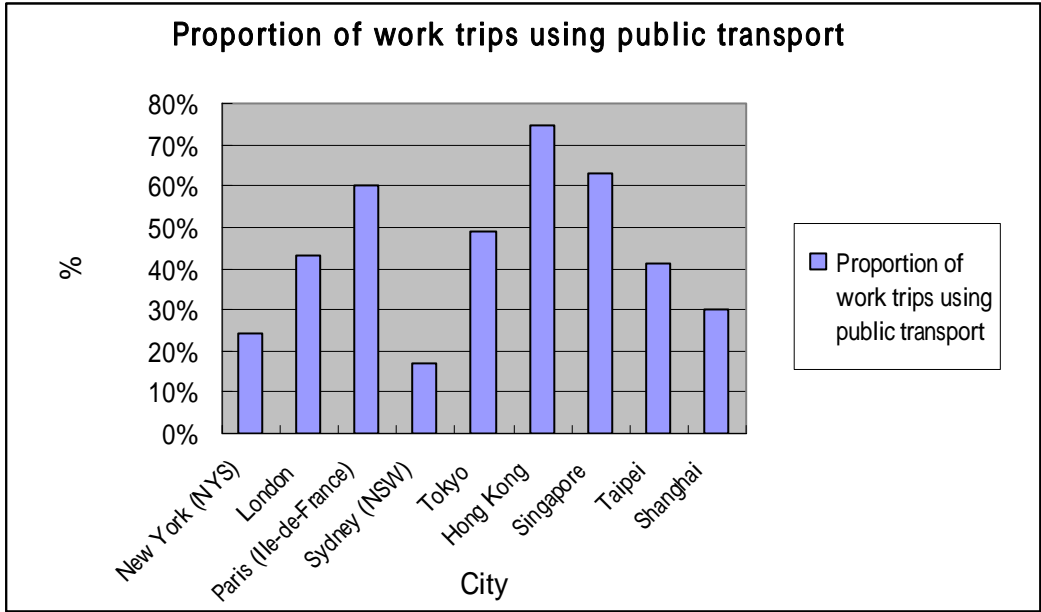
It is rather surprising that the number of noise complaints is highest in London which are mostly related to complaints about noise generated by aeroplanes (Figure 8). In the densely populated cities of Taipei and Hong Kong, number of complaints is considerable. Same for New York and to a smaller extent, Singapore and Shanghai.

Figure 8: Number of Noise Complaints in the Nine Cities



Although Hong Kong has done poorly in terms of air quality, it has the highest proportion of its population using public transport (Figure 9), followed by Singapore, Paris and Japan. London and Taipei only managed to have some 40 per cent of their work trips using public transport. The worst cases are New York and Sydney where only 25% and 17% of the work trips are supported by public transport.

Figure 9: Proportion of Work Trips using Public Transport in the Nine Cities



Social Equity Aspects

Interestingly New York, London, Singapore and Taipei all have negative migration rate and only Sydney, Tokyo, Hong Kong and Shanghai are having more immigrants (Figure 10). In other words, these cities may face a bigger challenge in pursuing sustainable development.

Figure 10: Annual Net Migration Rate in the Nine Cities

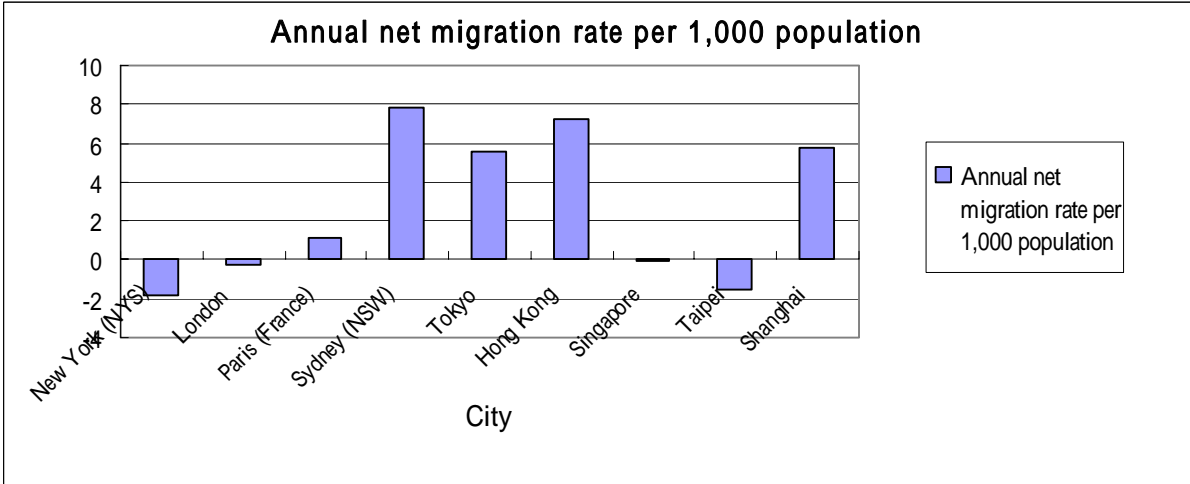
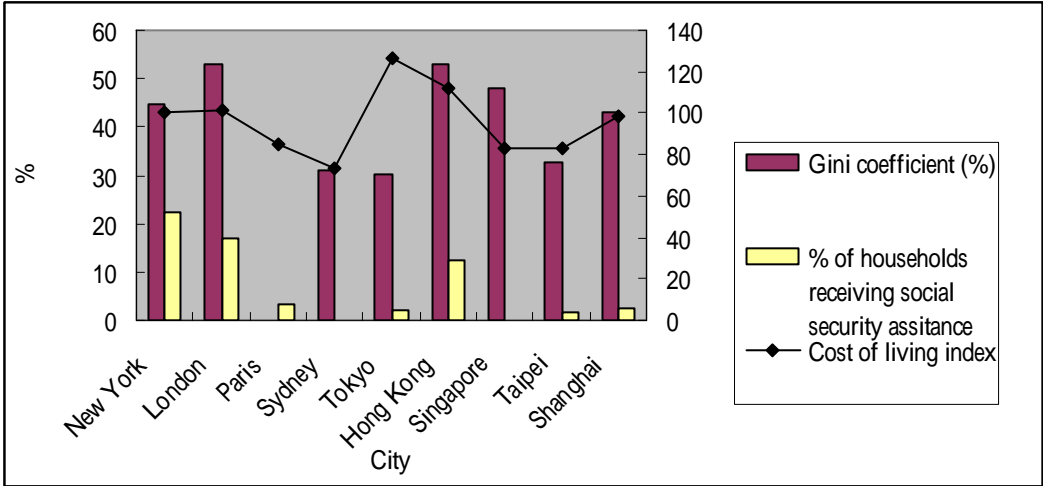
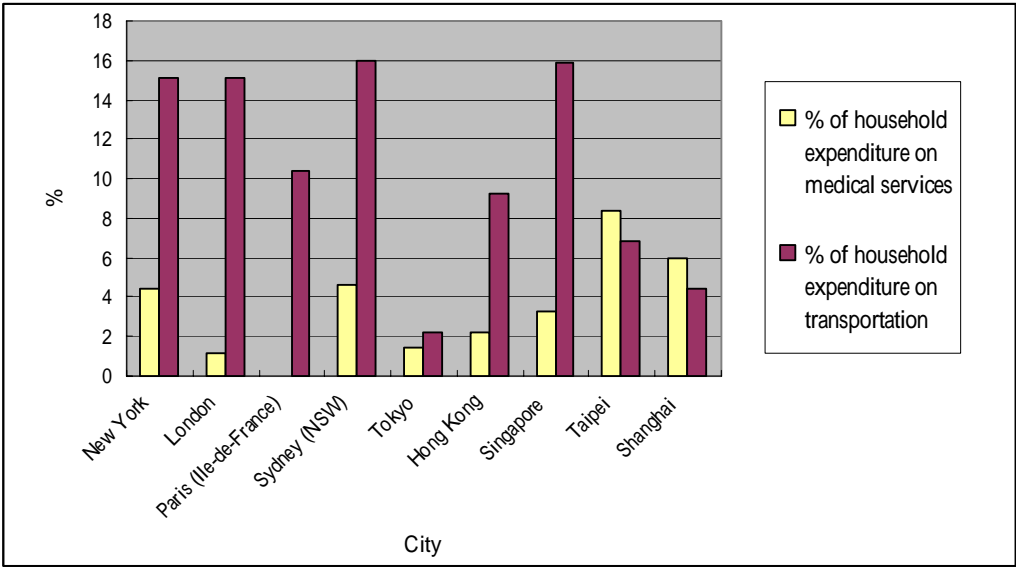


Figure 11: Dimensions of Social Development in the Nine Cities



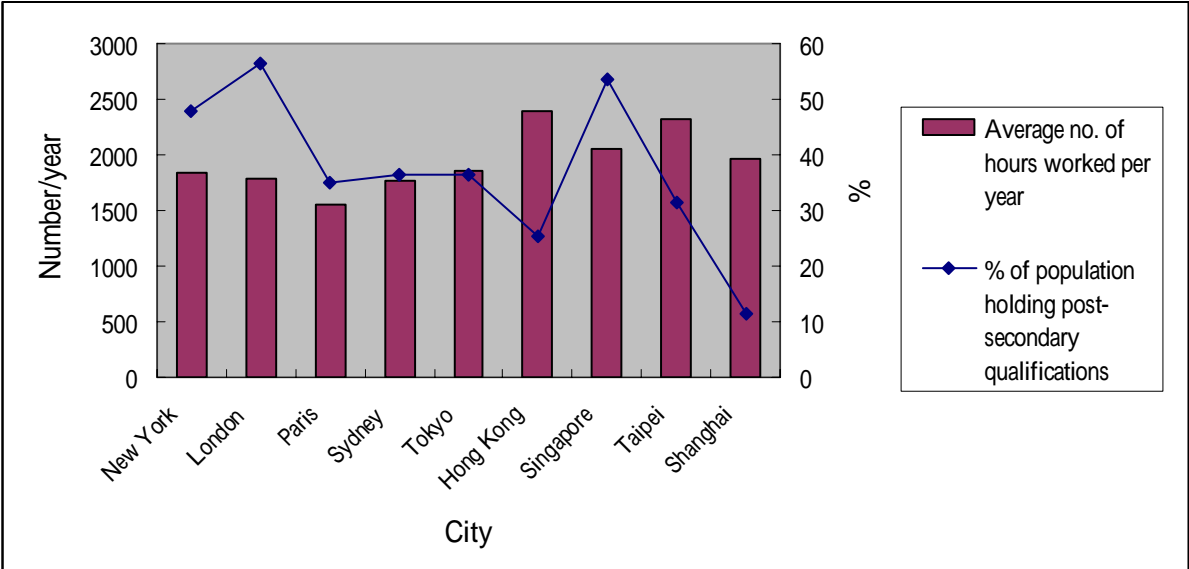
Except Paris where data is not available, the figures on Gini-coefficient in all the cities are rather high: the highest being London and Hong Kong, followed by Singapore, New York and Shanghai (Figure 11). It can also be seen that London, Hong Kong and New York also have the highest percentage of households receiving social security. Assuming New York's cost of living as 100, only Paris, Sydney, Singapore and Taipei have lower indexes. The other cities including London, Tokyo, Hong Kong and Shanghai have either a similar or even higher index. In other words, these cities are not particularly sustainable with reference to the social dimension.

Figure 12: Household Expenditure on Medical Services & Transportation in the Nine Cities



It is rather surprising to find out that households spend so much more in transportation rather than medical services (Figure 12). Transportation costs are most expensive in Sydney and Singapore, followed by New York and London. The other cities are relatively ‘cheap’ as households seldom spend more than 10 per cent of their income for transport. Medical services are most expensive in Taipei, followed by Shanghai, New York and Sydney. As mobility and healthiness are essential ingredients for a livable city, it seems that Tokyo is doing particularly well in these aspects.

Figure 13: Qualifications and Number of Working Hours in the Nine Cities



People in all the nine cities worked very hard (Figure 13) but those in Hong Kong and Taipei work even harder. Most cities have 30 to 60 per cent of their work force with post-secondary qualifications except Hong Kong (25.2%) and Shanghai (11.4%). As sustainable development requires devotion of time and resources from different stakeholders, long working hours may not be conducive to the building of a partnership culture and capacity within the civil society.

Cultural and Creativity Indicators

Table 9 is a preliminary assessment of the nine cities by the author following Landry’s schema listed in his 2000 book on *The Creative City*. While this author maybe biased in this sketchy assessment, it seems that the democratic polities fare better in terms of launching urban innovations and creativity. New York is characterised by its active citizenry and proactive government responses to be creative in solving urban issues whereas London’s government takes the lead in adopting innovative approaches to make London an exemplary sustainable world city. Paris, the cultural capital of Europe, is certainly the Mecca of creativity though we fail to identify relevant information to assess its efforts in urban innovation. Sydney has also responded positively to the cultural and creative turn of capitalism and its Sydney Harbour Foreshore Authority continues to inspire cities anxious in revitalising their waterfront. While the author does not have enough information to judge the level of creativity in Tokyo, the city definitely has been very innovative in launching new initiatives and meeting the challenge of growth and sustainability. As Japanese culture is hotly sought after by youths across Asia and beyond, the city should also rate very high at the creativity scale. As a rising democratic city, Taipei has always surprised the world by its socio-political movements. The city has definitely achieved a lot in waste reduction and sustainability efforts. One may postulate that top-down modes of governance probably are the least favoured means to nurture a creative society.

Table 9: Positioning of the Nine Cities in terms of Urban Innovation and Creativity

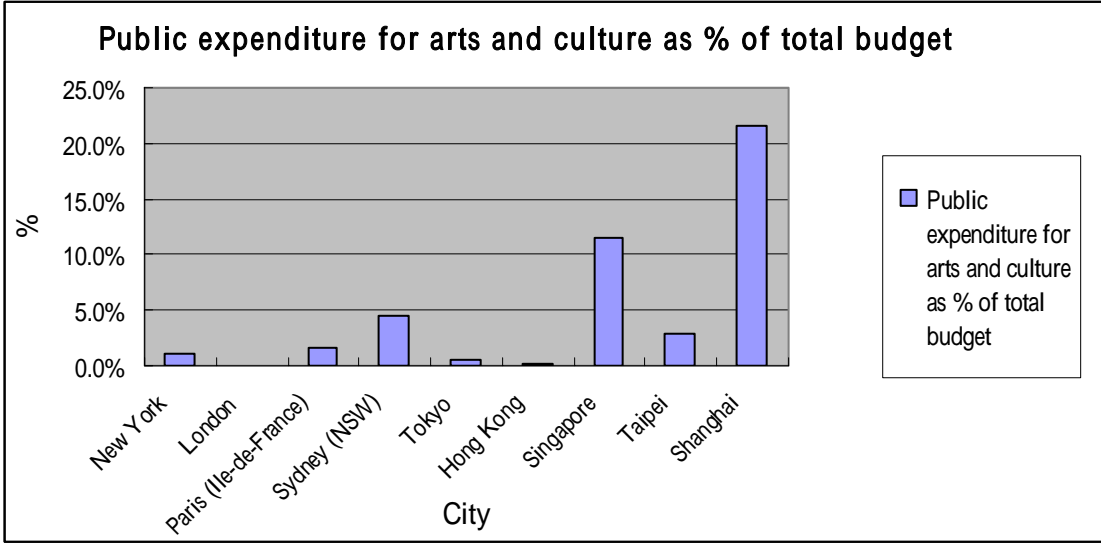
| City | Positioning in the Urban Innovation Matrix* (see Table 5) | The Creative City Development Scale (1 to 10, 10 being most creative, Table 6) |
|-----------|--|--|
| New York | Best practice? For example, the replanning of the World Trade Centre | 9? |
| London | Paradigm shift: London Plan, Sustainability Appraisal | 8? |
| Paris | Not enough information to judge | 9? |
| Sydney | Best practice: Sydney Harbour Foreshore Authority | 7? |
| Tokyo | Best practice: Zero Waste city | 6? Not enough information to judge? |
| Hong Kong | A mix of good, bad and appalling practice | 4? |
| Singapore | Good practice? | 6? |
| Taipei | Good practice: municipal solid waste reduction | 6? |
| Shanghai | Not enough information to judge | 5? |

*: meta-paradigm shift, paradigm shift, basic innovation, best practice, good practice, bad practice, appalling practice.

Note: The above assessment is based on the author’s preliminary subject points of views. More vigorous research and utilization of objective data are necessary to produce a more credible assessment.

While public expenditure on arts and culture can be an indicator for the cultural milieu of a city, we understand that creativity is more a way of life and should be manifested through different sectors. Anyway, Figure 14 below shows that Shanghai has a disproportionately high input into arts and culture. This is probably because the budget is for both ‘science and culture’. The Singaporean government has committed over 10 per cent of its budget into arts and culture. Others range from 2-5 per cent with Tokyo (0.5%) and Hong Kong (0.2%) having the least supportive public sector.

Figure 14: Public Expenditure for Arts and Culture in the Nine Cities



New York and London feature the largest number of listed buildings, over 22,000 in New York and over 18,000 in London (Figure 15). These dwarf the rest except Paris (France) and Sydney (NSW) with 3,936 and 1,360 listed buildings respectively. These figures reflect the attitudes these cities have towards heritage of their place.

Figure 15: Number of Listed Buildings

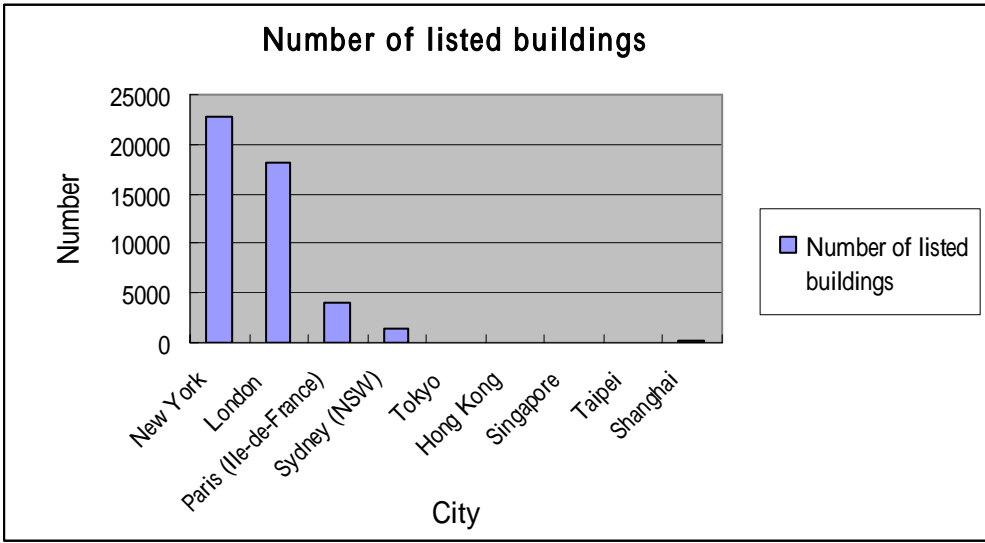
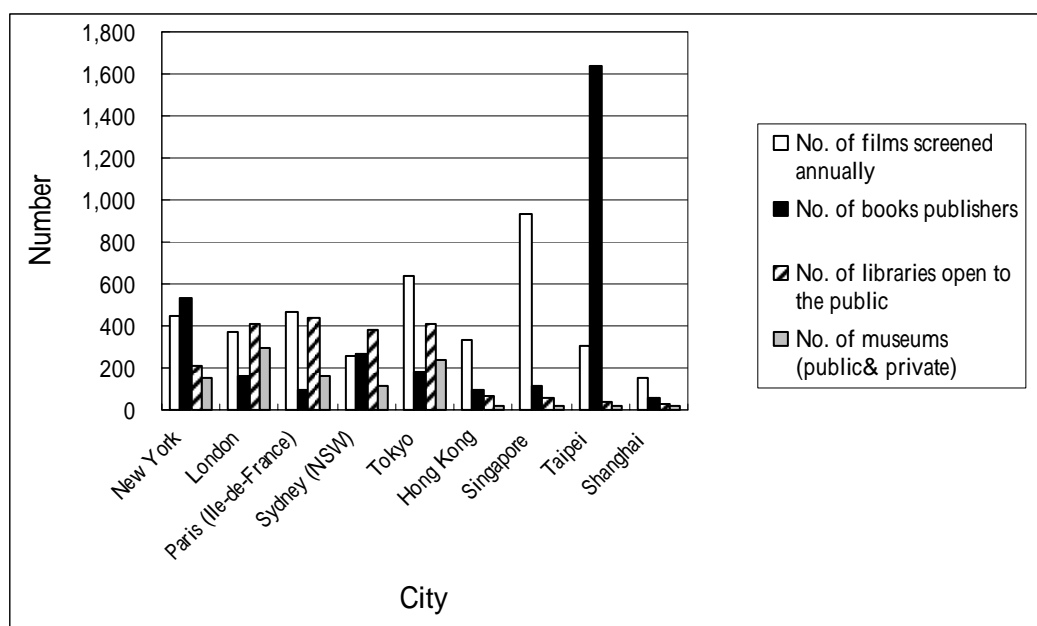


Figure 16 below shows that Singapore and Tokyo and to a lesser extent New York and London have the highest number of films screened. However, in terms of book publishers, Taipei takes the lead, followed by New York which has only a quarter of the number in Taipei. The number of public libraries are much higher in Paris, London, Tokyo and Sydney and to a less extent New York. The other Asian cities are not doing particularly well. This pattern can also be found in the number of museums in these cities.

Figure 16: Culture-related Amenities in the Nine Cities



Globality Indicators

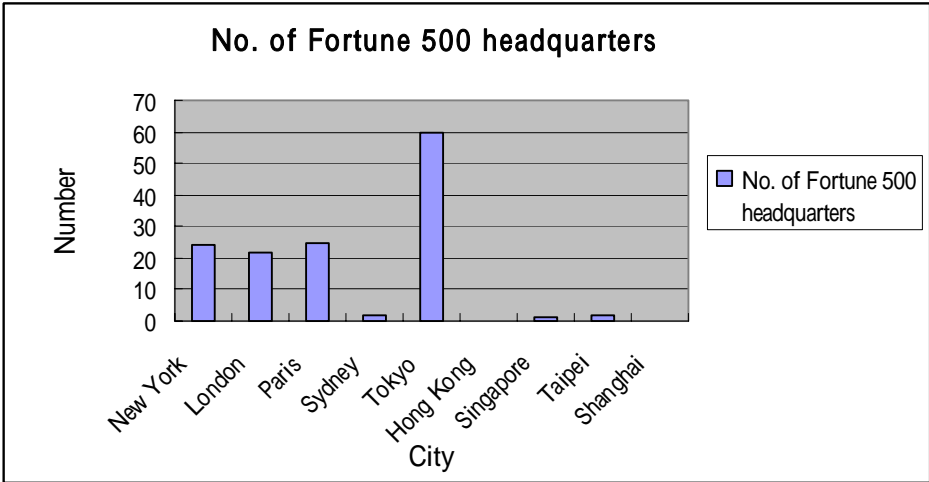
Table 10: Global Competitiveness Ranking

| <i>City</i> | <i>Ranking</i> |
|--------------------|----------------|
| New York (USA) | 6 |
| London (UK) | 9 |
| Paris (France) | 21 |
| Sydney (Australia) | 19 |
| Tokyo (Japan) | 10 |
| Hong Kong | 11 |
| Singapore | 5 |
| Taipei (Taiwan) | 13 |
| Shanghai (China) | 57 |

Source: World Economic Forum, 2006, <http://www.weforum.org/en/index.htm>, viewed on 12 December 2006.

The global competitiveness ranking by the World Economic Forum refers to national not individual city ranking (Table 10). According to their 2006 announcement, Singapore (5th) ranks highest among the nine countries, followed by USA (6th), UK (9th), Japan (10th), Hong Kong (11th), Taiwan (13th), Australia (19th), France (21st) and Shanghai (57th). However, these rankings cannot tell us the intensity of globalisation within individual cities.

Figure 17: Number of Fortune 500 Headquarters in the Nine Cities



From Figure 17, we can see that Tokyo, New York, London and Paris host the largest number of Fortune 500 headquarters. The distribution of international banks is more comparable among the cities (Figure 18) though London has outperformed the other cities due to its long history as the financial centre of the world. New York, however, champions in terms of the number of chambers of commerce. Figure 19 also shows that the western world cities together with Tokyo have obviously participated in many more international organisations. The least international are Hong Kong and Taipei, the latter has been suffering from political isolation for a long time.

Figure 18: Chamber of Commerce & International Banks in the Nine World Cities

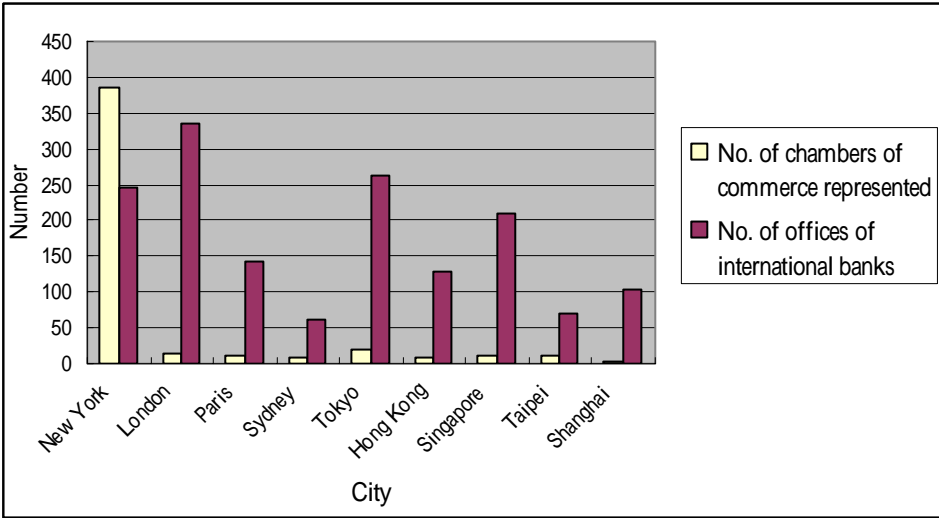
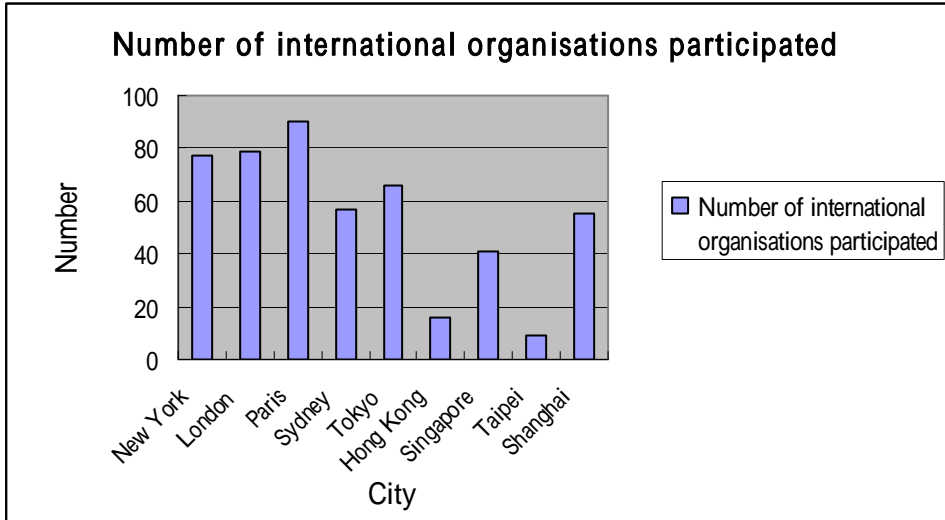


Figure 19: Number of International Organisations Participated by the Nine Cities



Figures 20 and 21 have shown a very interesting picture of these nine cities as international financial centres. While London leads without competition in terms of bond trading, New York leads in the Equity Market, followed by London, Paris, Sydney and Tokyo. Singapore and the three Chinese cities seem to be lagging far behind.

Figure 20: The Nine Cities as Financial Centres

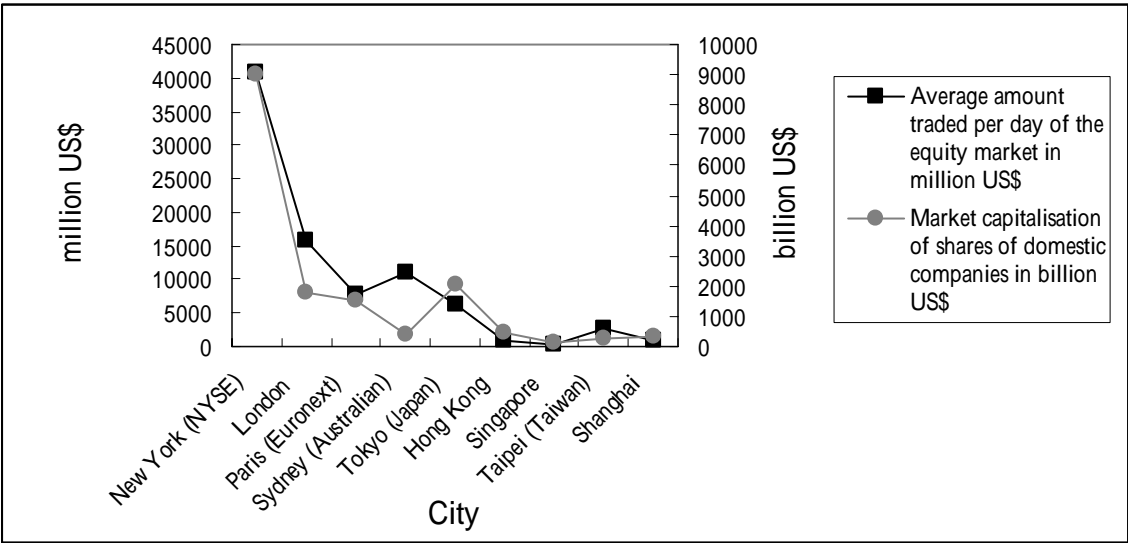


Table 21: Bond Trading in the Nine Cities

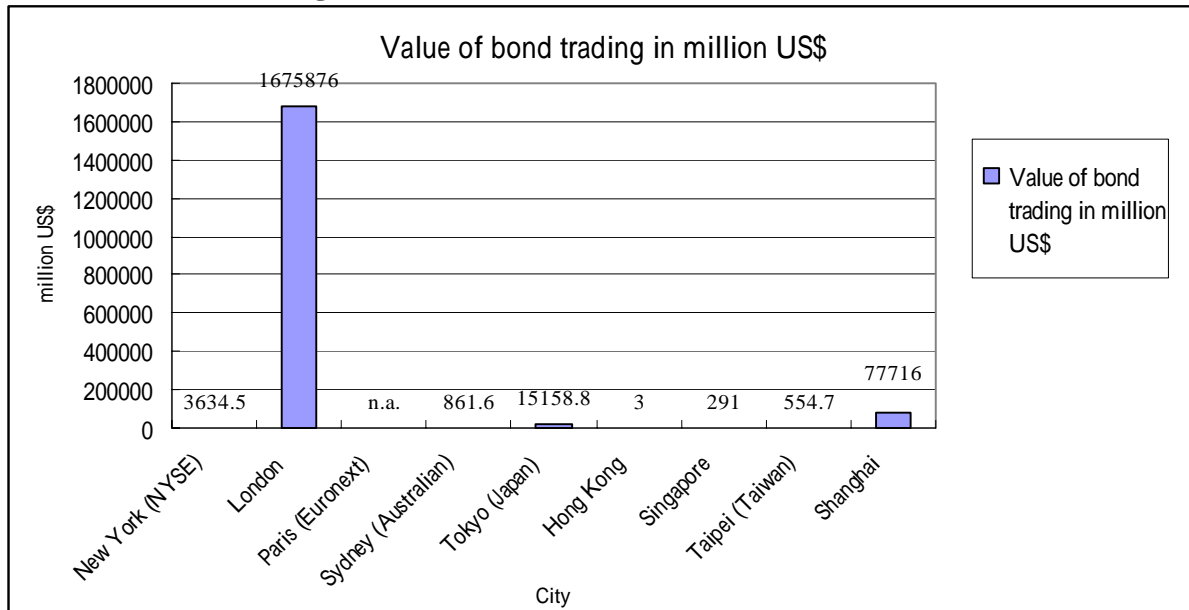
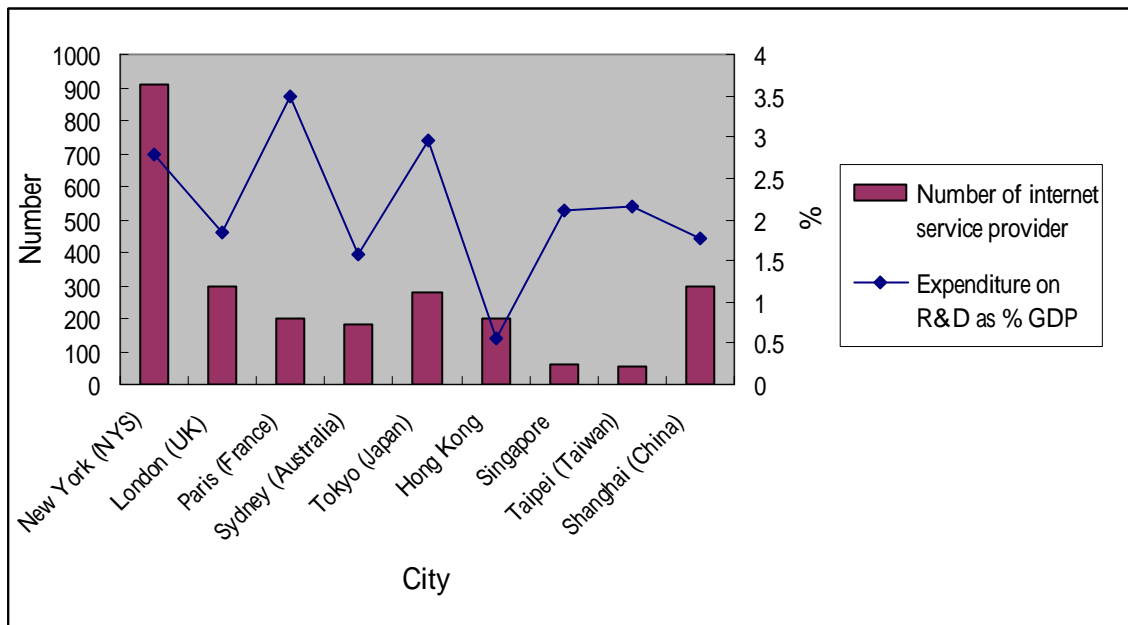


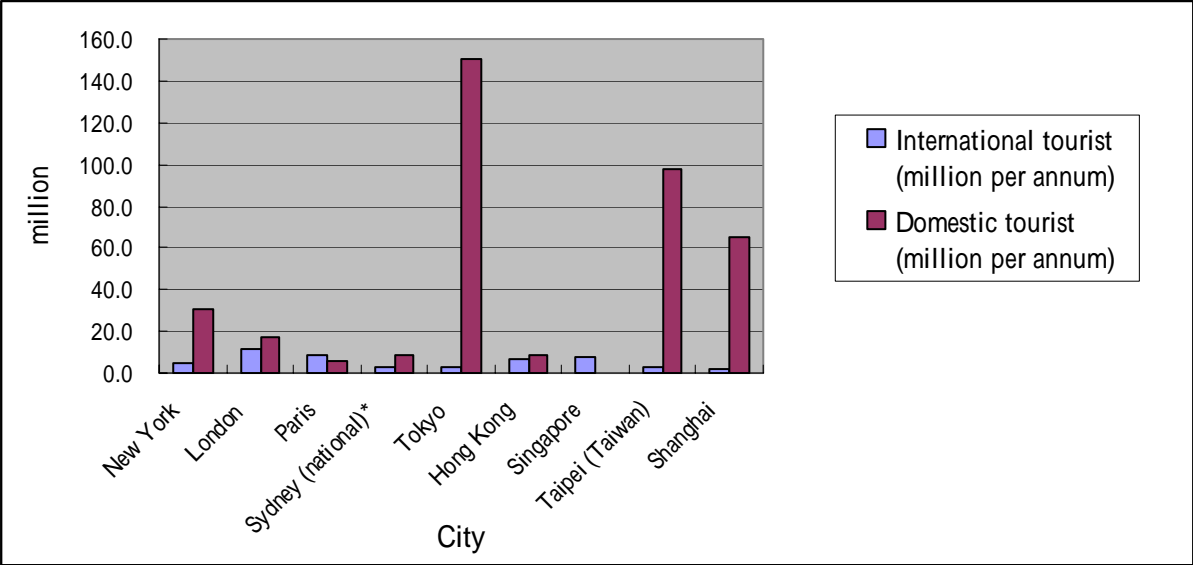
Figure 22 clearly shows that New York again leads in the number of internet service provider. The lowest numbers are found in Singapore and Taipei. Interestingly, expenditure of R&D is much higher in those cities with still considerable industrial activities, New York, Paris, Tokyo, Singapore, Taipei and Shanghai (Figure 3).

Figure 22: Internet Service Provider & R&D in the Nine Cities



Another dimension regarding a city's global position can be reflected by the number of international visitors. Figure 23 shows an interesting picture: domestic tourists are always larger than international tourists except in Paris and Singapore.

Figure 23: International and Domestic Tourists in the Nine Cities



Concluding Remarks

Table 11 uses a very crude assessment method to compare these nine cities. Each city is ranked according to their performance with reference to sustainability, cultural and creativity and globality indicators. An average score is calculated with reference to each set of indicators to identify the rankings within each set and finally an overall average score is calculated. Table 12 shows all these rankings.

While the author understands fully the crudity of the methodology (e.g. no weighting or differentiation of importance among indicators), the exercise is to have some idea of where these cities stand in the direction towards sustainable creative world cities. While New York probably has the most innovative institutional set up, unlike London, it seems to be in lack of a vision to drive the city towards sustainable development. With sustainable development as drivers, London and Tokyo seem to be delivering in various aspects of development. Many probably would be surprised to see Hong Kong being the least sustainable among the nine cities. While Hong Kong society has a great creative capacity, the executive-led government has yet to tap this rich source of creativity to move the money-frist economy towards sustainable development. In any case, it seems that the earlier proposition that cities with democratic polity, multi-stakeholder involvement in their mode of governance and transparent and participatory planning and decision making processes will fare better in the race of becoming sustainable creative world cities can be verified by the data presented.

Table 11: Assessment Results

| Indicators | New York | London | Paris | Sydney | Tokyo | Hong Kong | Singapore | Taipei | Shanghai |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Sustainability indicators</i> | | | | | | | | | |
| <i>Environmental Concerns</i> | | | | | | | | | |
| Ecological footprint | 5 | 9 | 4 | 6 | 7 | 2 | 8 | 3 | 1 |
| Solid waste/head (tonne/head) | 9 | 3 | 4 | 2 | 8 | 7 | 6 | 1 | 5 |
| Air quality | 3 | 1 | 1 | 7 | 4 | 8 | 5 | 6 | 9 |
| % of wastewater with secondary treatment | 3 | 2 | 4 | 5 | n.a. | 6 | 1 | n.a. | n.a. |
| Number of noise complaints | 4 | 8 | n.a. | 1 | 2 | 6 | 3 | 7 | 5 |
| Proportion of work trips using public transport | 8 | 5 | 3 | 9 | 4 | 1 | 2 | 6 | 7 |
| Death rates of respiratory diseases per 100,000 population | 2 | 1 | 8 | 7 | 5 | 4 | 6 | 9 | 3 |
| Death rates of cancer diseases per 100,000 population | 7 | 1 | 4 | 5 | 2 | 6 | 9 | 8 | 3 |
| <i>Social Equity Issues</i> | | | | | | | | | |
| Annual net migration rate per 1,000 population | 1 | 3 | 5 | 9 | 6 | 8 | 4 | 2 | 7 |
| Cost of living index (New York-100), index and ranking | 6 | 7 | 4 | 1 | 9 | 8 | 2 | 3 | 5 |
| Gini coefficient of income distribution (%) | 4 | 7 | n.a. | 5 | 1 | 7 | 6 | 2 | 3 |
| % of households receiving social security assistance | 8 | 7 | 5 | n.a. | 3 | 6 | 1 | 2 | 4 |
| Average number of hours worked per year | 4 | 3 | 1 | 2 | 5 | 9 | 7 | 8 | 6 |
| % of population holding post-secondary qualification | 3 | 1 | 6 | 5 | 4 | 8 | 2 | 7 | 9 |
| % of household expenditure on medical services | 5 | 1 | n.a. | 6 | 2 | 3 | 4 | 8 | 7 |
| % of household expenditure on transportation | 6 | 6 | 5 | 9 | 1 | 4 | 8 | 3 | 2 |
| <i>Sustainability Average</i> | <i>4.88</i> | <i>4.06</i> | <i>4.15</i> | <i>5.27</i> | <i>4.20</i> | <i>5.81</i> | <i>4.63</i> | <i>5.00</i> | <i>5.07</i> |
| <i>Cultural Assets</i> | | | | | | | | | |
| Public expenditure for arts / culture as % of total budget | 6 | n.a. | 5 | 3 | 7 | 8 | 2 | 4 | 1 |
| Number of museums | 4 | 1 | 3 | 5 | 2 | 9 | 6 | 7 | 8 |

| Indicators | New York | London | Paris | Sydney | Tokyo | Hong Kong | Singapore | Taipei | Shanghai |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Number of libraries open to the public | 5 | 3 | 1 | 4 | 2 | 6 | 7 | 8 | 9 |
| Number of listed buildings | 1 | 2 | 3 | 4 | 8 | 6 | 9 | 7 | 5 |
| Number of films screened annually | 4 | 5 | 3 | 8 | 2 | 6 | 1 | 7 | 9 |
| Number of book publishers | 2 | 5 | 8 | 3 | 4 | 7 | 6 | 1 | 9 |
| <i>Creativity Average</i> | <i>3.67</i> | <i>3.20</i> | <i>3.83</i> | <i>4.50</i> | <i>4.17</i> | <i>7.00</i> | <i>5.17</i> | <i>5.67</i> | <i>6.83</i> |
| <i>Globality</i> | | | | | | | | | |
| Global Competitive Index by World Economic Forum | 2 | 3 | 8 | 7 | 4 | 5 | 1 | 6 | 9 |
| Number of Fortune 500 headquarters, international banks and chambers of commerce represented | 3 | 4 | 2 | 5 | 1 | 8 | 7 | 5 | 8 |
| Number of international organisations participated | 3 | 2 | 1 | 5 | 4 | 8 | 7 | 9 | 6 |
| per capita GDP (USD at current price) | 2 | 4 | 3 | 7 | 1 | 5 | 6 | 8 | 9 |
| Average amount traded per day of the equity market in million USD | 1 | 2 | 4 | 3 | 5 | 8 | 9 | 6 | 7 |
| Value of bond trading in million USD | 4 | 1 | n.a. | 5 | 3 | 8 | 7 | 6 | 2 |
| Market capitalisation of shares of domestic companies in billion USD | 1 | 3 | 4 | 5 | 2 | 6 | 9 | 8 | 7 |
| Tourism numbers (international and domestic) | 4 | 5 | 7 | 8 | 1 | 6 | 9 | 2 | 3 |
| Number of internet service providers | 1 | 2 | 6 | 7 | 4 | 5 | 8 | 9 | 2 |
| Expenditure on R&D as % of GDP | 3 | 6 | 1 | 8 | 2 | 9 | 4 | 5 | 7 |
| <i>Globality Average</i> | <i>2.40</i> | <i>3.20</i> | <i>4.00</i> | <i>6.00</i> | <i>2.70</i> | <i>6.80</i> | <i>6.70</i> | <i>6.40</i> | <i>6.00</i> |
| OVERALL AVERAGE | 3.88 | 3.65 | 4.04 | 5.35 | 3.71 | 6.34 | 5.38 | 5.58 | 5.71 |

Table 12: Rankings of the Nine Cities with Reference to Sustainability, Creativity and Globality

| City | Sustainability | Culture/ Creativity | Globality | OVERALL |
|-------------|-----------------------|--------------------------------|------------------|----------------|
| New York | 5 | 2 | 1 | 3 |
| London | 1 | 1 | 3 | 1 |
| Paris | 2 | 3 | 4 | 4 |
| Sydney | 8 | 5 | 5 | 5 |
| Tokyo | 3 | 4 | 2 | 2 |
| Hong Kong | 9 | 9 | 9 | 9 |
| Singapore | 4 | 6 | 6 | 6 |
| Taipei | 6 | 7 | 7 | 7 |
| Shanghai | 7 | 8 | 8 | 8 |

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Appendix I: Sources of Information

| Indicators | Cities | Sources |
|--|-----------------------|--|
| City area Population (million) Area (sq.km.) Density (pers/sq. km.) | Hong Kong | Population: C&SD (2004), <i>Population by Sex</i> , available from < www.info.gov.hk/censtatd.eng/hkstat/fas/pop/by_sex_index.html > viewed on March 09, 2004; Area: C&SD (2004), <i>Land area of Hong Kong</i> , available from < www.info.gov.hk/censtatd.eng/hkstat/hkini/geog/geog4.htm >, viewed on March 09, 2004. |
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| Indicators | Cities | Sources |
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