

Will Beijing Achieve Global City Status?

An Assessment to the Year 2030

by

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ABSTRACT

Beijing, in its *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing* (2011 – 2015), affirmed its intention to become a leading “World City with Chinese characteristics.” This research is based on an assessment of the proposed strategies contained within the 12th Five-Year plan that are grounded in the set of indicators (variables) closely associated with world city status. Indicator selection (e.g., percentage of foreign born population) is based on review of shared characteristics of world cities (e.g., Tokyo, New York, Singapore) constrained by availability of Beijing data; plus the significant academic literature on the topic from leading scholars such as Peter Hall. Using these indicators, Beijing’s baseline conditions and associated trends are established for assessment in a *Status-Quo Scenario*. Thereafter, interventions proposed by the Beijing Municipality to achieve world city status are evaluated.

The results of this assessment will inform Beijing’s policy-makers regarding potential obstacles, pitfalls, or potential disruptions on the road to premier ‘World City’ status, and emphasize the need to undertake peremptory interventions and/or prepare contingency responses, as well as, inform stakeholders and decision-makers of critical and non-critical interventions recommended to achieve World City status by the year 2030.

DEDICATION

"There are known knowns.
These are things we know that we know.
There are known unknowns.
That is to say, there are things that we know we don't know.
But there are also unknown unknowns.
There are things we don't know we don't know."

Donald Rumsfeld 02-12-02

"Urban planning is about the unknowns,
preparing for the known is easy,
it is planning for the unknown that is our challenge."

Michael Lyon 05-20-13

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1 - Introduction

For 3000 years China has been host to one of the principal civilizations on earth. Containing a substantial percentage of total population (1.364 billion in 2014),¹ with an advanced understanding of science, distinct political history and arguably the largest economy by purchasing power parity (PPP) measures,^{2,3} China and its people demonstrated remarkable resilience through the 19th Century as they tumbled from their position as the world's largest economy and lost their leadership role in science. These issues was exacerbated by the implementation of a broad series of ineffective political, economic and social policies which, lamentably, isolated the nation from the developing global economy until the late 20th Century when China reemerged as an economic and political colossus on the world stage.

Throughout this long history, the capital city – the seat of either Imperial or constitutional power – of China (e.g., Xi'an, Luoyang, Nanjing and Beijing), was a jewel in the crown of this extraordinary nation. Like other primarily rural nations, China's capital city has been cultivated as a symbol of national ideology, the fount of emerging public policies, a catalyst for economic development, a place of historical significance, the gateway to and from China, a reflection of unity, as well as, a demonstration of the permanence of their culture. These successive capital cities contained monuments that reflect the history of the nation, as well as, express a physical interpretation of the political, economic, social and cultural destiny of its people.

The current capital of the People's Republic of China – Beijing – is such a place. It is home to over 21.5 million people, headquarters for a vast number of large scale state-owned and private enterprises, a major hub for air, rail, vehicle traffic and

communications, the seat of the national government, as well as, the location of multiple UNESCO World Heritage Sites (e.g., the Forbidden City, Temple of Heaven, Summer Palace, Great Wall, and the Grand Canal). For several centuries, Beijing has been the embodiment of the political, economic, cultural and educational aspirations of the people of China. In this role, its continuing development into a center of *global* governance and commerce can be illustrative to both academics and practitioners interested in the field of urban development and planning particularly the development of Asian world cities.

The Issue / Topic

Many nations recognize the broad range of costs and benefits associated with participation in the international systems of communication, governance, cultural exchange, education, finance, production, trade, transportation, and tourism (i.e., globalization). The People's Republic of China, in particular, has contributed more expansively than other nations to, and is arguably the leading beneficiary of, the nearly universal progression to economic globalization while continuing to carefully guard against many of the cultural and social influences of this expanding exposure to other civilizations. The loci of participation in these global structures are fundamentally urban (i.e., cities), as it requires a sophisticated and expensive infrastructure to connect to these systems of global communication, production, trade, and travel.

Although, any city with a container terminal, international airport, and satellite ground station can actively participate in the world economy, the *paramount* places of global interaction are identified as *world or global* cities – distinctive points around the globe where the drivers of political engagement, economic growth, technological innovation, environmental quality and cultural enrichment merge to provide a

cosmopolitan synergy (e.g., livability⁴) that is absent in cities of comparable location or size. Although, today the preferred terminology is *global* rather than *world* cities (referencing globalization); the two terms are used interchangeably throughout this dissertation.

“With rapid economic development and (the) enlarging international impact of China, the Chinese Government and Chinese elites have been widely concerned if its capital, Beijing, would become a contemporary global city (Li and Lu, 2002), especially after China’s accession into the World Trade Organization (WTO) in 2001, and Beijing’s holding the 2008 Olympic Games.”⁵ This concern is partially based on the fact that global cities are exemplars of comprehensive participation in the world market for goods/services, finance and ideas that have become emblematic of the stature and/or reputation of a nation both internally (supporting the local social-economic and political structure) and internationally (attracting foreign participation in the local economy). Accordingly, multiple Chinese cities seek to achieve global city status, although only a few are potential candidates (i.e., Beijing, Shanghai, Shenzhen, Guangzhou, and Chongqing).⁶ Based on these premise, there is an intense focus on the part of the Chinese Government and key stakeholders on developing the Chinese capital into a world-class or global city.

Few academics and perhaps fewer practitioners have devoted much time or intellectual energy addressing the characteristics, trajectory of events and projects, both public and private, associated with achieving global city status in the 21st Century. In Beijing, this is not due to a lack of interest or understanding in the identification of the collection of variables associated within current measures of global city status; rather it is

a failure to acknowledge the close relationship between the accurate measure and reporting of individual variables to achieve global city status. Therefore, the importance of appropriately appraising, measuring impact and reporting upon these individual variables when preparing plans to achieve global city status is often ignored. When and where these world city variables are best understood, it is possible to develop policies and plans that, when successfully implemented, dramatically increase the livability of a city and its probability of achieving global city status.

Moreover, “the identification of future trends and the anticipation of market changes have become determinant to the competitiveness of organizations”⁷ including public sector associations like municipal governments. Therefore, a major objective of this research is to identify those variables and trends closely correlated with global city formation impacting the continuous development of Beijing. Examination of the current literature on global city formation in Asia indicates that the variables with the highest explanatory value in terms of global city formation are associated with environmental quality, cosmopolitanism, key infrastructure, high value added economic performance, as well as, social cohesion (all elements of livability).

Rationale: Why the issue is Important?

City building continues – whether a town, city, world city, metropolitan area or megapolitan city – as one of the primary activities of humans on earth. Like other nations, as China modernizes and urbanizes it has spent and will continue to spend trillions of renminbi (RMB or ¥) on urban infrastructure. In fact, within the current transportation planning horizon,⁸ it is anticipated that “China will pave up to five billion square meters of road and build up to 28,000 kilometers of metro rail”⁹ not to mention the

many other forms of necessary public infrastructure. This research is particularly important because the process of city building – at a global city level or not – to be economically efficient should be planned many years in advance of demand due to the long lead times involved in problem identification, design, obtaining financing, property acquisition, and construction; as well as, anticipating the potential barriers and/or disruptions to achieving development objectives.

As has been observed, “a global city is like a great party, no one cares to leave.”¹⁰ Yet, as early as “2010 Beijing was not the priority place for college graduates and many white-collar workers are [were] considering leaving the city.”¹¹ This early indication of the decline in the ‘livability’ of Beijing described by prominent Chinese scholars leads one to conclude that the proposed world city development process needs to directly address this emerging trend. Further, as Beijing implements its unique global city development process “concerns over social stability have increased with greater income differentials, wages from state enterprises becoming more uncertain, and inequality becoming more visible through the variation of housing provision.”¹²

Whether for economic development, social stability or international prestige “the rise of Chinese cities in the hierarchy of global cities seems to be the outcome of intentional global city-building practices and policies.”¹³ For example, Wei and Yu (2006) found evidence of the state-centered efforts to make Beijing a global city through a number of initiatives, such as attracting and directing foreign investment and investing in a world-class central business district. Developing Zhongguancun as “China’s Silicon Valley, and preparing for the 2008 Olympic Games”¹⁴ are another example. Lastly, of course, is the substance of the *Twelfth Five-Year Plan for the National Economic and*

Social Development of Beijing (2011 – 2015) that directly addresses such status and outlines individual goals perceived as necessary to achieve that goal.

How some cities prosper and achieve global city status while others fall into obscurity remains a key question within planning circles. However, research to date tends to focus on the ‘winners’, not those cities that have failed to achieve global city status, or even those that appear to be on a trajectory toward global city status like Beijing.

Therefore, given this asymmetrical approach to researching the global city formation process, “the process of global city formation, especially the globalization of cities in developing countries, remains under-studied.”¹⁵ This dissertation addresses this gap in urban planning literature on the advance of cities toward global status, by assessing the continuing process of maturation of Beijing, possibly into a global city. Because “the jury is still out” on whether Beijing will become a true global city, this assessment springs from a “want to be” world city perspective; Beijing is plotting its way to global city status in a world of cities competing for that status.¹⁶

Providing modern private and public infrastructure for China’s growing urban areas, particularly Beijing, will require legions of planners, developers, financiers, architects, and contractors. Further, constructing roads, transit systems, airports, high-speed rail systems, clean electric power generators, water treatment and delivery systems, waste systems, as well as, housing, commercial and manufacturing facilities is an enormous economic challenge. Comprehensive urban planning strategies, incorporating strategic planning, have shown to be effective in assessing such complex futures and are, therefore, beneficial to properly identify and size infrastructure for a future that will

provide sufficient but not excess capacity. This is particularly true where maximizing livability in the region may come at the cost of economic or social efficiency.

The initial step in global city formation is, of course, participation in the global economy. Multiple cities in China have taken that step, but, to date, the vast majority of scholarly research on Chinese cities related to the consequences of globalization has focused on Shanghai rather than the maturation of Beijing into a possible global city (Wei & Yu 2006). This circumstance presents a unique opportunity to expand our understanding of global city formation by analyzing the Beijing case in the context of variables that are elsewhere associated with global city formation. Further, it presents the opportunity to both examine the potential barriers or possible disruptions to Beijing achieving global city status, as well as, scrutinizing those features that are perhaps unique to Chinese and/or East Asian cities.

The long-term goal of the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing* (2011 – 2015) was to initiate the transformation of the municipality into a leading “World City with Chinese characteristics.”^{17,18} According to this plan, achieving this objective requires intervention through a broad array of urban policies that support new public and private infrastructure, as well as, enhancing the natural, economic, and cultural attributes found in similar cities that have already achieved global status. Realizing this goal will be complicated by uncertainty and can be disturbed by a host of environmental, economic and social stressors that might impact the advance to the preferred future as a global city with Chinese characteristics:

China’s rising global cities are showing evidence of the dark side of globalization ... rising social polarization, a rapid influx of new residents living in concentrated poverty and excluded from the benefits global cities afford more fortunate residents, and possibly rising levels of resistance—or social discontent. It is

possible that the problems of polarization and discontent will be even greater in China's global cities than the world's other great cities, as a result of a household registration system and greater income concentrating effects of the global city-building strategies undertaken by China's government (e.g., SOEs, FDI, and expensive monuments to modernity in conjunction with policies hostile to entrepreneurialism at a smaller, arguably healthier scale). China has largely "socialized" the global city project by diverting public resources for place-promoting expenditures that have propelled particular cities up the global hierarchy. Given the rising social tensions in its cities, China must formulate social policies and devote more resources to ameliorating some of the polarizing social consequences of its global city-building projects.¹⁹

Assessment of Beijing's plan to achieve global city status is the core of this dissertation and is intended to assist Beijing in attaining global city status while identifying and assessing potential disruptions to that goal. Expected benefits are as follows: First, by reviewing proposed interventions contained in the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing* (2011 – 2015), several influential variables that impact (positively and/or negatively) the development of global cities will be identified and their possible impacts assessed in the Beijing context. Second, the strategic evaluation of proposed interventions supports the Beijing Municipal Commission of Urban Planning's (BMCUP) objective to regularly review diverse development strategies. Third, the strategic assessment will inform the decision-making process by identifying and examining both the status of trends associated with global city status over time, as well as, potential disruptors to Beijing achieving global city status. Lastly, assessment will help reduce uncertainty attributable to potential environmental, social and economic stressors on livability within the Beijing metropolis.

This effort is predicated on the hypothesis that failure to meet private and public infrastructure needs stifles economic development, whereas, development of unnecessary capacity is a misallocation of public resources and an economic burden on the future. By

exploiting this opportunity to plan and right-size infrastructure for global city status, billions of hours of human labor and possibly billions of RMB in economic resources (e.g., the failure of the Great Wall of China as public infrastructure comes to mind as a past misallocation of resources) might be saved.

Scope of Work

The primary objective of this dissertation is to reduce uncertainty facing planners and other key stakeholders responsible for Beijing's future (e.g., pursuing global city formation) through the introduction of strategic assessment of the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing* (2011 – 2015) and Beijing's associated planning processes. To accomplish this task variables and or metrics associated with global city formation elsewhere, particularly in East Asia, will be identified and their status in the Beijing context, over time, tracked. Further, plausible disruptors and/or impediments to achieving global city status will be identified and their impacts incorporated into the review of interventions contained within the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing* (2011 – 2015) that will enable Beijing's policy makers and planners to better understand the relationship between the unique attributes of global cities, particularly East Asian global cities, and plausible impediments to Beijing's global city formation. Finally, the research will suggest strategies and specific interventions (e.g., best practices) that appear to be of high value in Beijing achieving global city status within the preferred time line (i.e., approximately 15 years).

In sum, this dissertation yields a strategic assessment of Beijing's proposed plans to achieve global city status framed by Beijing's stated public policy objective for Beijing

to achieve “World City with Chinese Characteristics”²⁰ status over a 15-year planning horizon. The objective of this assessment is to reduce uncertainty in achieving this significant policy objective. Secondly, this dissertation aims to demonstrate the enormous value of employing strategic assessment in the field of urban planning, particularly for large metropolitan areas, and especially those seeking global city status. In particular, this work is grounded in three key areas of academic research: world or global city development, as well as, strategic and anticipatory planning analysis and evaluation.

Research Questions

Research questions that will be addressed in this dissertation are associated with Beijing’s objective to achieve “World City with Chinese characteristics” status. In undertaking this research, the author assumes 2030 as the year that this objective can plausibly be achieved. Accordingly, the strategic review extends through 2030. The specific research questions are:

- 01) Based on comparison with cities that, by consensus, have achieved premier global city status, is Beijing a world or global city? Why or why not?
- 02) Informed by research on the development trajectories of cities that have achieved global city status, and research on threats facing Beijing, what are the likely impediments to achieving world or global city status?
- 03) Informed by: (i) Past trajectories of global cities and Beijing’s current status and immediate past trends, (ii) Accepted indicators of global city status, and (iii) Strategic Analysis, will the proposed interventions within the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing (2011 – 2015)* support Beijing’s priority objective to achieve world city status with Chinese characteristics?
- 04) How, based on the variables that the researcher examines, will we know when Beijing has achieved global city status?

- 05) Assuming Beijing achieves Global City Status in 2030, how will it substantially differ from other global or world cities?

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- ¹ World Bank. (2014). *World Bank Data* [China | Data]. Retrieved from <http://data.worldbank.org/country/china>
- ² Purchasing power parity (PPP) is a component of some economic theories and is a technique used to determine the relative value of different currencies.
- ³ Carter, Ben. (2014 December 18). Is China's economy really the largest in the world? *BBC News*, Retrieved from <http://www.bbc.com/news/magazine-30483762>
- ⁴ Livable defined in Merriam-Webster as: suitable or enjoyable to live in.
- ⁵ Wang, J., Su, M., Chen, B., Chen, S., & Liang, C. (2011). A comparative study of Beijing and three global cities: A perspective on urban livability. *Frontiers of Earth Science*, 5(3), p. 323.
- ⁶ Hales, M., Petersen, E., Pena, A., & Gott, J., (2014). *Global Cities, Past Present and Future*. A. T. Kearney, p. 11.
- ⁷ Varum, C. A., & Melo, C. (2010). Directions in scenario planning literature – A review of the past decades. *Futures*, 42(4), pp. 355.
- ⁸ McKinsey Global Institute projections are through the year 2025. See Woetzel, J., Mendonca, L., Devan, J., Negri, S., Hu, Y., Jordan, L., ... & Yu, F. (2009). Preparing for China's urban billion. *McKinsey Global Institute*. p. 18.
- ⁹ Woetzel, J., Mendonca, L., Devan, J., Negri, S., Hu, Y., Jordan, L., ... & Yu, F. (2009). Preparing for China's urban billion. *McKinsey Global Institute*. p. 18.
- ¹⁰ M. Lyon (personal communication, March 20, 2012)
- ¹¹ Yang, Zhenshan; Cai, Jianming; Ottens, Henk F. L.; Sliuzas, Richard (2011). Beijing. *Cities* 31 (2013), ISSN 0264-2751, Vol. 31, p. 504.
- ¹² Thornley, A., & Newman, P. (2011). *Planning world cities: globalization and urban politics*. Palgrave Macmillan, p. 204.
- ¹³ Timberlake, M., Wei, Y. D., Ma, X., & Hao, J. (2014). Global cities with Chinese characteristics. *Cities*. P. 2.
- ¹⁴ Timberlake, M., Wei, Y. D., Ma, X., & Hao, J. (2014). Global cities with Chinese characteristics. *Cities*. P. 3.
- ¹⁵ Wei, Y. H. D., & Yu, D. (2006). State policy and the globalization of Beijing: Emerging themes. *Habitat International*, 30, p. 378.
- ¹⁶ Beijing Municipality. Beijing, China (2010). *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing*. p. 9.
- ¹⁷ Feng, W., (2013) Beijing as a Globally Fluent City, Brookings-Tsinghua Center for Public Policy & Global Cities Initiative, p. 9.
- ¹⁸ Beijing Municipality. Beijing, China (2010). *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing*. p. 13.
- ¹⁹ Timberlake, M., Wei, Y. D., Ma, X., & Hao, J. (2014). Global cities with Chinese characteristics. *Cities*. p. 3.
- ²⁰ Beijing Municipality. Beijing, China (2010). *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing*. p. 13.

2 - Context

The long-term goal of the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing* (2011 – 2015) is to initiate the transformation of the Municipality into a leading “World City with Chinese characteristics.”^{21,22} This governmental policy preference distinguishes the enormous perceived value to the Chinese people in general, and the residents of Beijing in particular, if the capital city can achieve global city status. “Beijing is now home [headquarters] to 44 of the world’s 500 largest companies, second only to Tokyo”²³ and, more are likely to follow if the administration and people of Beijing can continue to facilitate and drive its transformation from a polluted parochial capital at the far end of the Silk Road to a cosmopolitan node on the transnational network that underlies the global economy.²⁴ However, the road to world city status is neither short nor without obstacles.

The benchmark of this research is the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing (2010-2015)* containing the published municipal policy prescriptions, as well as, strategy for achieving global city status. As indicated, achieving this particular policy objective (i.e., world city status) will require intervention through a broad array of urban policy prescriptions that support development of new public and private infrastructure, manage population growth; as well as enhance the natural, economic, and cultural attributes of Beijing to make them competitive with existing world cities. Multiple sources indicate that the World City goal will remain in place and be further elaborated in Beijing’s 13th Five Year Plan (not yet published in English).²⁵

These efforts will require massive investment - billions or even a trillion RMB as the nation and city develop public infrastructure and attempt to direct market forces to reinforce this municipal policy preference. Supporting this development strategy will also require significant planning capability to design and implement the interventions that are essential to achieving world city status. Further, the process of cooperatively devising, financing, implementing, evaluating and demonstrating the efficacy of these programs as an inter-acting system will require significant time to reach fruition (thus the 15 year time horizon associated with this research).

This time scale is based on past experience of cities dramatically repositioning themselves. For example, Los Angeles required more than a decade to clear the sky of cancer causing pollutants and smog. New York required almost two decades to recover from the financial crisis of 1975 that nearly sent the city into bankruptcy. The magnitude of Beijing's task is illustrated by the fact that despite more than three decades of aggressive residential construction, Beijing remains one of the least affordable cities for housing in the world.²⁶ How and at what pace Beijing takes action to support its long-term policy to achieve world city status will determine whether Beijing achieves world city status, and if so, the length of time necessary to achieve such status. However, under the best circumstance based on China's track record of extremely rapid mega-project construction (arguably the fastest in the world) and policy change and implementation, when political will is present, it is plausible that the policy objective can be achieved in the 15 year planning horizon adopted in this research.

Whether, how, and how long it will take to achieve world city status is further complicated by the basic uncertainty about the shape of the future – which is influenced

by a host of economic, environmental and societal events. Unique disruptions and unforeseen impediments could adversely impact Beijing's intention to become a premier "World City with Chinese characteristics." How to proactively prepare for the indefinite impacts of global climate change, create a resilient economy that will endure fluctuations in the global markets, build sufficient housing to assure societal and political stability, etc., are all issues of direct relevance to the question of whether world city status can be achieved. How the Municipality prepares for these potential obstacles to world city status will determine the likelihood of achieving the policy objective.

Nearly all policies of national and local governments (Beijing Municipality and its Urban Districts) will have some impact on the pace and quality of urbanization in the metropolis. This is particularly true because the People's Republic of China issued new policies (i.e., directives) in March of 2014 on the continued urbanization of the People's Republic. The "new-urbanization" plan proposes moving an additional 200+ million people,²⁷ within the next decade, into cities as a primary stimulus to the national economy. These policies are broad in nature and, of course, untested on such a vast scale:

The proposal of a new style of urbanization is aimed at using urbanization to boost domestic demand and using domestic demand to spur adjustments to the economic structure. Compared to conventional urbanization, new-style urbanization places more emphasis on the quality of city construction. New-style urbanization is driven by new-style industrialization and based on the principle of planning that considers all factors. New-style urbanization promotes the modernization of cities, the clustering of cities, the greening of cities, and the urbanization of the countryside to fully elevate the quality and level of urbanization, achieve scientific development, and coordinate the development of large, medium, and small cities and towns that are scientifically developed, intensive and highly efficient, perfect in function, with good environments, and with social harmony, and which integrates urban and rural areas.²⁸

Theoretically, the national “new-urbanization” policy should be supportive of Beijing’s long-term desire to achieve world city status. In particular, the emphasis on policies for the “greening of cities,” which are “scientifically developed” should complement efforts by Beijing to achieve world city status. However, it should be noted that further high-levels of internal migration to Beijing (e.g., population growth) could significantly complicate the municipalities’ ability to achieve global city status.

Already, since Deng Xiaoping introduced his economic policy reforms in 1978, the population of Beijing Municipality has grown from 8.7 to over 21.5 million persons.²⁹ Adapting to this level of local urbanization has required enormous investment in public and private infrastructure; however, in many cases benchmark standards for variables found in existing global cities have not yet been met. In other areas, such as subway trackage or expressway development, Beijing is already meeting, or close to, benchmarks for global cities, but may still be out-performed by its rival, Shanghai. Furthermore, in some areas of infrastructure and service delivery, the expectations of Beijing’s residents have not yet been met. This is particularly true in environmental areas, such as air and water quality (Thornley and Newman 2011) and waste management.

According to the 2004 guidelines of the Beijing Municipality established by the State Council, the number of residents living in Beijing “should have been capped below 18 million until the end of 2020.”³⁰ The 3.5 million additional residents, above the proposed cap, now present in Beijing have contributed to overwhelming the public (e.g., transportation, water and waste water systems) and private (e.g., residential and commercial) infrastructure; reduced air quality (local PM 2.5 often exceeds World Health Organization guidelines) which has decreased life expectancy in the city by 5.5 years³¹

compared to cities in southern China that are not dependent on coal power for heating in the winter; as well as, increased housing prices which are now among the least affordable in the world.³² Further, despite this extraordinary growth, Beijing has a minuscule number of foreign-born residents (an oft cited measure of cosmopolitanism; considered critical by some to achieving global city status), relatively low GDP per capita (it is a middle income city) with extremely high income inequality . . . all factors unexpected of global cities.

However, despite these shortcomings when contrasted with other global cities, many positive interventions have been taken by Beijing to advance to world city status. The current proportion of tertiary (e.g., service) industry employment as a portion of GDP meets the norm of other world cities at greater than 75%.³³ Like other world cities, Beijing also exhibits low unemployment, high population density per square kilometer, and a large number of Fortune Global 500 headquarters. And, recently, it has been reported that “Beijing will try to cap its population at 23 million in 2020 . . . as the Chinese capital comes under pressure from a severe water shortage.”^{34,35} In sum, Beijing is well on its way to achieving global city status if it is able to effectively address its significant but not insoluble urban problems, particularly its environmental problems.

World (Global) Cities

Patrick Geddes first coined the term world city in 1915 to refer to those cities expanding into “new and vaster groupings or conurbations (Geddes, 1915, p 393).”³⁶ Today the preferred terminology is global cities (referencing globalization) and the two terms are used interchangeably in this dissertation. It is the specific goal of several developing cities in East Asia to achieve world or global city status in the near term,

including both Beijing and Shanghai. The desire of community leaders to achieve global city status is demonstrative of the many perceived benefits related to the cultural, economic, and environmental indicators associated with such status.

World cities take different forms and perform unique roles in the current system of globalization. Some cities are heavily focused on participation in the system of global finance (e.g., London and New York) whereas others on the transport of goods (e.g., Hong Kong and Singapore). This distinction among global or world cities includes cities focused on “capital exporters, sites of global manufacturing production, a dominant entrepot function, and even “amenity” cities that use the environment to attract economic activity.”³⁷ Regardless of the underlying economic function of the area or region, global cities share multiple attributes.

“In 1966, Sir Peter Hall published, “The World Cities”,³⁸ which examined how cities such as New York, London, Paris, Tokyo and Moscow outgrew their regions to become prime “world cities.” Hall identified these cities as major centers of political power, seats of national and international government; loci of trade, finance and communication; and concentrations of talents in education, research, arts and culture (Clark, 1996, p 137).”³⁹ New terms describing world cities are emerging in the literature, including global or world-hub⁴⁰ rather than “city” to denote the importance of their interconnectedness with other places on the globe.

“Hall’s much documented criteria for identifying a world city were twofold: (1) cities possessing political power functioning as locales [for] national government and attracting? international political organizations; (2) cities with economic power being national centers of trade, banking and finance.”⁴¹ Today, there are much broader

measures for defining global city status and such status has become more than just an examination of political or financial resources and leverage; although global cities typically have enormous political and financial power. Rather global cities are understood to possess a unique combination of urban assets – physical, political, financial, environmental and cultural – that composes the modern global-hub.

These cities exhibit a host of characteristics that include:

- Centers of international banking/finance.
- Significant educational and research centers with high international student attendance.
- Headquarters of multiple multinational corporations.
- High percentage of residents employed in the service and information sector.
- Considerable decision-making power (economic, technical and/or political) at an international level.
- Centers of communication, media, and the arts.
- Centers of innovation in business, economics, politics and culture.
- High environmental quality (air, water, and land).
- Landmark or signature buildings.
- A diverse and/or cosmopolitan cultural environment.

Other identifiable characteristics have “both functional and non-functional qualities, which include, among others, city appearance, history, cultural attractions, demographics, economics and governance, people’s experience of the city, and perception of the city.”⁴² Unfortunately, currently, “there is a ‘strong tendency of governments to assume that becoming a world city is principally a technological question

and that catering to the direct needs of investors can take precedence over making cities more livable and environmentally stable (Douglass, 2000 p. 2325).”⁴³ This may have been true for planners in Beijing.

Today, multiple organizations as part of their business model/operations now issue reports designating the top global cities – each based on a unique set of variables that support their individual vision of what constitutes a global or world city. These organizations include: The Economist (newspaper published in London), A. T. Kearney (management consulting firm based in Chicago), Z/Yen (commercial think-tank located in London), McKinsey Global Institute (research arm of McKinsey & Company located in New York), and the Martin Prosperity Institute (part of the Rotman School of Management at the University of Toronto).

Global City with Chinese Characteristics?

“Many governments in Asia pursue the goal of becoming a global city. Singapore, Seoul, Taipei, Hong Kong, Shanghai, and Beijing have implemented a series of policies to remake their cities into global cities.”⁴⁴ Further, “it is a feature of the Region that cities have been competing with each other for world city status.”⁴⁵ These urban policy interventions and this competition will continue into the foreseeable future as cities seek to reap the rewards of global city status. How the emerging global cities of Asia, particularly those in China, will differ from other world cities is meaningful to this continuing research.

The specific goal of Beijing's 12th Five Year Plan is to begin its transformation into a leading “World City with Chinese characteristics.”⁴⁶ From this statement we can deduce that it is not the goal of China to replicate the particular characteristics of other

global cities (e.g., New York or Hong Kong), rather is it to create an urban environment that reflects the needs of the people of Beijing and China in a global context. Although the specific “Chinese characteristics” the Municipality wishes to enhance or preserve are not well-defined, the existing Asian global cities (e.g., Seoul, Tokyo, Hong Kong, and Singapore) exhibit unique attributes that distinguish their position on the global stage that may be broadly applied to a strategic assessment of Beijing’s plan to achieve world city status.

For example, because the economic policy reforms of Premier Deng Xiaoping occurred late in the last century, Beijing was ill prepared for the introduction of automobiles. In 1980 there were less than 2 million cars, trucks, and buses in all of China, today there are over 5 million vehicles in just Beijing. Therefore, one obvious “distinction between Chinese cities and those in developed countries is that densely populated urban areas were already formed before ... rapid motorization, especially in Beijing, which has a long history and very congested old-city area. Chinese cities have much more difficulty in getting time and space to adapt the traffic infrastructure to the travel demand.”⁴⁷ Therefore, a global city with Chinese characteristics may have unique transportation infrastructure when compared to a global city that was developed to accommodate automobiles like Los Angeles.

Although there is variation among global cities, another significant distinction is the relatively small number of foreign-born residents as percentage of total population within Beijing Municipality. Today, in Beijing, less than 1 percent of the population is of foreign extraction (born in a foreign country) whereas in cities like London or New York the population of foreign-born residents is a third or higher. The exception to this rule is,

of course, other East Asian cities like Seoul and Tokyo that – similarly – have relatively few residents of foreign birth. How Beijing addresses these similarities and differences with competing cities could be determinate in reaching and maintaining global city status with or without Chinese characteristics.

In 2003 Xue outlined several criteria for world city status, “blocked in four groups (economic power, social development, infrastructure, international contacts), to measure globalizing Chinese cities.”⁴⁸ In that respect, it is important to recognize that “‘global city’ formation is not an outcome determined by the outward forces of globalization reaching into the city but rather it is the result of ... different actors, institutions and wider contexts such as national urban systems, cultural norms, politico-legal infrastructures and everyday place-making practices (Smith, 2001).”⁴⁹

The desire to exploit “world/global city formation makes explicit what is often taken for granted in global cities research, namely that there is likely to be a set of identifiable social, political, and economic processes underlying a particular city’s centrality in a global system of cities.”⁵⁰ Therefore, identifying the variables and/or indicators of global city status has not been difficult, “globalization has resulted in many common trends in cities although there is also significant variety.”⁵¹ Numerous of these variables are employed by organizations like The Economist, A. T. Kearney, Z/Yen, McKinsey Global Institute, and the Martin Prosperity Institute in the development of their global cities indices.

Beijing

In China, the formal definition of a city ‘requires’ a minimum population of 100,000 non-agricultural residents in an urbanized area (the comparable number in the

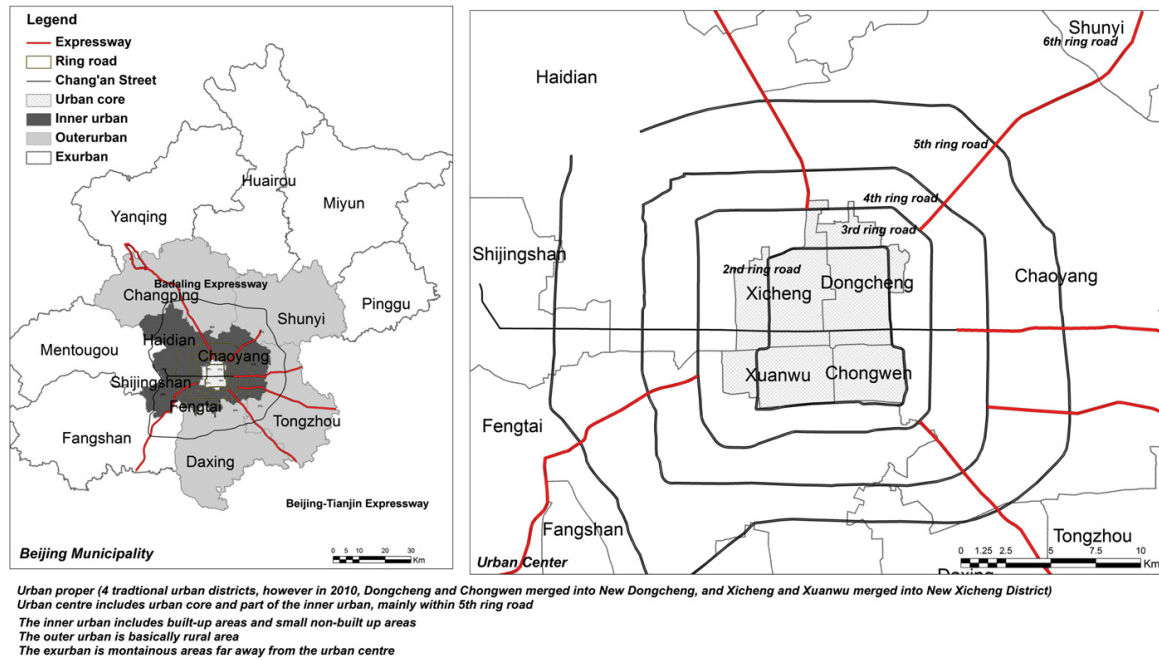
United States is only 2,500). Only by its non-agricultural population is a city classified: 100,000-200,000 a small city, 200,000-500,000 a medium city, 500,000-1,000,000 a large city and >1,000,000 an extra-large city. At this time, China has the largest urban population in the world (e.g., 500+ million) in more than 600 cities, although nearly half of its population still lives in rural areas (+/- 48%).

Beijing, formerly Peking, is one of the most populous cities in the world with a 2010 census population of 19,612,368⁵² (over 21.5 million at this writing). Beijing is the second largest city, after Shanghai, in China and is the nation's political, cultural, and educational center; as well as, the headquarters for most of the very powerful state owned enterprises. Further, "Beijing, as the national capital, is the showcase of China's population control and economic development"⁵³ activities in the 21st Century. And, as is explicit in Municipal policy, "with rapid economic development and (the) enlarging international impact of China, it has been widely concerned if its capital, Beijing, would be built into a modern global city (Li and Lu, 2002) ..."⁵⁴

Beijing includes 14 districts and 2 rural counties (Figure 1). Similar to other large cities in China, this includes four broad divisions, "the inner part is called 'shi qu' (city proper or city districts), followed by 'shixia qu' (district under city jurisdiction) and 'shixia xian' (county under city jurisdiction),"⁵⁵ as well as, "the 'ecological conservation areas'."⁵⁶ "Beijing has a high-density urban core with over 22,800 persons/km² in 2009, however, this is lower than the 28,360 persons/km² recorded in 1992. Over the same period the population density increased in most other parts of the city. In 2009, half of the population lived in the inner urban areas (about 8.7 million), at a density of only 6800 persons/km² though still substantially higher than the 930 persons/km² in the outer-urban

areas and to only 250 persons/km² in the ex-urban part of the municipality.”⁵⁷

Figure 1 – Map of Beijing⁵⁸



The tremendous growth of Beijing over the past three decades is the result of “a pro-growth development agenda.”⁵⁹ The population of Beijing has not grown due to increased fertility, but is the largely the result of internal migration. “The HRS (Hukou Household Registration System) was gradually relaxed by officially allowing college graduates and technicians to migrate into the city, and by tacitly accepting the surplus rural labourers to flow into urban areas with some conditions, as a consequence of which large scale migration has become the main cause of the very rapid population growth of Beijing.”⁶⁰

“The overarching goal is to bring Beijing to the status of a full-fledged world city, with a strong and diverse economic base, particularly in high-end services.”⁶¹ Thus, recognizing the obstacles to world city status is part of the challenge of achieving world city status and many have recognized that in Beijing continued population growth is a potential obstacle. Reaching global city status is particularly complicated by the

uncertainty associated with estimating the future total population of Beijing. Further, “a major challenge for the city is the continuing strong growth and the fundamental change from a low-end manufacturing-led economy to a modern service-oriented economy. The spatial structure of the city has to be further adapted to better accommodate the increase in population, production, consumption and mobility and the new types of economic activities and life styles.”⁶²

Population and the Hukou System

“The population growth (of Beijing) is driven mainly by in-migrants. We conjecture that in-migration will still be the main driving force for population growth in the future. Therefore, population growth in Beijing will be affected directly by migration policies”⁶³ of the national government and their enforcement at the local level. Based on recent data, “by the end of 2009, approximately 12.46 million people in the capital held a Beijing “*hukou*” (permanent residence). An additional 7.26 million inhabitants [floating population] were migrant workers who had been living in the city for more than half a year...”⁶⁴

This ‘floating population’ of greater than 7 million residents lacks a Beijing *hukou* (local registration) and is rather registered in their home cities where they can receive public/social (i.e., governmental) benefits. “The floating population [internal migrants] is, in principle, subject to deportation from the cities, but more importantly, temporary urban residents and their families cannot access publicly provided services such as food rations, healthcare and education, and depend on the private sector for the services. This results in a skewed migrant demographic, e.g., children are underrepresented in the migrant cohort, most having been left in their “home towns.” “The system of *hukou*, wherein the cities

are often reluctant to grant permanent residency to the migrants, has resulted in, first, a gross under-reporting of the urban population and thereby of the level of urbanization and, secondly, denial of access to publicly provided services to the migrant population in the cities.”⁶⁵ Largely, unknown in the west, the Hukou Household Registration System is one of the key elements impacting urbanization in China.

Further, “the city is ever more facing the pressure of its rapid population growth. The new census reported the population was as high as 19.6 million in 2010 (Beijing Statistic Bureau, 2011), well above the planned population of 18 million by 2020.”⁶⁶ These reports indicate that plans of the Beijing Municipality, have underestimated population growth in their forecasts, resulting in plans that substantially underestimated infrastructure and land needs. “According to the population and development plan prepared by the Beijing government, the size of population will be around 18 million in 2020 if the net in-migration population reaches 4 million during 2000—2020; the size will remain below 20 million in 2020 if the net in-migration population reaches 5 million during 2000—2020.”⁶⁷ Instead by 2015 – five years earlier than even the high estimate for 2020, Beijing’s population exceeded 21.5 million.

“The population of Beijing is expected to hit 26 million by 2020, according to a report recently released by the Beijing Academy of Social Sciences.”⁶⁸ Based on this data, despite national and local policies to reduce migration into the city, it appears that all efforts to control or cap population within the city have largely failed to this point. And, there is little historical experience, in China, or elsewhere, to suggest that any particular municipal policy is effective at capping urban populations over an extended period of time.

Accordingly, as above, some experts project the current population of Beijing will grow to 26 million by 2020 and continue growing to 50 million by 2050.⁶⁹ Others suggest that the population of Beijing will peak in the year 2030 (mirroring national population leveling off and subsequent decline) then stabilize around 20 million by 2040. All these projections represent plausible futures for the city and the disparity between these demographic futures demonstrates the current breadth of uncertainty regards the development of Beijing. This level of uncertainty (between 20 and 50 million Beijing residents in 2050) represents a significant planning problem, and has direct significance in regard to efforts to transform Beijing Municipality into a global city.

As the reader can discern, these problems are not abstract, but will impact the global city status of Beijing until mid-Century and beyond:

Over the coming decades, the world's biggest national population will experience some of the most rapid and most massive processes of population ageing in world history. Neither current uncertainties about the level of fertility, the sex ratio and the number of children already born nor the uncertainty about future vital rates significantly weakens this very robust forecast. When it comes to population size, however, the uncertainties considered do have quite some impact. The projections show that there is about an 80% chance that by the end of the century, China's population size will again fall below 1 billion, even though over the coming decades we will see further increase due to the momentum caused by a young age structure. Almost certainly (with more than 97.5% probability) China's population will surpass [fall below] 1.3 billion over the next few decades. The point at which it will begin to fall greatly depends on the assumptions made about current and future fertility trends as discussed. Our projections show that almost certainly (with a probability of more than 97.5%) the population will not reach 1.5 billion. The median shows a peak of 1.377 around 2025. After that, the population starts to decline with the median in 2100 showing 850 million people, almost 40% below its peak level.⁷⁰

Duan Chengrong, a professor of Renmin University, indicated that public services could not match the current rise in population. The population problem has become so severe, that the “Beijing Municipal Commission of Urban Planning said recently that it

would start drafting of a population adjustment plan in 2013. Liang said that there was a limit to the number of people the city could hold, though he added that Beijing was still a long way from that limit. Yuan Chongfa, a researcher for the City and County Development Research Center under the National Development and Reform Commission, said that Beijing still had plenty of room for more people.”⁷¹

The problem of in-migration persists to this day. Recently, it was reported “Beijing will try to cap its population at 23 million in 2020, Vice Mayor Li Shixiang said on Friday, as the Chinese capital comes under pressure from a severe water shortage.”⁷² However, at this time, there is no indication what policy options might be implemented to achieve this goal.⁷³ Despite these efforts, it appears that “the outcome of such policies is always the same - it is impossible to cap a city's growth by fiat if underlying drivers, especially the market, continue to push people towards cities.”⁷⁴

Critical Resources

Other issues that may impact the municipal policy goal of achieving world city status are the carrying capacity of public and private infrastructure, condition of the environment, as well as access to natural resources such as water for municipal consumption. In modern Beijing, “air pollution, fresh water shortage and insufficient waste treatment capacity increasingly become major problems in the city.”⁷⁵ Each one of these key infrastructure is a significant factor in achieving global city status.

“Currently water consumption has reached 3.6 billion m³, far exceeding the 2.6 billion m³ production capacity in Beijing. A large national project is being carried out to transfer water from South to North China, including Beijing, which is expected to deliver additional water in 2014.”⁷⁶ This project was completed on schedule and, “the project,

when put into operation, will supply 44.8 billion cubic meters of water a year to the north, which is equivalent to the water flow in the Yellow River.”⁷⁷ And, although completion of this project affords the city sufficient water resources for a population of 25, or perhaps more, million, water supply is not unlimited. Yet, on a positive note, completion of this important public infrastructure was demonstrative of the effectiveness of the National and Municipal governments when faced with a critical resource challenge.

This is particularly important because, “more than half of underground water monitored in China last year was low quality, according to a government report released on Tuesday. Findings in the Report on China's Environment Condition are based on 4,929 monitoring stations in 198 prefecture-level areas. The report, released by the Ministry of Environmental Protection, shows that underground water quality at 1,999 stations - 40.5 percent - was "bad", while the quality at 826 stations - 16.8 percent - was graded "worst".”⁷⁸ If accurate, over half of the untreated ground water is likely not fit for human consumption.

What is true about water availability is equally true of the capacity of the transportation system to support motor vehicles. In reaction to this capacity constraint Beijing is currently constructing the 7th Ring Road surrounding the city.⁷⁹ Yet, Beijing Municipality, like other “large cities will face crippling congestion pressures (Shanghai’s traffic could outstrip its projected road capacity threefold by 2025).”⁸⁰ In 2011 Beijing had over 5,000,000 registered cars according to the China Academy of Transportation Sciences and the Beijing Municipal Transport Commission. Their report concludes that construction of new roads in Beijing will be unable to match the growth in car ownership

in the near term. And, due to the associated issue of air pollution the municipality has capped car registration at 5.6 million vehicles for 2015.

This has occurred because in the past pollution was largely viewed as a cost of economic development, whereas, today, “increasingly, pollution is no longer seen as a sign of progress, but as a sign of inefficiency and carelessness.”⁸¹ For both these reasons – pollution and traffic congestion – “improving transit service can potentially halt or even reverse the mode shift toward personal vehicles.”⁸²

Housing Affordability and Supply

Despite 30 years of massive residential construction by both the private and public sector to attempt to meet current demand, housing affordability – usually a measure of housing cost compared to local wages – and supply remains extremely low in Beijing. Housing in the core city is especially expensive. “Most high-income households in China prefer to live in central areas of the city, where jobs for those who are highly qualified and high-price housing are located (Zheng et al. 2005).”⁸³ This forces low-income residents to locate further from the central business district, vastly extending commutes.⁸⁴

Unlike western cultures, “living in the city centre, where the ‘privilegentsia’ traditionally lived, usually indicates higher social status in China (Gaubatz 1999b). While some high-income households move to the suburbs because of changes in their lifestyle preferences (Wang and Li 2004), most low-income workers reside in the suburbs because they cannot afford the high-price housing in the central urban areas, even if their job is located in the city centre.”⁸⁵ This problem of affordability and availability extends beyond access to housing to the issue of basic social stability.⁸⁶ So much so that in May

of 2014 the central government set aside \$19.2 billion to speed up construction of low-income housing.⁸⁷

Achieving Global City Status

The desire to achieve global city status for Beijing is not new, “Beijing’s Master Plan 1992 (for the 1991–2010 period) announced that Beijing should not only be the political and cultural center of China, but a first-class, modern global city (Beijing Institute of Urban Planning and Design (BIUPD), 1992).”⁸⁸ Since that time Beijing has implemented ambitious programs to become a leading global city and has experienced a dramatic transformation (Wei & Yu, 2006 p. 378). For example, billions of RMB were spent on the 2008 Olympics and extension of the subway system as part of the effort to catapult Beijing into global city status. However, it is important to distinguish between building a city with ‘first-class’ global attributes and achieving a high ranking in global city indices produced by organizations whose indices may contain subtle bias favoring western style urban environments, economic structures, and organizational cultures.

What style of global city Beijing wishes to become, therefore, remains a matter of self-examination and thus the emphasis on a “World City with Chinese characteristics.”⁸⁹ For example, although “recent plans advocate aggressive development towards full participation in the global economy and the world’s system of cities. Beijing’s functional orientation has been redefined from a political and cultural center to a center for politics, culture, and international affairs and finance.”⁹⁰ A city like New York is a “luxury or superstar city is not an engine of opportunity but rather a natural abode for those who already reside at the apex of society,”⁹¹ one wonders if a city such a Beijing may replicate that model in China.

There is, of course, reason for concern about the future development of Chinese cities including Beijing:

China's rising global cities are showing evidence of the dark side of globalization ... rising social polarization, a rapid influx of new residents living in concentrated poverty and excluded from the benefits global cities afford more fortunate residents, and possibly rising levels of resistance—or social discontent. It is possible that the problems of polarization and discontent will be even greater in China's global cities than the world's other great cities, as a result of a household registration system and greater income concentrating effects of the global city-building strategies undertaken by China's government (e.g., SOEs, FDI, and expensive monuments to modernity in conjunction with policies hostile to entrepreneurialism at a smaller, arguably healthier scale). China has largely "socialized" the global city project by diverting public resources for place-promoting expenditures that have propelled particular cities up the global hierarchy. Given the rising social tensions in its cities, China must formulate social policies and devote more resources to ameliorating some of the polarizing social consequences of its global city-building projects.⁹²

Despite the massive expenditure of public and private resources there remain significant gaps between Beijing and the well-established attributes of prevailing global cities. For example, "according to an authoritative investigation conducted by the British Economist Intelligence Unit in 2010, Beijing did not appear on the list of livable cities whereas New York City, Greater London, and Tokyo were all livable cities (Research Group in Institution of Capital Socioeconomic Development, 2010)."⁹³ This may be because "in the 1990s, it [Beijing] was listed among the world's top 10 most polluted cities and suffers from the mixed-source air pollution caused by coal combustion, vehicle exhaust, fugitive dust, and other sources."⁹⁴ This and other "quality of life indicators are becoming more important in the global intercity competition and so air pollution and road congestion are likely to be future challenges to Beijing's ability to develop its world city status."⁹⁵

On the other hand, Beijing has experienced some success in achieving its goal to be a world city and is now ranked eighth in the 2014 Global Cities Index (published by A. T. Kearney this index is heavily weighted towards business activity and human capital) its first appearance in the top ten. “Shanghai, at number 18 in the index, is the only city in mainland China that comes even close to Beijing (8). In fact, it bests Beijing in human capital, given its larger foreign-born population, greater number of inhabitants with tertiary education, and high number of international schools.”⁹⁶ Beijing does not appear in the top ten of any of the other major (i.e., Martin Prosperity Institute, The Economist, Z/Yen, and McKinsey Global Institute) global cities rating reports.

Fortunately, Chinese policy leaders realize achieving the goals of the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing (2010-2015)* will require “a re-orientation of innovation towards efficiency in natural resource use, new industrial concepts, services and product use and towards the solution of problems such as energy, food, climate change, health and the provision of jobs.”⁹⁷

Gaps in the Literature

At this time, there exist several gaps in knowledge regards understanding the development of world cities, particularly those in East Asia. Although there is general agreement on which cities comprise the present list of global cities (i.e., London, New York, Hong Kong, Paris, Los Angeles, Chicago, Singapore, Tokyo, etc.) we are less certain which factors and/or indicators are truly indicative, demonstrative or decisive of global city status. In further research there is a need to question the mix of indicators themselves. Better understanding what factors and/or indicators are determinate in this important designation deserves additional study.

The failure to understand the development trajectories of global cities is further complicated by a lack of understanding what obstacles have blocked other important cities from achieving world status. This gap in understanding is associated with the failure to explore the potential barriers to global city status. This research explores this gap in understanding the development of global cities by identifying potential obstacles to the development of Beijing into a city with global status.

Another gap in the extant literature is identification of remedial actions or urban policy interventions that have proven to be effective in overcoming obstacles along the trajectory toward world city status; and thus could be considered to avoid or overcome acknowledged an/or perceived barriers to achieving global city status. For example, in this research, if Beijing is not yet a global city, what were or are the barriers that have – thus far – prevented the city from achieving this status and, what actions might have been effective to correct undesired development trajectories. This consideration is – of course – not particular to achieving global city status, but endemic among cities that fail to employ anticipatory planning.

Another gap in the literature on global city status is a lack of critical analysis of the public and private measures employed in various indices, currently published with significant impact, for the ranking of global city status conducted by firms like the Martin Prosperity Institute, A.T. Kearney, the Economist, Z/Yen, and McKinsey Global Institute among others. How these researchers identify, collect and calculate measures employed in these rankings should be subject to more critical inquiry. Further, there is a need to distinguish between correlation and causation in achieving world city status in their proprietary research. Improving the quality of global city indices will help metropolitan

areas better understand their situation, and determine independently their path to global city status.

The last substantial gap in urban planning knowledge associated with global city formation is the lack of appreciation of differing expected attributes of world city status in different world regions / civilizations. In the case of this research, insufficient literature exploring the differences between existing global cities (the generic case) and a “World city with Chinese characteristics” is pertinent. The Chinese authorities and academics themselves have not yet fully explained what is meant by a “World City with Chinese Characteristics.”

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3 – Assessment of Strategic Plans

The future of Beijing is inherently uncertain due to a variety of economic, environmental and social inputs; yet, planning professionals are tasked with advising decision makers on the development of public and private infrastructure far into the future. Where such levels of uncertainty exist, “planners, public officials, and community residents need new tools to help make our communities more resilient and ready to face what's ahead.”⁹⁸ Selecting and applying an appropriate methodology to address the advance of Beijing into a leading “World City with Chinese characteristics”⁹⁹ requires an investigative tool specifically intended to explore a future with high levels of uncertainty.

By example, some analysts project the current population of 21.5 million in Beijing will grow to 26 million by 2020 and continue growing to 50 million by 2050.¹⁰⁰ Others suggest China’s population will peak by the year 2026¹⁰¹ and the population of Beijing would then stabilize around 20 million by 2040. More recently, it has been reported that “Beijing will try to cap its population at 23 million in 2020 . . . as the Chinese capital comes under pressure from a severe water shortage.”¹⁰² These projections, despite their extreme divergence, represent the plausible demographic futures for the city. The disparity between these futures illustrates the current breadth of demographic uncertainty (i.e., between 20 and 50 million residents in 2050).

Applying an appropriate methodology or tool to tackle uncertainty on this scale is key to the successful resolution of the research questions. One research method that can effectively communicate information about future development to stakeholders (particularly decision makers) that anticipates high uncertainty is trend-based scenario analysis. This is explicated in a recent McKinsey & Company report, which indicates that

employing “scenario planning is an important strategy in succeeding in a global environment where information comes from all sides and where sudden changes in global forces can have catastrophic consequences.”¹⁰³

Scenario analysis is one tool for examining an uncertain future, “scenarios are not new to planning. Indeed, the use of the term scenario is quite common across a range of planning disciplines, from business-strategic planning to urban-transportation planning.”¹⁰⁴ After the introduction and application of this planning tool by the military and later the private sector, municipalities began to employ this methodology – sporadically – in the mid 1990s. In the 21st Century “scenario planning is now a required part of some public planning processes, including legislatively mandated greenhouse gas (GHG) reduction planning in California and Oregon and U.S. Department of Housing and Urban Development (HUD) grants for community sustainability.”¹⁰⁵ This is partially because scenarios “make managers more aware that we indeed live in a highly uncertain world and that it is possible to think about these uncertainties in structured ways.”¹⁰⁶

Scenario analysis, unlike many other research methodologies, anticipates uncertainty on the scale identified for the future of Beijing. “Although the term ‘scenario’ has many meanings, it will be defined in this paper as a script-like characterization of a possible future presented in considerable detail, with special emphasis on causal connections, internal consistency, and correctness.”¹⁰⁷ This iteration of scenario planning is widely used by organizations to understand different ways that future events might unfold.

“In constructing scenarios, it is often helpful to elicit information about possible future events from people in the organization, society, or nation who have experience

with the environment in which the events may take place.”¹⁰⁸ To that end, this scenario analysis of the world city development process for Beijing incorporates the articulated values of the community. In this case, these values are identified as the plans and policies of the federal government applied at the local level, as well as, the similar regulations and goals of the local government. These values and goals are best articulated in the “National New-type Urbanization Plan (2014-2020)” issued on March 16, 2014 by Premier Li Keqiang’s State Council and the central committee of the Communist Party and the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing* (2010-2015). Fundamentally, this application of scenario analysis “is used to anticipate the impact that different future conditions may have on values, policies, or goals that have been established or are being considered (Weber 2006).”¹⁰⁹

In this application, “scenario planning is a valuable method to help regions and communities understand and plan for their futures under highly complex and uncertain conditions”¹¹⁰ including those associated with the process of world city development. However, it is important to recognize that scenario analysis is an exploratory (i.e., a broad review) rather than an investigatory (i.e., a close examination) process. In this exploration of global city development for Beijing “scenarios are a thinking tool and communication device that aid the managerial mind rather than replace it.”¹¹¹ And, “far from trying to specify an exact future ... scenario planning results in a range of possible futures, precisely because the future cannot be known.”¹¹²

Exploratory Scenario Analysis

Exploratory scenario analysis is a strategic planning methodology used by organizations for the development *and* review of long-term plans that require significant

flexibility and which recognize the possibility of multiple outcomes. It is used to explore potential futures because, “scenario planning and scenario planning tools have great potential to help communities address issues of high complexity and uncertainty.”¹¹³ In this application, an single exploratory scenario has been developed for the purpose of simulating potential futures for the city of Beijing associated with their efforts to achieve world city status. These Beijing scenarios are intended to both “bound the range of plausible uncertainties and challenge managerial thinking.”¹¹⁴

Exploratory scenario planning is employed to analyze a variety of global city variables by examining multiple possible outcomes. In this construct, decision-makers can explore multiple variables that have unique consequences before actions are taken. As applied in this research, a dozen or more variables were analyzed in the preparation of the scenario. This scenario is a description of possible futures of the municipality, its “purpose is to help analysts and decision makers to understand the variety of events that may come to pass and their possible impact. A scenario is not a forecast, although it may contain or be based on forecasts. Rather, a set of scenarios, typically three or four in number, is intended to stimulate thinking about future events, the relationships among them, and the uncertainties surrounding them.”¹¹⁵

There are multiple types of scenario planning/analysis that can be applied to research questions including, but not limited to quantitative models with a numerical output, interactive or war-gaming scenarios focused on the rules of interaction among actors that shape the future, event-driven scenarios that examine the impact of specific events, normative scenarios that examine the goals of an organization, and trend-based scenarios that project current trends into the future. In this application, “exploratory

scenario planning, is used to anticipate the impact that different future conditions may have on values, policies, or goals that have been established or are being considered (Weber 2006). The desired end result of such a process is a set of robust or contingent strategies that policy makers can use to achieve agreed upon goals under a wide variety of possible but uncertain futures.”¹¹⁶

Trend-based Scenarios

Trend-based scenario analysis is one variety of exploratory scenario analysis that employs quantifiable trends within associated variables as the foundation of a narrative assessment. In essence, researchers identify variables associated with future development, distinguish historical trends in and among those variables and conscientiously extrapolate those trends for the purpose of developing a narrative scenario of a hypothetical future. The development of scenarios through this process is only constrained by the data available to researchers and the resources devoted to the scenario development and can produce – like this – a singular narrative scenario or dozens or hundreds of scenarios when computational resources are employed.

This type of “scenario planning focuses on opening the mind’s eye to the underlying macro trends that normally escape the daily concern of the decision maker and planner. Sometimes referred to as driving forces, these macro trends form the foundation for the scenario plots. According to Wilkinson (1995), driving forces can be roughly categorized along the following four lines: social dynamics, such as major demographic trends; economics, such as international trade flows; politics, including electoral, legislative, and regulatory possibilities; and, technology, such as the impact of

wireless communication advances. In addition to these categories, Schwartz (1996) suggests a fifth, the environment.”¹¹⁷

The value of employing this methodology “lies in its providing a coherent, systematic and collaborative framework for assessing the long-term effects of changes in key influencing factors.”¹¹⁸ “By identifying trends and uncertainties, a manager can construct scenarios to overcome the usual errors in decision-making: overconfidence and tunnel vision.”¹¹⁹ To a very large degree, “the trends and uncertainties are the raw materials or ingredients with which to develop scenarios.”¹²⁰

“In principle, a trend-based scenario, whether or not it is probable, corresponds to the extrapolation of trends at all points where choices are to be made.”¹²¹ Through the use of this methodology it is possible to develop a trend-based scenario for Beijing’s future based on the status-quo and/or pre-existing observable/measurable trends associated with shared characteristics of global cities. In practice, such trend analysis may assist decision-makers by informing them of the likely potential of technical, environmental, economic, and social change.

This application of trend-based scenario analysis examines key variables/indicators that are directly consequential in terms of achieving global city status in Beijing. Most frequently this type of analysis is used to understand the future implications of factors (drivers) over which a community has little control. However, this research examines global city variables over which a municipality in China – Beijing Municipality – has substantial influence, although the external context (e.g., policies and events) remains of considerable importance in achieving world city status.

The current uncertainty for Beijing's future predicated the use of tools, like trend-based scenario analysis, that rely on large data sets (e.g., demographic, economic, physical and environmental indicators). This application of scenario analysis to the aspiring global city development process in Beijing is, therefore, likely to be useful, because so much is in flux. For example, "obtaining accurate population estimates, indispensable in the planning process, has become more challenging as the national population policy changes and the urbanization process continues."¹²² Other areas of uncertainty are changing rules for local *hukou* permits (i.e., registration for social services), continuing changes to the family planning policy (e.g., in the United States referred to as the "one child" policy), and urbanization strategies, including the "New Urbanization Policy" which was introduced in 2014.¹²³

Preparation of a trend-based scenario for the development of Beijing into a global city allows planners to better anticipate the need for various public (e.g., transportation, education, public health) and private (e.g., residential and commercial) infrastructures in Beijing. In this manner, "a good scenario creates plausible, sometimes surprising, futures by incorporating future uncertainty, the likelihood of alternative outcomes, comprehensiveness of issues, and diversity of stakeholders in their values and goals."¹²⁴ Further, by exploring the attributes (variables) associated with global city development we can demonstrate the value of focusing interventions on key areas of concern likely to yield the highest payoffs, as measured by pre-determined indicators, in terms of global city formation.

This trend-based scenario analysis keys off Beijing's formal *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing* (2010-2015), which

outlines targets and norms for Beijing's future development. Importantly, one of the "main objectives" of the Plan is for Beijing to become a premier "World City With Chinese Characteristics." Given the hierarchical and nested nature of China's developmental planning system, Beijing's 12th Five-Year Plan is nested in national development objectives and policies.

Further, this application of scenario planning will decrease uncertainty by examining the consequences of potential disruptions to the current development trajectory of Beijing Municipality. These disruptions can occur through a variety of modes and drivers in the environment (for example a dramatic decrease in the water supply or air quality); in economic structure and performance (for example decreases in service sector {financial} employment); or in social systems (for example, a reluctance to implement changing *hukou* policies of the national government).

Further, recognizing that "no scenario can provide an accurate description of the future. Their role is to help managers recognize, consider and reflect on the uncertainties they are likely to face."¹²⁵ In this application known – rather than unknown – disruptions to the path to global city status were identified and applied to the creation of scenarios. These plausible disruptions to world city status are, of course, predicated on existing trends associated with global city status.

Narrative Scenarios

"Theories of scenario planning have described scenarios as aids for re-perceiving (Wack, 1985), decision wind-tunnels (Lempert, Scheffran and Sprinz, 2009), and memories of the future (Weirck, 1995)."¹²⁶ Particularly, the use of scenarios when planning on an urban scale can aid decision-makers in re-imagining an issue confronting

a municipality (i.e., re-perceiving), testing a potential solution to a problem experienced by a municipality (i.e., decision wind-tunnels), or by presenting a narrative description of a unique futures for the municipality (i.e., memories of the future). However, achieving any one of these goals is made substantially more difficult by unfamiliarity with the methodology, potentially large data sets, as well as, uncertainty about the shape or course of the future.

Multiple techniques for improving scenario planning have been developed – including narrative-based scenarios – to reduce complication and improve decision-making. It has been suggested, “scenario planning methodologies can benefit from using diverse narrative techniques to craft compelling and infectious visions of the future.”¹²⁷ In this manner narrative scenarios are stories about or memories of the future. Employing this type of narrative scenario analysis (e.g., story telling) allows the researcher to compress large data sets and uncertainty about the future into simple stories identifying a group of plausible futures.

For this reason, “story telling has long been a central ingredient in scenario planning, with key players, such as Shell, hiring professional story tellers like Betty Sue Flowers to work with management to better imagine scenario stories (Flowers, 2003).”¹²⁸ This narrative technique of exploratory scenario analysis allows the researcher to simplify large data sets and varied futures using causal logic to initiate a discussion about the implications and/or impacts of particular trends or actions impacting an organization. Preparing narrative scenarios that are credible and persuasive is a complex task. But, “narrative is an important mechanism through which meaning coalesces and is

conveyed.”¹²⁹ And, in this sense, the substance of a narrative scenario is likely less important than its ability to impact decision-makers.

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4 - Global Cities Indicators / Variables

It is widely believed that the “value of scenario planning lies in its providing a coherent, systematic and collaborative framework for *assessing the long-term effects of changes in key influencing factors*”^{130,131} Consequently, to produce a meaningful exploratory scenario for Beijing, it is first necessary to identify those variables and/or indicators that are associated with the development of a global city and then second, establish which metrics closely reflect those variables and/or indicators. These steps in the process can be accomplished through a review of academic and professional literature on the subject of world cities.

Global cities are commonly identified in academics by multiple recognizable characteristics and/or variables. For example, “Hall’s much documented criteria for identifying a world city were twofold: (1) cities possessing political power functioning as locales [for] national government and attracting’ international political organizations; (2) cities with economic power being national centers of trade, banking and finance.”¹³² Although these two criteria describe important characteristics of world cities (political and economic power), they fail to capture the broad characteristics and/or variables that attract international political organizations and companies focused on trade, banking and finance to locate in these unique urban areas. Further, these criteria fail to recognize that although a city can do much to alter its economic circumstance its political role (e.g., as a capital city for a state or nation) is unlikely to change.

A more robust set of indicators is where “Edwards (1999, p. 68) summarizes six major elements for cities to transform themselves into knowledge-based “high-tech, high-income growth centers of tomorrow:”

- A close association with nearby colleges and universities to supply a highly educated and technically skilled work force.
- A modern information infrastructure that includes strong telecommunications capabilities.
- A cost-effective transportation infrastructure that connects with national and international markets; access to venture capital to support a healthy R & D base.
- An attractive living environment and a well-defined lifestyle.
- An aggressive economic development force that understands how technology creates growth.^{133, 134}

For this case study of Beijing, Edwards' more comprehensive list of variables is well augmented by the work of Hills and Eg who suggest that Asian global cities have the following unique attributes:

- An enlightened mode of governance with a reinvented government working in partnership with the private sector, civil society and the third sector.
- An active and creative member in developing innovative technology and economic activities to further sustainable global and local development.
- A place not just rich in economic capital but also great in nourishing human, social, cultural and environmental capital.¹³⁵

Indices of Global Cities

Inopportunately, these criteria are much too broad for meaningful measurement and, in some instances are not applicable to Beijing.¹³⁶ On the other hand, the variables and metrics employed by the publishers of global city rankings (in particular the Martin Prosperity Institute, the Economist, A T Kearny, Z Yen, and McKinsey Global Institute) are much more specific, easily identifiable and measurable. Despite the unique emphasis of each group (either academic or commercial) there is substantial commonality between

the five major private and public sector indices of global cities that suggest a global city should broadly demonstrate multiple specific attributes.

For example A.T. Kearney¹³⁷ in the preparation of their annual Global Cities

Index uses five dimensional indicators:

Human Capital – foreign-born population, international student population, population with tertiary degrees, and number of international schools representing 30% of the index.

Business Activity – number of Bloomberg 500 companies, number of Top 40 Global companies, breadth of Capital Markets, Air Freight, Sea Freight, and International Congress and Convention Association level conferences representing 30% of the index.

Information Exchange – access to TV news, News agency bureaus, number of broadband subscribers, freedom of expression, and online access representing 15% of the index.

Cultural Experience – museums, visual and performing arts, sporting events, international travelers, culinary offering, and sister cities representing 15% of the index.

Political Engagement – number of embassies and consulates, Think Tanks, international organizations, Political conferences, and local institutions with global reach representing 10% of the index.

The Economist Intelligence Unit's (EIU)¹³⁸ research program, commissioned by Citigroup, built the Global City Competitiveness Index that ranks 120 cities along eight major dimensions:

Economic strength (30%) - To gauge the economic strength of cities, we studied indicators that analyze market size, purchasing power and growth prospects. For market size estimates, nominal GDP data in local currency units were collected. We then used International Monetary Fund's implied purchasing power parity (PPP) conversion rate to calculate nominal GDP (PPP) in US dollars. This allows us to compare the size of city economies, by taking into account the cost of living at the national level.

Another aspect of economic strength, particularly for emerging-market cities, is the size of the middle class, a segment that contributes greatly to economic growth. For the purposes of this study, we define the middle class as households

with average annual consumption above US\$14,000 (PPP). Finally, to identify and reward cities with robust growth potential, we examine cities' real GDP growth prospects over the next five years. In many cases, constrained by the unavailability of credible data, the Economist Intelligence Unit relied on estimates and approximations.

Human capital (15%) - A large, skilled, healthy and productive labour force is a key driver of competitiveness, particularly for emerging-market cities with favourable demographics. To study the attractiveness of a city on this dimension, we gathered information on the size of working-age population, quality of education and healthcare. Additionally, we also examined entrepreneurial and risk-taking mindset among citizens, as such attitudes drive new businesses, which in turn create jobs and add to the overall growth. This indicator, however, is not a measure of the environment for entrepreneurship. Finally, we believe the strength of a city's labour force is not limited to its resident population. Ease of hiring foreign nationals, defined in our study as low immigration barriers and flexible regulations over hiring foreigners, makes a city more attractive to businesses (e.g., Singapore).

Institutional effectiveness (15%) - To assess cities' institutional effectiveness, we examined indicators that encourage stability of regulations, predictability and fairness of political processes and effectiveness of the system. Local government's fiscal autonomy and government effectiveness were weighted relatively higher within this category. Local governments' with greater autonomy to raise revenues and invest in the development of the city, like New York, are believed to be more effective in formulating and implementing growth strategies.

Financial maturity (10%) - For this category, we evaluated the breadth and depth of the city as a financial cluster. On one extreme, there are established global clusters (e.g., NY, London, Singapore, etc), which are both broad (diverse) and deep (specialist), covering various industry segments such as asset management, investment banking, insurance, professional services and wealth management. On the other end of the scale are cities which don't even have adequate transactional financial infrastructure.

Global appeal (10%) - We studied the attractiveness of each city by considering the presence of globally renowned institutions (Fortune 500 companies, world-renowned think-tanks, top universities and colleges) headquartered in the city, and its international orientation. This mix is an indication of diversity, global attractiveness and civil society strength in each city, factors which arguably add to a city's competitiveness.

Physical capital (10%) - This category reflects the availability of and access to developed and efficient infrastructure (road networks, international links, public transport and telecommunications), which helps businesses operate more efficiently. It also has an element of quality of life for residents and visitors.

Emerging-market cities are increasingly harnessing telecommunications in much the same way as developed-market companies harnessed the railroads and the telegraph. Taking note of this great equaliser, quality of telecommunication infrastructure has been included as a prominent indicator in the physical capital category.

Environment and natural hazards (5%) - Environmental factors may affect both decision to start a new businesses and an individual's desire to visit or live in the city. We analysed the city government's commitment to maintain environmental standards by collecting data on codes, standards and strategies related to air, water and waste. This category also includes natural disaster hazard risk. As it is difficult to conduct an accurate, scientific assessment of natural disaster risk, we looked at the frequency of past events to ascertain hazard levels in each city.

Social and cultural character (5%) - This category encompasses several liveability aspects that add dynamism to a city. We argue that these factors add vibrancy that attracts talent and enhance a city's global appeal. Cultural vibrancy of the city has an additional benefit: the potential to develop the creative industries' cluster, which in turn generates greater economic benefits through the multiplier effect."¹³⁹

An analysis of the variables used by different institutions and experts to rank global city status (both academic and commercial) found commonality among several variables for purposes of evaluating cities for global status. Based on this analysis, in this dissertation the following five dimensions (i.e., variables) were used in the development of exploratory scenarios:

Environmental Quality. Superior air quality is a recognizable attribute of global cities. Good air quality is achieved through improvements in transportation, industrial process, and building technologies resulting in reductions in fossil fuel (e.g., gasoline and coal) consumption. This can be partially achieved through the introduction of emissions standards and residential development along major transit corridors (TOD) that facilitate efficient commuting, particularly by rapid transit; decrease congestion; and reduce vehicle related emissions; as importantly, movement to renewable or less polluting fossil (e.g., natural gas) fuels for the production of electricity.

Cosmopolitanism. A high percentage of creative endeavors (art, theater, fashion, music, gastronomy, etc.) and foreign-born residents is an indicator of global city status. This can be achieved by increasing employment opportunities for foreign-born residents through expanding the presence of multi-national firms and a

commitment to creative enterprises, although national immigration policies are a significant factor affecting in-migration of foreign expertise. This quality of life measure is an “important factor in the intercity competition to attract scientific, high technology and research-based industry.”¹⁴⁰ The presence of a large number of multi-national firms, international universities and research facilities, as well as, artistic venues (theaters, museums, etc.) are fundamental elements of global cities.

Key Infrastructure. Abundant natural (e.g., water and food supply) and built (e.g., subways, waste processing) resources are a key feature of global cities. Providing adequate resources can be achieved through construction of infrastructure and/or regulation of consumption. Provision of key infrastructure is a common feature of global cities.

Economics. High quality employment and investment opportunities must be present to sustain global cities. Further, “those cities with the highest level of economic development have now generally solved problems of industrial pollution (partly because of the movement of these industries out of such cities) and are now turning their attention to consumer related pollution such as that created by cars.”¹⁴¹

Social Cohesion. The inclination of residents (with a local hukou, foreign nationals and the floating population) to cooperate with the government and each other in order to collectively prosper.

Further, the metrics and indicators employed within the current international indices prepared by the Martin Prosperity Institute, the Economist, A T Kearny, Z Yen, and McKinsey Global Institute to rank global cities have been evaluated and a subset of thirteen indicators/metrics were selected to frame this research regards the development of Beijing into a global or world city with Chinese characteristics. These indicators are:

- 01) International headquarters
- 02) Foreign born population (student & professional)
- 03) Mass rail transit capacity
- 04) Household Income
- 05) Population density (Built up area / City Proper)
- 06) Affordability

- 07) Gross Domestic Product
- 08) Creative Employment
- 09) Human Development Index (HDI)
- 10) Income Inequality (GINI Coefficient)
- 11) Political Engagement
- 12) Environmental Quality
- 13) Business / Investment Climate

These thirteen indicators and their relationship to world city formation are fundamental to this research and, in each case it was possible to identify a specific metric to be examined in detail that supported the indicators, as follows:

- 01) Number of Fortune Global 500 Headquarters
- 02) Total foreign-born population
- 03) Commuter rail length
- 04) Income per capita
- 05) Core City Population density per kilometer²
- 06) Cost of Living Index
- 07) GDP per capita
- 08) Percentage of creative employment
- 09) Human Development Index (HDI)
- 10) National GINI Coefficient
- 11) Political Engagement Rating (A.T. Kearney)
- 12) PM 2.5 air quality readings
- 13) Urban Competitiveness (The Economist)

These metrics were selected based on 1) their use by various global city ranking agencies; 2) the current policy interventions outlined in Beijing's 12th Five-Year Plan corresponding to global city variables for which data or context analysis produces time series data and 3) the potential efficacy of a municipal government having a substantial impact on the metric/variable. The policy interventions outlined in the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing (2010-2015)*

corresponding to each of the global city metrics employed in the assessment include:

- 01) Attract more multinational corporations (p. 43)
- 02) Educations for foreign students will be promoted (p. 39)
- 03) Travel by public transportation in the central urban area will account for 50% of all traffic (p. 22, 155)
- 04) Narrowing the income gap (p. 22)
- 05) Efforts will be made to enhance rural urbanization and modernization (p. 149)
- 06) Within five years, one million units of policy housing will be either constructed or purchased and those eligible families applying for such homes will be guaranteed an apartment (p. 84)
- 07) Per-capita disposable incomes increasing at an annual rate of 8% (p. 21)
- 08) Tertiary industry exceeding 78% of economic output (p. 21, 45)
- 09) Employing high-ranking talented people from various countries (p. 17)
- 10) Narrowing the income gap (p.22)
- 11) Channels will be expanded to the public to participate in public affairs and increase the openness and transparency of public affairs (p. 93, 97)
- 12) 80% of all days will have national Grade II or better air quality (p. 22)
- 13) The city's GDP will increase by an average annual rate of 8 percent (p. 21)

Collectively, these five dimensions (variables) and the associated thirteen indicators/metrics, as well as, the related municipal policy goals are both the foundation for assessing the current global city status of Beijing, as well as, the narrative trend-based scenario regards the trajectory of development between now and the year 2030.

Obviously, this list of variables, indicators and metrics is neither exhaustive nor complete, but that is the beauty of exploratory scenario analysis; variables employed need not be exhaustive to yield meaningful robust output.

Asian Global City Data and Beijing Trends

To resolve the research questions, as well as, formulate the Status-Quo Scenario regards the development of Beijing into a premier “World City with Chinese characteristics”¹⁴² it is essential to 1) compare and contrast the present-day values of the selected global cities metrics when contrasted with other Asian global cities, as well as, 2) identify and project existing trends utilizing these metrics for the city of Beijing.

Collectively, these two groups of data (whether extant in the public record or deduced from content analysis of media in China) allow us to 1) determine current status of Beijing relative to other world cities, as well as, 2) develop a projection (the Status-Quo Scenario) for the global city development trends of Beijing absent additional policy interventions by the Municipal government.

The cities in Asia that are generally acknowledged to have achieved global city status and with which Beijing is currently compared among the major ranking agencies are Singapore, Tokyo, Hong Kong, and Seoul. They are ranked as follows within those indices:

Table 1 – Ranking of Global Asian Cities

	Martin Prosperity (2015)	The Economist (2012)	A. T. Kearney (2014)	Z Yen (2014)
Hong Kong	4	4	5	3
Seoul	11	20	12	7
Singapore	6	3	9	4
Tokyo	3	6	4	5

Also included, for purposes of comparison, in this report are New York City (often described as the number one global city) and the city of Shanghai. Although Shanghai has not yet achieved undisputed global city status within the parameters of the existing global city indices, it is included because it is universally agreed to be China's most global city and thus serves as a useful benchmark and contrast to Beijing.

Asian World City Data-base

As noted above, of the many cities in Asia on the path to global city status, a few have already achieved this status as measured and identified by the various world city indices. For those cities that have achieved premier global city status – Singapore, Tokyo, Hong Kong, and Seoul – there is substantial data on the characteristics associated with the identified metrics:

- 1) Singapore** is an island city-state off the southern tip of the Malay Peninsula, approximately 90 miles north of the equator. The population of Singapore is about 5.4 million of which over 1.5 million are foreign-born. It is one of the world's major commercial hubs with one of its busiest ports and a large banking / financial sector. Singapore has an authoritarian system of government and its population is highly educated.

- 2) **Tokyo** is the capital of Japan, with upwards of 36.9 million people, making it the most populous city on earth. Tokyo is a major hub in the global system of international finance and houses the headquarters of many of the world's largest investment banks. Further, it serves as the hub for Japan's transportation, electronics and broadcasting industries.
- 3) **Hong Kong** is on the southern coast of China near the Pearl River Estuary. Hong Kong exhibits extremely high population density, housing over seven million inhabitants within a landmass of 1,104 km². Beginning in the 1980 Hong Kong became the major entrepôt between the world and China. The city is a major global trade hub and financial center and is ranked fourth on many lists of world cities after New York City, London, and Tokyo.
- 4) **Seoul** is the capital of South Korea and the world's second largest city with over 25 million people. It is home to over half of South Koreans along with 678,102 international residents. A leading technology hub the city boasts 14 Fortune Global 500 companies. Its transportation infrastructure is ranked as among the best in the world served by both high-speed rail and one of the most extensive subway systems on the planet.

Additionally, for purposes of comparison, where available we have provided data for both New York City and Shanghai. These statistics are derived from multiple sources and in some cases represent different times / periods of measurement, however, they are useful for both illustration and comparison:

Table 2 – Metrics for Selected Global Cities

	Beijing	Hong Kong	Seoul	Singapore	Tokyo	Shanghai	New York City
Fortune Global 500 Headquarters 2014 ¹⁴³	52	04	14	02	41	08	17
% Foreign Born Population ¹⁴⁴	.5 ¹⁴⁵	8 ¹⁴⁶	3.1 – 4.1	29.23	2.42	0.89	36.8
Commuter Rail Length (km) ¹⁴⁷	527	174.7	327	152.9	195.1	337	373
Income Per Capita ¹⁴⁸	6,596 ¹⁴⁹	28,766	17,693	76,846	55,746	5,472	30,498
Population Density ¹⁵⁰	11,500	6,650 ¹⁵¹	16,700	8,350	4,750	13,400	2,050
Consumer Price Index ¹⁵²	52.97	77.36	83.67	97.87	85.41	57.07	100
GDP Per Capita ¹⁵³	15,422 ¹⁵⁴	366,838	362,128	425,155	743,826	289,899	1,406,000
% Creative Employment ¹⁵⁵	No report	5.5	9.4	1.8	11.2	7.38	8.0
National Human Development Index ¹⁵⁶	.791	.891	.891	.901	.890	.791	.914
National GINI Coefficient ¹⁵⁷	43.0	52.0	31.1	37.8	30.3	43.0	41.1
PM 2.5 Annual mean ¹⁵⁸	56	21	22	17	10	36	14
Political Engagement Rating (rank) ¹⁵⁹	7 th	40 th	19 th	16 th	4 th	18 th	2 nd
Urban Competitiveness ¹⁶⁰	55 th	9 th	10 th	8 th	3 rd	36 th	1 st

All data was located as footnoted with the exception of the percentage of “creative employment” and “percentage of foreign-born population” for the city of Beijing that is either “not reported” or was taken from a ‘news’ report in *China Daily* from May 2010. It should be noted that this failure of reporting data on the basis of standard measurements by Beijing Municipality makes ranking difficult, if not impossible for both private and public sector ranking agencies.

Beijing Trends Data-base

After identifying the appropriate global city variable, indicators and metrics as outlined in Chapter 3 of this study, a current trends database for Beijing was constructed based on the recent movement in values within the metrics. This database for Beijing was then utilized as the foundation for a unique scenario that reflects the status-quo conditions in Beijing and their associated trends over time.

This information is generally not published in the Beijing Statistical Abstract (which incidentally is only published in Chinese) and was instead compiled from the sources identified in Table 3 or by endnote. As with all other statistical information used in the preparation of global city rankings by private and public sector actors, availability and ease of access could be determinate in achieving the appropriate global city ranking. With little question, achieving global city status and recognition of that status by the major ranking agencies will require assembly and reporting of appropriate data to these organizations on a regular basis by the Beijing Municipality.

The metrics/variables trends have been developed for Beijing during the planning period. However, due to a lack of published data some trends must be imputed from content analysis of local, regional and international media:

Table 3 – Time Series Metrics for Beijing

Beijing	1990	1995	2000	2005	2010	2015	Trend
Fortune Global 500 Headquarters	NR	NR	NR	NR	NR	52	↑
% Foreign Born Population	NR	NR	NR	NR	NR	.5	⇒
Transit Rail Length (km) ¹⁶¹	39.93	NR	54.1	114	336	561	↑
Income Per Capita (disposable income of urban household, yuan)	NR	NR	12,463	17,653	29,072	40,321 ¹⁶²	↑
Population Density	NR	NR	NR	NR	NR	11,500	↓
Consumer Price Index	NR	NR	NR	NR	NR	52.97	↑
GDP Per Capita (yuan) ¹⁶³	NR	12,690	24,127	45,993	73,856	94,648 ¹⁶⁴	↑
% Creative Employment	NR	NR	NR	NR	NR	NR	NR
National Human Development Index	NR	NR	NR	NR	NR	.791	↓
National GINI Coefficient	NR	NR	NR	NR	NR	43.0	↑
Political Engagement Rating (rank)	NR	NR	NR	NR	NR	7	⇒
PM 2.5 Annual mean	NR	NR	NR	NR	NR	56	⇒

The nearly complete lack of historical data on measures of world city status for Beijing Municipality is troubling. There is little reason – beyond the political – to explain the lack of published data of these key measures. Although the municipality and other organizations (including the United States) are currently publishing many of these

measures, reconstruction and distribution of contemporary and historical data by a well respected private or public sector organization within China focused on global city development, such as the Chinese Academy of Sciences, would be beneficial to all.

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131 Emphasis added.

132 Chubarov, I., & Brooker, D. (2013). Multiple pathways to global city formation: A
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134 Edwards, R (1999) Information technology: the key to global growth IT growth is
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136 A “civil society” and “third sector” are only now emerging in China and in many
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137 “A.T. Kearney is a leading global management consulting firm with offices in more
than 40 countries.” see <http://www.atkearney.com>

138 EIU is “the research and analysis division of The Economist Group, the sister
company to The Economist newspaper. Created in 1946, we have nearly 70 years’
experience in helping businesses, financial firms and governments to understand
how the world is changing and how that creates opportunities to be seized and risks
to be managed.” see <http://www.eiu.com/home.aspx>

139 Hot spots: Benchmarking global city competitiveness. Economist Intelligence Unit,
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142 City of Beijing. (2010) The Twelfth Five-Year Plan for the National Economic and
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144 <http://www.worldcitiescultureforum.com/indicators/foreign-born-population>

145 http://www.chinadaily.com.cn/cndy/2010-05/05/content_9810192.htm

146 <http://www.gov.hk/en/about/abouthk/facts.htm>

147 http://en.wikipedia.org/wiki/List_of_metro_systems

148 [http://www.worldcitiescultureforum.com/indicators/average-income-capita-year-
ppp](http://www.worldcitiescultureforum.com/indicators/average-income-capita-year-ppp)

149 http://www.china.org.cn/top10/2014-03/13/content_31769827_9.htm

150 <http://www.citymayors.com/statistics/largest-cities-density-125.html>

151 <http://www.gov.hk/en/about/abouthk/factsheets/docs/population.pdf>

152 <http://www.numbeo.com/cost-of-living/rankings.jsp>

153 <http://www.worldcitiescultureforum.com/indicators/gdp-pppmillion>

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5 – Application of Methodology to Beijing

The application of exploratory scenario analysis (detailed in Chapter 3) to develop a narrative-based scenarios for the Beijing Municipality is validated herein beginning with a discussion of the applicability of this technique, as well as, a review of the utilization of trends in developing scenarios, the plausibility of the proposed scenario, and an examination of the chain of causation associated with the output (i.e., a narrative-based scenario).

The development of a narrative scenario using trend-based exploratory analysis is a complex task informed by review of dozens of Journal articles and monographs on the topics of global/world cities, livability, environmental issues, sustainability, economic climate, demographics, and scenario analysis. This learning has been applied to Beijing in particular and China in general. Paralleling Schwartz, “by extrapolating the interplay of driving forces, predetermined elements, and critical uncertainties, a set of scenarios spanning the space of plausible futures is developed and fleshed out (Schwartz, 1996)”¹⁶⁵ applied to the topic of Beijing’s current and future status as a global-hub or world city.

Applicability of Exploratory Scenario Analysis

“Scenarios are not new to planning. Indeed, the use of the term scenario is quite common across a range of planning disciplines, from business-strategic planning to urban-transportation planning.”¹⁶⁶ However, employing scenario planning/analysis to examine Beijing Municipality’s desire to achieve world or global city status is both innovative and unprecedented. Beijing planners and academics, have previously applied scenario planning in multiple studies of land use change,^{167,168,169} energy consumption/carbon emissions,^{170,171,172} population distribution¹⁷³ and, even, urban

growth.¹⁷⁴ In the United States, scenario planning is currently employed in several statutory applications associated with urban planning. Each of these applications of scenario planning is demonstrative of the validity of the application or use of this methodology in the development and/or review of decision-making associated with urban planning for Chinese cities, in particular Beijing and Shanghai.

“Scenario planning is a strategic-planning approach well-known for its ability to get decision makers to think outside of the box, and to enable organizations to make decisions in a world of increasing uncertainty and unpredictability and to produce robust strategies.”¹⁷⁵ In this application, scenario planning is employed to benefit decision-makers in Beijing Municipality as they plan, evaluate and prioritize interventions in support of achieving global city status. By preparing plausible narrative scenarios based on the causal relationships between and among variables within world cities and potential interventions, decision makers can more effectively prioritize action to achieve the preferable future.

Ultimately, “the validity of the scenarios and results are based on the validity of the underlying data and multiple assumptions on policy decisions and other factors that are built into the models.”¹⁷⁶ In this regard, although the foundational data/information applied in this application of scenario planning appears valid, it is important to recall that the data/information is collected, largely, from unverified sources, sometimes in a different language, and from or about a country with a unique political, social and economic system that has, in the past, been sensitive to foreign observation, data collection and critiques. Despite the aforesaid caution, the data employed in this report

has been broadly published, has typically been available for many years and has stood unchallenged within the academic or journalist communities.

To be effective all “scenarios must be believable, internally consistent, and compelling if they are to influence strategic decision-making.”¹⁷⁷ In particular, “each scenario must have indicators and signposts to track the probability of each particular scenario becoming reality.”¹⁷⁸ In this application those indicators and signposts (i.e., metrics) are specifically identified as being closely associated with achieving global or world city status. Further, to influence decision-makers the scenarios must be, “a coherent, plausible, and challenging picture of the confluence of patterns, environmental forces, and players.”¹⁷⁹ Using the indicators/metrics broadly employed by private/public sector organizations that prepare rankings of global cities meets this test of coherency and plausibility. Finally, to persuade planners, “scenarios must be compelling, vivid stories that allow the future to easily be seen in the reader’s mind.”¹⁸⁰ This application of scenario planning/analysis meets these broad measures of validity of the methodology.

Utilizing Trend-based Scenarios

In this application, “scenarios are constructed as a contingency framework that specifies how various possibilities combine to produce a variety of political, technological, or external event situations in which the strategy may have to function.”¹⁸¹

Scenario analysis in this application was implemented as follows:

- Step 1** Identification and analysis of key variables and their associated indicators. There are particular variables and associated indicators that closely relate to the development of world cities. In this application it is recognized that these variables/indicators are central to assessing achievement of global city status.
- Step 2** After identification and analysis of the indicators of global city status thirteen metrics (for which Beijing baseline and time series

data exists) were selected and tracked from 1990 through 2015 for application in the scenario.

- Step 3** A database of the referenced indicators/metrics was created that included Beijing, as well as, existing or aspiring Asian global cities (i.e., Singapore, Tokyo, Hong Kong, Shanghai and Seoul). This database has two components: (i) current “stock” indicators for all cities, and (ii) current trends (of the same variables) for Beijing, based on behavior of these indicators since 1990.
- Step 4** The non-intervention scenario (e.g., status quo) for Beijing 2030 based on the extrapolation of existing trends was prepared.
- The narrative content of the scenario is based on: (i) past Beijing trends, (ii) knowledge of impacts of similar stressors upon world cities, (iii) knowledge of development trajectories of existing global cities.
- Step 5** The final step is to evaluate the narrative scenario for logical consistency, causality, as well as, plausibility.

The development of the Status-Quo Scenario will inform key stakeholders and planners within the Beijing megapolitian region, as well as, the broader East Asian urban planning community in regard to possible development path of Beijing, as well as, plausible obstacles to achieving world city status, and remedial actions which could be taken to improve the probability of achieving world city status.

Chain of Causation

Perhaps the most difficult challenge facing practitioners of scenario analysis and planning is the expectation of demonstrating causation between the information, data and trends presented as the basis of a narrative scenario. This is particularly true when building scenario based on a limited set of data points and/or trends. “Ideally, each scenario should be judged separately, but if several scenarios are used, a given scenario

will be judged in relation to the other scenarios.”¹⁸² For this reason particular effort has been focused on the causal basis for the proffered scenario.

Demonstrating causation within the Status-Quo Scenario was accomplished in this report by: (i) Using real world examples, information and trends available and/or observable from broadly published public sources that, if inaccurate, would be critiqued by academic, public, and/or private sector stakeholders; (ii) By demonstrating and/or building a chain of causation between a particular data point and the conclusion of the individual scenario developed for this report. For example, the relationship or chain of causation between environmental quality and global city status is easily established by identification of this measure in multiple indices of global city status.

Some suggest that the chain of causation test in scenario planning is subjective. This is not the case in this report. The chain of causation in this scenario suggests that existing trends will continue without the type of interventions proposed in the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing (2010-2015)*. And, of course, all data points employed in this scenario reflect long-standing trends in the Beijing Municipality.

Plausibility of Proposed Scenario

For urban planners employing scenario analysis, the plausibility of the narrative scenario is instrumental to build both believability and demonstrate internal consistency for the design, prioritization and implementation of new urban policies. Therefore, to be effective (i.e., influence decision-makers), the proposed scenario must demonstrate plausible futures. Plausibility, for this purpose, is generally defined as, “reasonableness of belief or expectation.”¹⁸³ In this regard, the scenario contains reference to specific

actions, data and/or information, as well as, pre-existing trends within the reported data that support the plausibility of the *Status-Quo Scenario*. The plausibility is further supported through use of contextual analysis.

Based on the well-published sources that are the basis of these observations and/or measures it is possible to assure the plausibility of a future scenario for Beijing by asking does the scenario contain “indicators and signposts to track the probability of each particular scenario becoming reality?”¹⁸⁴ This level of “credibility is important in scenarios, particularly those that are most unlike today and most negative.”¹⁸⁵ The formulated scenario meets this definition of plausibility by employing references from broadly reported sources, the same sources that would likely be employed by private or public sector organizations analyzing the global city status of Beijing.

Narrative Output

“Scenarios are in widespread use in planning circles for a variety of purposes. When specifically used in connection with planning under uncertainty, planners are confronted with several scenarios (usually 3-5) and asked to prepare for each.”¹⁸⁶ In this instance one *plausible* narrative-based scenario was developed that outlined variables and metrics that could *causally* disrupt Beijing’s advance to world city status and that can help planners prioritize interventions to meet their goal of global city status. Rather than predict the future, this level of scenario analysis is specifically designed to reduce uncertainty when selecting interventions to achieve world city classification.

As previously indicated, this application of scenario planning was not intended to describe or forecast the most likely or probable future of Beijing; rather it is a thought experiment to identify the best course of action to achieve the preferred goal of global

city status based upon existing trends among global city variables/metrics. In this regard, “the goal of scenario planning is not to produce a more precise portrait of tomorrow, but rather more sound and robust decisions today.”¹⁸⁷ In this application, “the goal of scenario planning is to provide a comprehensive view of the interrelated pros and cons of potential futures by breaking out of traditional decision-making silos.”¹⁸⁸

Beijing Scenario

The following exploratory scenario reflects the variables impacting Beijing’s path to achieving (or not) global city status within the planning horizon (2030). This scenario is a projection of the status quo. This scenario is not intended to describe the most likely or probable future of Beijing. Rather the scenario is a thought experiment that is intended to provoke long-term thinking regards urban policies for achieving global city status. Review of this effort should assist decision-makers regarding potential resource allocation and the design of policies and procedures (interventions) by the Beijing Municipality and national government of the People’s Republic of China.

Working Hypotheses

Working hypotheses are constructed as statements of expectations, which are linked to the exploratory research methodology and are used as the conceptual framework for both quantitative and qualitative research. The subject of this report, assessment of the emergence of Beijing as a global city with Chinese characteristics, is based upon the following set of hypotheses:

- 1) Achieving world city status is desirable for economic, social and environmental reasons.
- 2) Potential disruptors (poor environmental quality, lack of cosmopolitanism, key infrastructure, collapse of the business / investment climate, or poor

social cohesion) increase the uncertainty of achieving global city status by decreasing the livability and/or economic development of the city.

- 3) Trend-based exploratory scenario analysis improves decision making in urban planning by reducing uncertainty.
- 4) Introduction of trend-based exploratory scenario analysis, if acted upon, can reduce uncertainty in achieving global city status.
- 5) “Scenario planning can be improved by being more explicitly narrative-oriented. Narratives are a common and accessible way to think about cause-and-effect relationships and order perceptions of the world.”¹⁸⁹
- 6) Current urban trends (e.g., the status quo) in Beijing will not produce a global city with Chinese characteristics.
- 7) Failure to meet private and public environmental and infrastructure needs stifles economic development.

These working hypotheses were developed prior to the collection of data and are provisionally accepted as the basis for further investigation. The working hypotheses give direction to research supporting creation of scenarios. Caution is in order; often the data/information employed in this analysis are from an unverified source, sometimes not in the English language, and from a country with a unique political, cultural and economic system.

Narrative Scenarios

“Scenarios are descriptions of the possible futures of an organization, a society, a nation, etc. Their purpose is to help analysts and decision makers to understand the variety of events that may come to pass and their possible impact. A scenario is not a forecast, although it may contain or be based on forecasts.”¹⁹⁰ In this research the process is broadly defined as the preparation, exploration, and evaluation of a potential future used to assist decision-makers select robust policies that will advantage particular futures.

In this sense, this scenario is a radical oversimplification of the future within broad possible ranges.

To be “coherent, plausible, and challenging” (Willburn, 2011) scenarios should incorporate existing data about the people and place under study. For example, based on “context analysis” of local, regional and international publications regards Beijing, it can be deduced that unlike certain other, particularly Western, cultures, “living in the city centre, where the ‘privilegentsia’ traditionally lived, usually indicates higher social status in China (Gaubatz 1999b). While some high-income households move to the suburbs because of changes in their lifestyle (Wang and Li 2004), most low-income workers reside in the suburbs because they cannot afford the high-price housing in the central urban areas, even if their job is located in the city centre.”¹⁹¹

The use of context analysis to enhance scenario analysis, throughout this research, has lent both dimensionality and credibility to the prepared scenario.¹⁹² The purpose of this type of analysis is to ensure that the scenario is informed by all of the contextual factors that might affect its direction or trend. Context analysis in this application includes review of the major daily English language news media in Beijing that represents the external environment in which the municipal organization operates.

Global City Scenarios

The term ‘scenario’ has many meanings, it will be defined in this dissertation as a “script-like characterization of a possible future presented in considerable detail, with special emphasis on causal connections, internal consistency, and correctness.”¹⁹³ Thus the creation of global city scenarios of a plausible future of Beijing required identification of the unique forces, specific to Beijing, that may drive change including: governmental

policies (district, municipal and national), economic development context and drivers, environmental and technology constraints, as well as, human behavior and demographics.

Thus, this scenario is a radical oversimplification of the future within broad possible ranges intended not to forecast the future but to improve decision-making. “In a field accustomed to heavy dependence on quantitative-planning methods, skepticism might be strong for the seemingly qualitative approach embodied in scenarios. In this sense, it is important to keep in mind that scenario planning is not intended to replace quantitative planning, instead it is intended to augment traditional-planning techniques.”¹⁹⁴ Scenario planning utilizes relevant quantitative analysis, essentially processing such data to yield a higher level of conceptualization. Far from trying to predict a future for Beijing, this scenario was developed to be used as part of a larger process to improve the efficacy of urban policy-making and planning.

In this application, “far from trying to specify an exact future . . . scenario planning results in a range of possible futures, precisely because the future cannot be known.”¹⁹⁵ It should be clear that the “real” future of Beijing will not be the proposed scenario, but that Beijing’s future could contain some elements of the proposed scenario. Therefore, the goal in the creation of this scenario is to increase the likelihood of those actions (interventions) that lead to a desirable (preferred) future and to avoid those policy options/activities that have low efficacy or lead to an undesirable future for Beijing Municipality.

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6 – Status-Quo Scenario for Beijing

Preparation of a *Status-Quo Scenario* for Beijing’s development to 2030 based on variables associated with world city status requires a full understanding of the city’s present global city status based on the characteristics of such cities proffered in Chapter 4. Currently, among the five published indices of global city status (i.e., Martin Prosperity Institute, the Economist, A T Kearny, Z Yen, and McKinsey Global Institute) Beijing Municipality does not appear amid the top tier of premier world cities. These rankings (Table 4) reflect the fact that outside of the narrow development measure of Gross Domestic Product, as employed by the McKinsey Global Institute, Beijing is not now a premier global city.

Collectively, these rankings are indicative of the existing gap between the established premier world cities (e.g., London and New York) and Beijing Municipality. Indicators describing the variance between leading world cities and Beijing are the basis for formulation of strategies, later in the thesis, likely to be most efficacious in achieving premier global city status. In fact, it is precisely these gaps between the leading global cities and Beijing that must be resolved if Beijing is to achieve premier world city status.

Table 4 – Published Rankings of Global Cities¹⁹⁶

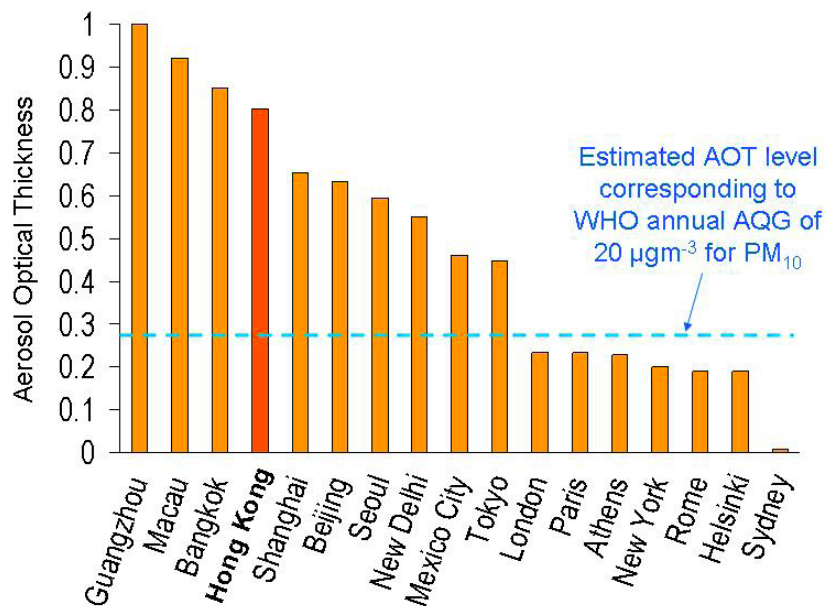
Rank	Global Economic Power Index (Martin Prosperity Institute)	Global City Competitiveness Index (The Economist)	Global Cities Index (AT Kearney)	Global Financial Centers Index	Global City GDP 2025 (McKinsey Global Institute)
1	Tokyo	New York	New York	London	New York
2	New York	London	London	New York	Tokyo
3	London	Singapore	Paris	Hong Kong	Shanghai
4	Chicago	Paris (tie)	Tokyo	Singapore	London
5	Paris	Hong Kong (tie)	Hong Kong	Tokyo	Beijing
6	Boston	Tokyo	Los Angeles	Zurich	Los Angeles
7	Hong Kong	Zurich	Chicago	Chicago	Paris
8	Osaka	Washington DC	Seoul	Shanghai	Chicago
9	Washington, DC (tie)	Chicago	Brussels	Seoul	Rhine-Ruhr
10	Seoul (tie)	Boston	Washington DC	Toronto	Shenzhen

Beijing's Global City Gap

Among the five broad dimensions of global city status identified in Chapter 4 there is a measurable difference between Beijing and the premier global cities in the following elements:

Environmental Quality. A superior environment – particularly air quality – is a recognizable characteristic of the premier world cities. And, although several global cities have suffered poor air quality, there is currently a substantial gap between the air quality experienced by residents of Beijing and the global cities of London and New York (Figure 2). The gap in environmental quality is not restricted to the air, rather, on a variety measures of environmental quality (water supply and quality, waste collection and disposal, open space, etc.) Beijing Municipality fails to meet the high environmental standards of the leading global cities.

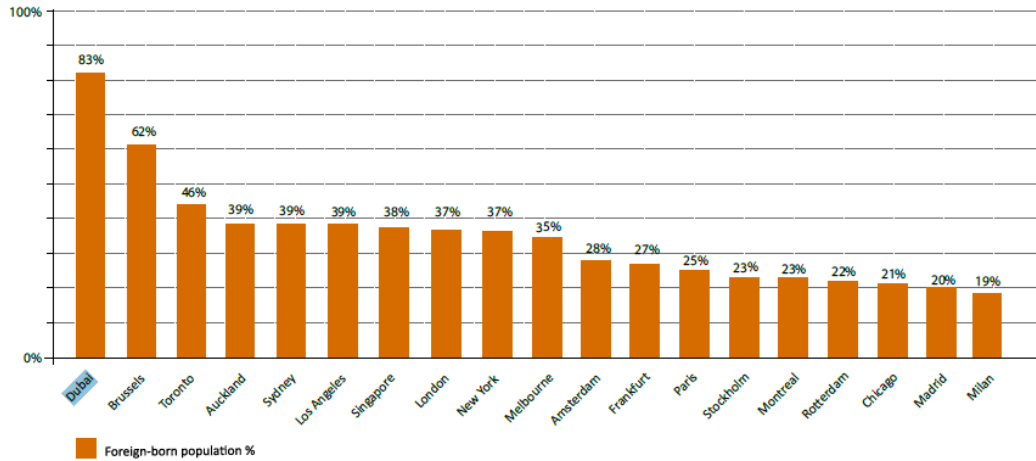
Figure 2 – NASA Global Air Quality by City in 2011¹⁹⁷



Cosmopolitanism. Although still poorly defined in the literature, cosmopolitanism is an important element of leading global cities. Among other metrics, this characteristic has been generally measured by the percentage of foreign-born residents in an urban region. High cosmopolitanism is not universal among global cities (both Seoul and Tokyo have a relatively low percentage), however, a high percentage of foreign-born residents is an indicator employed within multiple indices of world city status to define cosmopolitanism, and by extension, an important contributor to world city status. With less than 1 percent

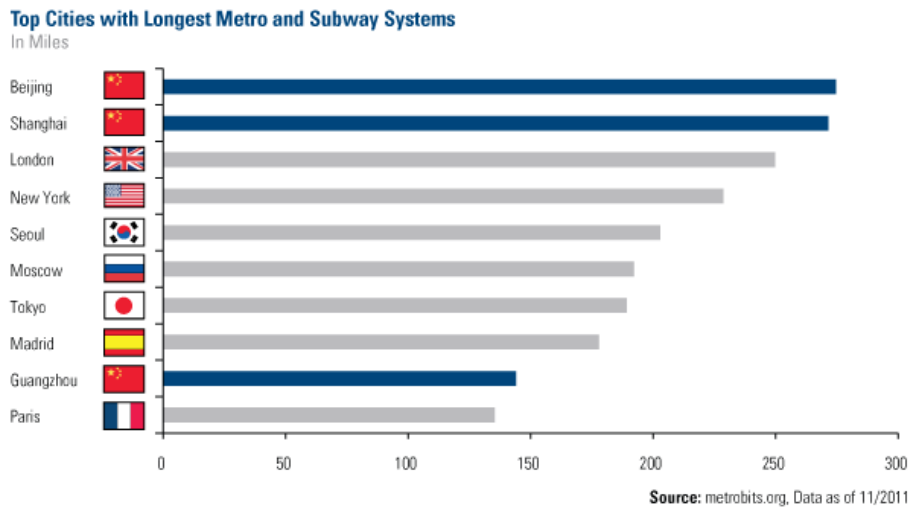
foreign-born residents, there is a substantial gap between Beijing and the premier global cities of New York and London which report a foreign-born population exceeding one third of their total populations (Figure 3).

Figure 3 – Foreign-born Population of Major Cities ¹⁹⁸



Key Infrastructure. Abundant natural (e.g., water) and built (e.g., subways) resources (both public and private) are fundamental characteristics of leading global cities. Beijing’s built public transportation resources are similar to the premier world cities particularly in the arena of Subway and/or Metro systems (Figure 4). However, in other areas such as water quality and waste treatment the city remains constrained.

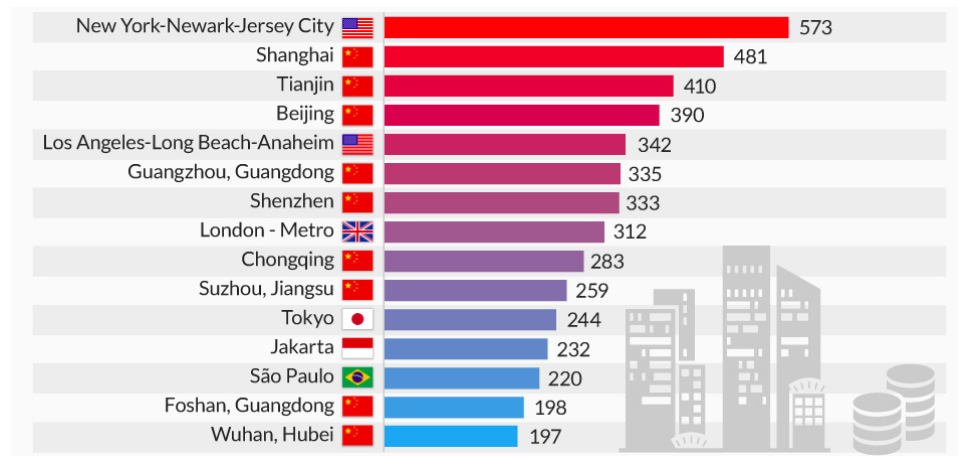
Figure 4 – Length of Metro and Subway Systems for Top Cities ¹⁹⁹



Economics. A healthy and vibrant economy is a basic characteristic of world cities. Global cities usually contribute a higher share of GDP to their host nations than their national proportion of population would indicate. Taken together, world

cities are a significant contributor to the global economy, not only in terms of GDP share, but equally importantly in terms of the command and control functions, delivery of high-level services, and innovation to the world. As demonstrated in the McKinsey Global Institute ranking of global cities Beijing has achieved a very high GDP and is among the premier global cities of the world (Table 5) based on measures of GDP.

Figure 5 – Top 15 Cities by GDP in 2030²⁰⁰



Social Cohesion. High social cohesion is a significant characteristic of world cities. It is a measure of the inclination of residents to cooperate with the government and each other in order to prosper (sometimes termed political engagement). There is a gap between Beijing and the premier global cities that is, perhaps, reflective of the unique authoritarian socio-economic system of the People’s Republic of China (Figure 6).

Figure 6 – Top 10 Global Cities for Political Engagement²⁰¹

Top 10 Global Cities for Political Engagement			
City	2010 Rank	2008 Rank	2010 Score
Washington, D.C.	1	1	7.7
New York	2	2	7.6
Brussels	3	3	7.2
Paris	4	4	5.4
Tokyo	5	6	4.3
London	6	5	4
Geneva	7	NA	3.5
Vienna	8	9	3.3
Cairo	9	10	3.2
Beijing	10	7	3.1

Global Sherpa 2011; Source Data: A.T. Kearney Global Cities Index 2010.

Based on a comparison of baseline information for both Beijing and the premier global cities, in at least four (e.g., environmental quality, cosmopolitanism, key

infrastructure and social cohesion) of the five dimensions of world city status there are meaningful disparities (e.g., gaps) between Beijing and the leading global cities. It is only when measured by Gross Domestic Product that Beijing approaches the performance of premier world cities like New York and London (Table 4 and Figure 5). These gaps are the basis for Beijing Municipality's current failure to realize premier global city status.

The disparities between Beijing and the premier global cities are further evidenced by the individual metrics/indicators employed within the international indices to rank world cities. Among the 13 metrics/indicators outlined in Chapter 4 Beijing meets the world city standards for 1) the number of Fortune Global 500 Headquarters; 2) subway/metro rail length; 3) population density in the core city; 4) GDP per capita; and perhaps 5) creative employment. However, in the area of 6) total foreign-born population; 7) income per capita; 8) cost of living; 9) HDI Index, 10) GINI Coefficient, 11) political engagement, 12) air quality and 13) urban competitiveness Beijing fails to meet the norms of leading global cities like New York or London.

Status-Quo Scenario leads to a dystopian²⁰² future

Based on academic research, content analysis, expert opinion and the trajectory of existing trends among the dimensions of global city status outlined in Chapter 4; maintenance of the status-quo in Beijing will lead to a dystopian future with 30 or more million residents confronting increasingly poor environmental quality, municipal water shortages, overburdened public and private infrastructure, and declining cosmopolitanism. Therefore, under the *Status-Quo Scenario* Beijing Municipality will not achieve global city status within the planning horizon of the year 2030. Fortunately, this is not the future

that must be, it is only the most likely scenario based on current most likely future performance on global city variables.

Incorporating both baseline conditions and the pre-existing trajectory of trends among global city characteristics,

the *Status-Quo Scenario* concludes

that among the five broad

dimensions of global city status

(e.g., environmental quality,

cosmopolitanism, key

infrastructure, economics and

social cohesion) despite significant

action to date, the city and people

of Beijing remain under

exceptional stress and these

phenomena are getting worse not

better! The *Status-Quo Scenario*

deduces that absent intervention,

the city's projected population

growth (Figure 7) will cause both

environmental quality to decline

(Figure 10) due to an increase in

the use of motor vehicles (Figure 8) and, as expatriates leave the city, cosmopolitanism

will further erode. Lastly, that as the economic growth rate slows (Figure 10) the need of

Zhang's Tale

Zhang Wei's family has resided in Beijing for uncountable generations, first in service to the imperial family; now as private sector employees of multinational corporations. Wei's mother and father had met at and graduated from Peking University and were excited when Wei earned her M.B.A. from their alma mater. After Wei graduated she took a job in international banking.

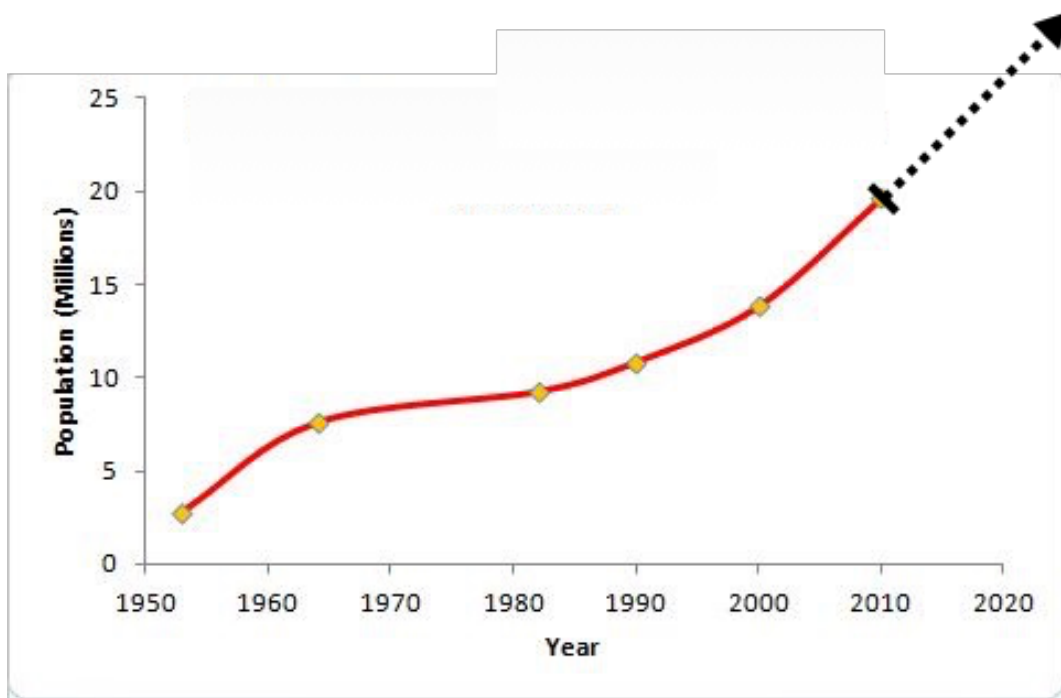
Wei has been offered a promotion that requires a move to their European headquarters. The idea of leaving Beijing was interesting, however, it required leaving the ancient roots of her existence including family and friends. However, things in Beijing were not what they had once been. Air pollution was growing worse each year as more cars crowded the streets; water shortages had begun to occur as more people moved into the City; and the opportunities in business were diminishing as fewer companies headquartered in the region.

After sitting in terrible traffic for the fifth consecutive day while commuting from her family's home well past the 3rd Ring Road, Wei decided the quality of life (e.g., livability) in Beijing was so poor that she would accept the job offer despite the need to relocate to Germany. Maybe the future was better in the West?

the growing population for clean air, clean water, and face fiscal constraints that will result in the built infrastructure operating significantly beyond capacity, impacting the social cohesion of the population.

The *Status-Quo Scenario* recognizes that in less than 25 years the population of Beijing has swollen from 10.8 million in 1990 to over 21.6 million in 2013. A projection of that rate of growth through the year 2030 suggests the city would grow to 30 or more million people (Figure 7). The addition of 9 million or more people would, at a minimum, require significantly more fresh water, expansion of the transportation and waste infrastructure, or the air quality would degrade from expanded use of motor vehicles (Figure 8) and electric power generation.

Figure 7 – Trend in Human Population of Beijing²⁰³



┆.....▶ = projection by author

The *Status-Quo Scenario* projects that in the world city dimension of *environmental quality*, despite moving most heavy industry outside the Municipality to other locations in Interior China, the closing of multiple nearby coal-fired power plants, the periodic restriction on motor vehicle registration and/or use, and the construction of what will soon be (if not currently) be the most extensive subway system (measured by route kilometers) in the world; air quality in Beijing continues to decline largely due to the introduction of millions of motor vehicles (Figure 8). In approximately 25 years the number of motor vehicles in Beijing has grown from less than 500,000 in 1990²⁰⁴ to over 6,000,000 in 2016,²⁰⁵ lack of enforcement of regulations regarding firms, and not fast enough shifting away from coal-based electricity generation. This is particularly pertinent as Beijing’s air quality currently exceeds World Health Organization guidelines and has decreased life expectancy in the city by 5.5 years compared to cities in southern China that are not dependent on coal power for heating in

Li’s Tale

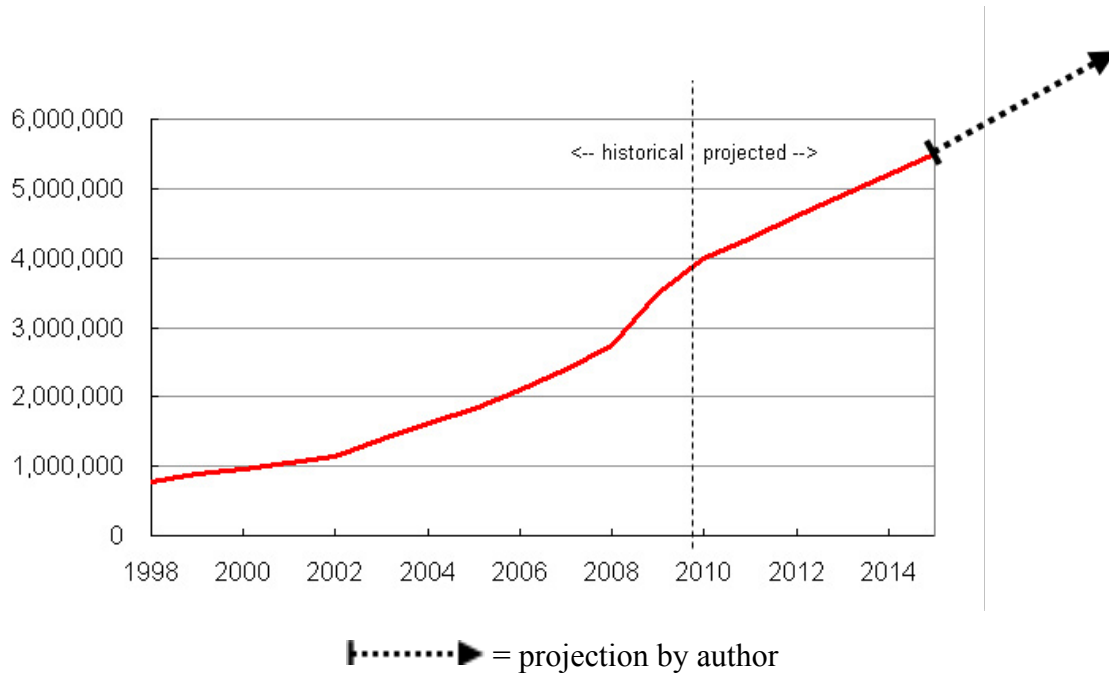
Li Wang’s was living in a distant city when he was accepted to attend Tsinghua University in Beijing. At first the great distance from his family was uncomfortable, but he had grown to appreciate his independence and now only returned home once annually for the New Year’s celebration.

Wang had received a Beijing *hukou* after taking a job at the Chinese Academy of Sciences. He worked hard at his job in computer programming and had become the leader of his department near the Olympic Park. Wang took the crowded subway to his work, often packed so tight he could not sit during the long commute from the distant suburbs of Beijing.

The heavy winter pollution in Beijing was reported to have killed thousands and, Wang had recently developed a terrible cough. If he could maintain his status and income, he would prefer to live in a smaller city with better environmental qualities. Wang determined that when he reached work that day he would begin looking for employment outside Beijing . . . perhaps returning to his hometown of Xian which had much better air quality.

the winter.²⁰⁶ This level of pollution is unsustainable due to its long-term impact on public health, and could begin to impact the social cohesion of the community.²⁰⁷

Figure 8 – Trend in Motor Vehicle Population of Beijing²⁰⁸



The *Status-Quo Scenario* envisions that in the world city dimension of *cosmopolitanism*, despite the construction of multiple venues for the 2008 Summer Olympics, development of significant programs at existing and new international colleges and universities, the foreign-born population of the capital city remains miniscule compared to leading global cities like New York or even when contrasted with an East Asian global city like Tokyo. Additionally, the number of foreign students in Beijing has recently declined (Figure 9).

Further, it is broadly reported that foreign nationals are now being paid an employment (e.g., hardship) premium to locate in the city while those already present, due to the impact of declining environmental quality (particularly air pollution), have begun to leave

the city.^{209,210,211} Unfortunately, this trend could metastasize leading to a refusal of Fortune Global 500 firms to locate in Beijing and, of those already present, either downsizing or abandoning the city in favor of cities with better environmental quality.^{212,213} As Figure 10 indicates, the projection of the air quality trend for PM 2.5²¹⁴ through 2030 in the *Status-Quo Scenario* concludes that absent additional intervention the air quality of the region will continue to decline.

Figure 9 – Trend in Foreign Student Enrollment²¹⁵

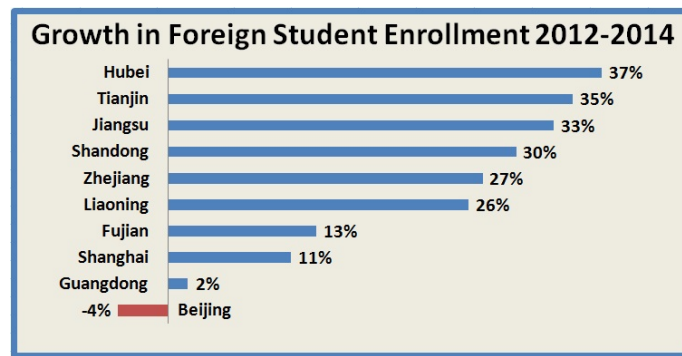
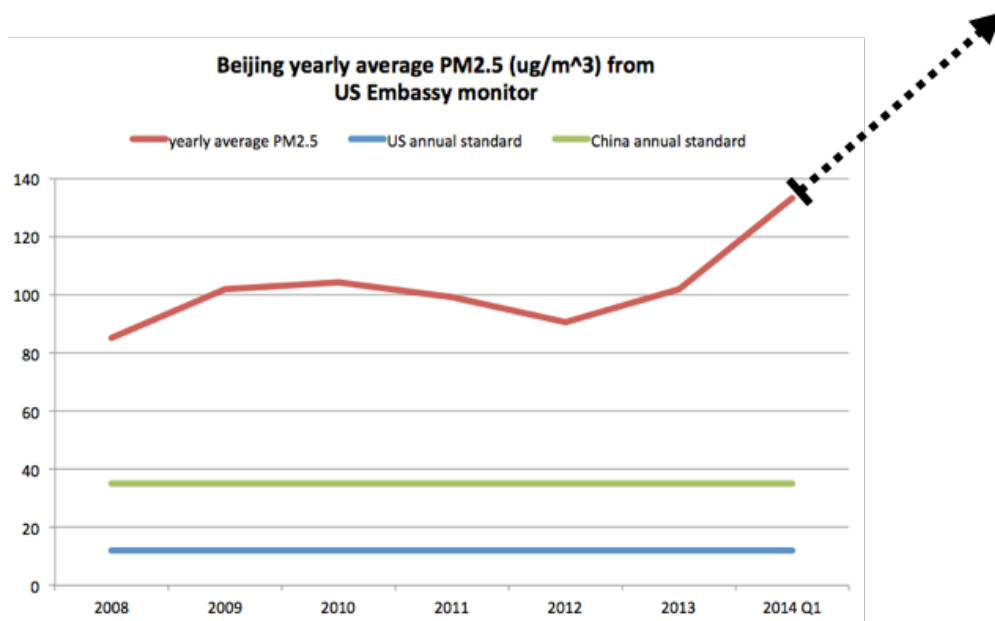


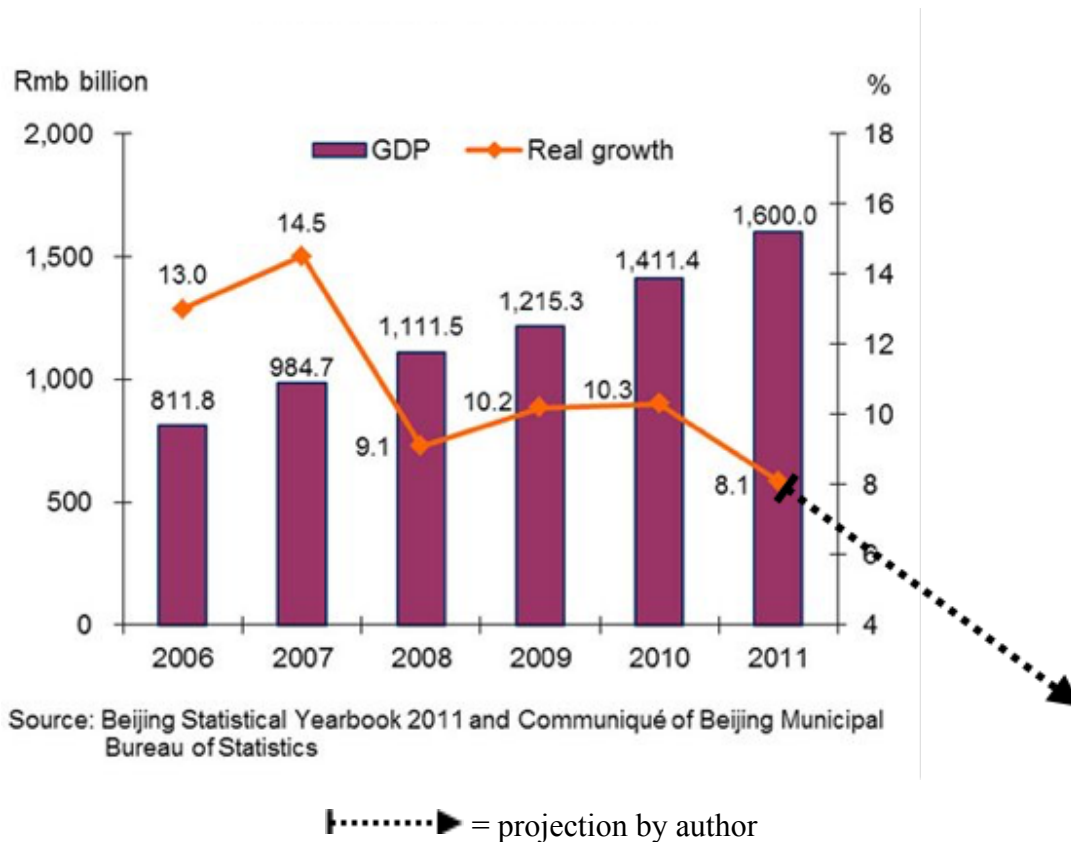
Figure 10 – Trend in PM 2.5 for Beijing²¹⁶



┆.....▶ = projection by author

The *Status-Quo Scenario* recognizes that in the world city dimension of *economics*, there has been a very rapid transition in Beijing to a high-value tertiary economy that now accounts for over 75% of the GDP of the Municipality. However, after three decades of GDP growth above 10%, the current rate (nationally) has dropped to approximately 6.7% that is projected by the World Bank to continue to decline in the near term (Figure 11). Of course, any country would be pleased to report a similar growth rate, however, Beijing is in a unique circumstance and must sustain high rates of growth if it is to absorb its increasingly educated work force, millions of rural in-migrants, reduce income inequality, and maintain social cohesion.

Figure 11 – Trend in GDP Growth for Beijing²¹⁷



The *Status-Quo Scenario* realizes that in the world city dimension of *Key Infrastructure*, despite the reconfiguration of the national water delivery system²¹⁸ there remains a significant shortage of clean water in the northern tier of China. Moreover, despite “soft” national controls on internal migration (i.e., *hukou* registration) and the construction of a large modern subway/transit system, the floating population of over seven million internal immigrants in Beijing (persons lacking a Beijing *hukou*) crowd the subway system beyond design capacity and the roadways are clogged with vehicles (Figure 8), so that today the average commute time in Beijing approaches one hour in each direction.²¹⁹

The socio-economic structure the People’s Republic of China is under significant pressure as it adjusts to changes in market conditions, interaction with foreign cultures, suffering from poor environmental quality and high

housing costs in the capital city. The *Status-Quo Scenario* projects that in the world city dimension of *social cohesion*, despite the construction of millions of housing units, the

Xie’s Tale

Xie Yin’s was living in a distant city when she was accepted to attend Peking University in Beijing. She enjoyed the life of the city and had few regrets at leaving her hometown in the West.

Yin had taken a job after graduation with a Chinese firm and then joined an international firm after gaining experience. However, of late, the Chinese economy had suffered tremendous losses and the GDP growth rate for the first time in decades had fallen below 5% annual.

The impact in the change in the business climate was of great concern to Yin. There was no intrinsic reason for her employer to remain in Beijing, they could easily move to Singapore or Hong Kong where the business climate was better.

Yin wondered aloud at work what might happen to their jobs if the economy in Beijing continued to deteriorate. There were few answers. However, Yin was now certain that she would begin looking for opportunities in other locations that still had a health business / investment climate.

cost of living in Beijing is nearly off the scale partially due to the extra-ordinary high cost of housing relative to local income (Figures 12 and 13). When compared to other East Asian global cities, Beijing's household income is less than half that of Seoul and a mere fraction of that in cities like Singapore and Tokyo. Despite this low per capita household income, the cost of housing often exceeds that of similar cities around the world.

Extension of this trend over time leads to inadequate delivery of affordable (social) housing²²⁰ impacting the social cohesion of residents. This trend, a decrease of inventory of affordable housing for workers, could lead to a reduction in social cohesion as recently observed in Hong Kong.²²¹

Figure 12 – Ratio of House Price to Annual Household Income (2011)²²²

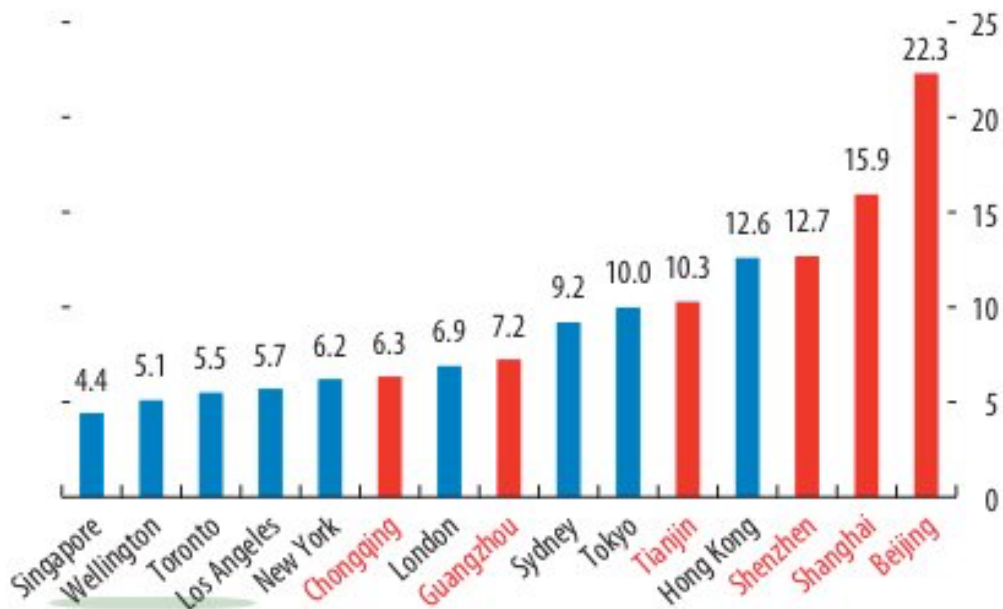
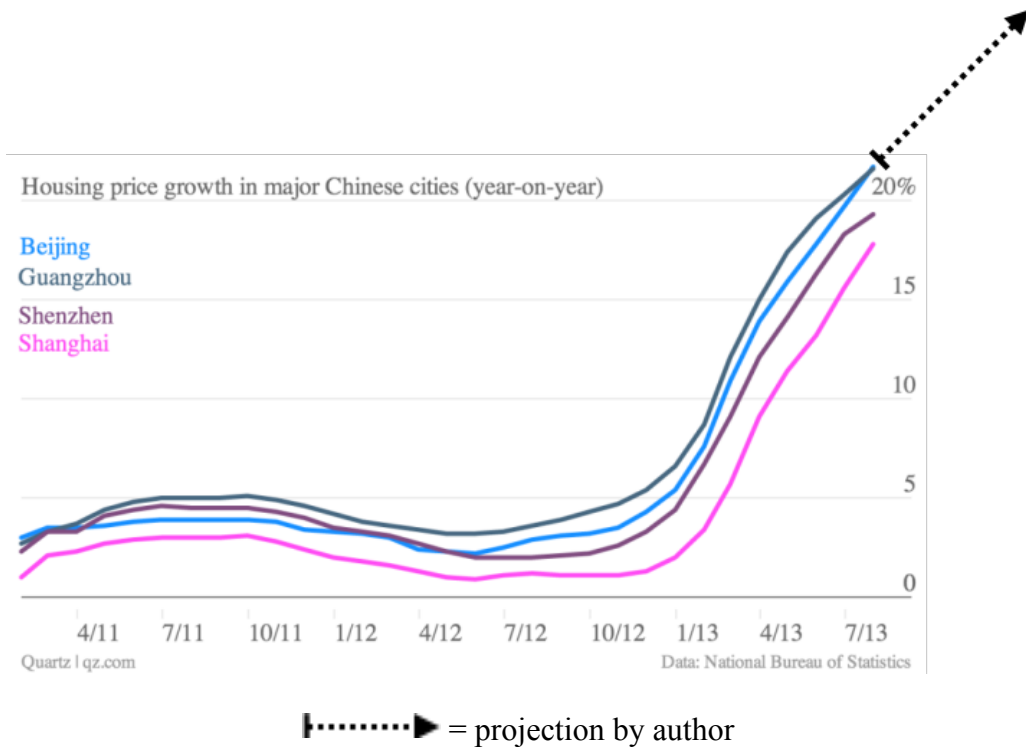


Figure 13 – Trend in Housing Costs for Beijing²²³



Huang's Tale

Huang Zhou was born, raised and educated in Hong Kong. He was comfortable interacting with foreigners' and had moved to Beijing in the early 2000s to help local companies sell products and services to international companies based in Beijing. Although he lacked a Beijing *hukou* he had found economic success as a consultant. Zhou had purchased a car, resided in a well-located apartment and spent many evening out exploring the central city with his friends.

Zhou only complaint was the high cost of housing in Beijing. He would never be able to purchase a home in central Beijing based on the current market for housing and his income. And, of course, without owning a home the plausibility of finding a wife was greatly diminished.

His work and social life would remain in Beijing while homeownership remained well out of his reach if Zhou wished to continue living in a central location. For this reason, marriage would not be part of his immediate future until he could locate affordable housing in central Beijing.

The *Status-Quo Scenario* projects that whether measured by changes in environmental quality, key infrastructure, cosmopolitanism, economic growth or social cohesion, Beijing is a city heading in the wrong direction and will not achieve premier global city status within the planning horizon largely due to the multiple impacts of continued population growth. In sum, the *Status-Quo Scenario* reveals that without significant intervention Beijing in 2030 will have a population that has swollen past the carrying capacity of the urban region to as many as 30 million persons and will experience water shortages, high pollution events, road congestion, overcrowding of the mass-transit system, reduced non-Chinese national populations, the loss or downsizing of headquarters of Fortune Global 500 companies and negative impacts to the established social cohesion of the community. As is evident from the existing trends and content analysis of local media this is, unfortunately, not only a plausible future for the city, it is the likely scenario.

Imminent Threats to Global City Status

Extensive content analysis of media published in and about Beijing (e.g., China Daily, The Economist, BBC News, New York Times, etc.) identifies two specific issues of immediate concern that would negatively impact potential world city status. These potential disruptions include an environmental crisis²²⁴ driven by a dangerous air quality event and the collapse of the business / investment climate driven by a severe economic recession / depression.²²⁵ These potential threats to achieving global city status are well known and quite possible. Preventative interventions should be reviewed and implemented before current trends are exacerbated by a catastrophic event.

Environmental Disruption – Consequences of A Great Beijing Fog

The current environmental quality of Beijing Municipality is obvious to each visitor and resident from the

moment they draw breath. Unlike

groundwater pollution, air

pollution of this scale/scope is

immediately visible and directly

impacts Beijing's emergence as a

global city. Improving the urban

environment, especially air quality,

is essential in achieving

recognition of global city status

because nearly all published

measures of global city status

contain some or multiple

dimensions of environmental

quality within the composition of their individual indices of global city status. Resolving

the environmental quality issues in the Beijing region (particularly air quality) is of

immediate concern to safeguard public health, to maintain and improve social cohesion,

as well as, to achieve premier global city status.

In the past, a premier global city experienced and resolved an analogous air quality issue. The Great London Fog of 1952 left approximately 12,000 people dead as a result of an acute air quality event. The pollution in London was so pronounced it brought

Wu's Tale

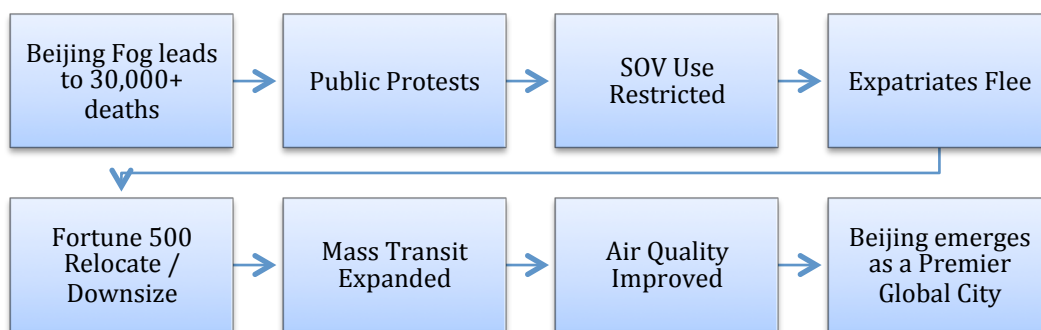
Wu Li's had resided in Beijing for over 50 years. The progress she had witnessed was beyond remarkable . . . it was an economic and environmental miracle. The city had grown from less than 10 million to well over 20 million before her eyes . . . with equal large advances in economic development, the installation of public infrastructure, and the expansion of cultural opportunities. She had seen the arrival of foreign tourists, foreign corporations, foreign embassies, as well as, the summer Olympics in 2008

Li quality of life had improved a thousand fold since her birth during the Cultural Revolution . . . with the exception of the air pollution. However, the city had been working hard on the resolution of that seemingly intractable problem and the air was – slowly clearing. Since the introduction of programs to introduce a totally electric vehicle fleet . . . blue skies were on the horizon.

road, air and rail transport to a standstill.²²⁶ Although exceedingly unusual, an equivalent air quality event (e.g., disruption) in Beijing could easily lead to 30,000 or more deaths based on its current population and would have momentous impacts on Beijing's evolution into a global city as the Municipality reacted and attempted to recover from such a major disruption.

Already, Beijing has experienced air quality events that were serious enough to impede air travel.²²⁷ Following such an event (Figure 14) it is anticipated the nation and city would react immediately to correct the air quality issue by restricting the use of all cars²²⁸ until the air cleared and more permanent public policies could be put in place to keep the air clean. The long-term resolution of air quality issues could take as few as ten years (similar to Bangkok) or as long as forty years (similar to Los Angeles) depending on the types of air pollutants that need to be addressed and the public policies proposed to resolve those issue.

Figure 14 – The Great Beijing Fog - Impacts of High Pollution Event



Thus it is appropriate to conclude that the continuing poor air quality of Beijing Municipality could impede the city from achieving global city status, particularly if a

single high pollution event leads to a substantial number of deaths. Interestingly, it is not an issue of technology that constrains improving air quality in Beijing, as other global cities have resolved similar issues, but rather an issue of political will. Recently, by limiting motor vehicle travel in the city, the Municipality was able to ‘clear’ the air in approximately two weeks to improve the reputation of the City, while staging a key public event.²²⁹ Thus a disruptive air quality event like the Great London Fog would likely lead to a decline in social cohesion followed by temporary restrictions on the use of SOV,²³⁰ the movement of expatriates out of the city, the introduction of long-term policies to improve air quality and, finally, the emergence of Beijing as a premier global city enjoying a high level of environmental quality (Figure 14).

An *Environmental Disruption* on the scale of a Great London Fog would require significant intervention to immediately 1) resolve Beijing’s air quality issues, 2) maintain social cohesion, and 3) reassure business interests that their staff were safe in Beijing. It is apparent from content and scenario analysis that action must be taken by the government to clear the air or able and willing residents will abandon the city.²³¹ Unfortunately, at this time, a single high pollution event like the Great Smog of London in 1952 is a plausible future for the city.

Business Climate Disruption – Consequences of A Global Recession

The business / investment climate in Beijing has been remarkably resilient for decades. Beijing and China have demonstrated uninterrupted GDP growth for nearly 35 years. This spectacular economic development has lifted hundreds of millions out of poverty and is a positive contributor in terms of Beijing’s possible emergence as a global city. In terms of recognition of global city status, economic performance is important

because nearly all published measures of world city status contain some or multiple dimensions of economic development within the composition of their individual measures of global city status.

The remarkable level of economic expansion since Deng Xiaoping introduced his economic policy reforms in 1978 has precipitated a measurable shift in the location of the headquarters of the world's largest 500 companies. In particular, before 2000 more than 40% of the world's 500 biggest corporations by revenue were in North America²³² a region with a positive business / investment climate. Today, Asia is headquarters to *more* global 500 companies than North America; and, China has 95 names on the list (more than Germany, England, and France combined)²³³ reflecting the enormous growth and importance of China's economy. Beijing is currently home (headquarters) to 52 Fortune 500 companies (4 more than the previous reporting period).²³⁴

One threat to Beijing achieving global city status is a downsizing or the relocation of these important business headquarters and their associated operations due to a significant disruption in the business / investment climate from a contraction in the Chinese economy. A *Business / Investment Climate Disruption* could cause some or many of the 98 large-scale private and public sector companies currently headquartered in the city to review their past decision to locate Beijing, due to a global, regional, or local recession or economic shock.²³⁵

In the past, a premier global city experienced and resolved an analogous economic issue following the NYSE Crash of 1973/74 that left the city of New York teetering on bankruptcy due to a failure to control its municipal debts.²³⁶ The Fiscal Crisis of New York City was of such magnitude that fearing social unrest, the city requested

and was denied a bailout from the federal government. Although unusual in the history of global cities, an equivalent economic event (e.g., disruption) could have negative impacts on Beijing's evolution into a global city.

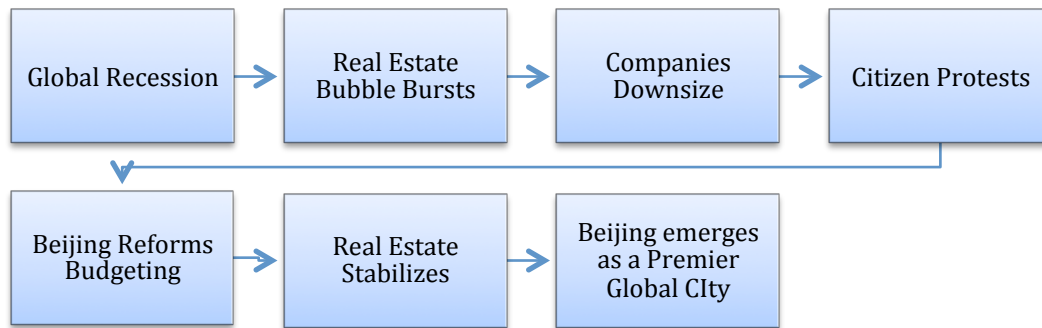
Interestingly, with or without a disruptive event the municipal budget/debt issues of local governments are currently of great concern in China. Thus it is appropriate to conclude that the municipal budget/debt issues of Beijing Municipality^{237,238} could impede the city from achieving global city status particularly if a global recession / depression occurred during the time horizon (to 2030). For these reasons, recently the federal government placed a limit on the total outstanding debt of local governments which must be kept under 17.2 trillion yuan (US\$2.7 trillion) at the end of 2016.²³⁹

Thus a disruptive economic event such as a global depression / recession could precipitate a fiscal crisis like that of New York City in Beijing that could lead to downsizing of large companies, the current real estate bubble bursting, in turn constraining the fiscal revenue of Beijing Municipality, a decline in social cohesion followed by a stabilization of the real estate markets at a significantly lower level, and finally, the emergence of Beijing as a premier global city enjoying a high level of economic stability (Figure 15), albeit a rate of economic growth somewhat lower than at present.

A Business / Investment Climate Disruption on the scale of the near bankruptcy of New York City in the 1975 would require intervention to 1) maintain the credit worthiness and functionality of Beijing Municipality, 2) maintain social cohesion, and 3) demonstrate the city was prepared to weather a significant economic crisis and 4) emerge as a premier global city. Unfortunately, at this time, a single financial crisis like the near bankruptcy

of New York City in 1975 is not only a plausible future for the city, but one that is quite possible based on the current municipal debt crisis in China.

Figure 15 – Impacts of Global Recession



Beijing’s Global City Pursuit Strategy

The leaders and people of Beijing Municipality are well aware of the many obstacles to achieving global city status on or before 2030. To that end, senior leadership supported by the professional, academic and citizen communities have studied, proposed and implemented significant public policies to achieve global city status as outlined in the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing* (2010-2015). These broad strategic planning goals are each intended to support Beijing efforts to achieve global city status and maintain high social cohesion.

However, the substance of the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing* (2010-2015) fails to include action items (e.g., strategic actions) to achieve global city status, rather it is an overly comprehensive menu of goals that the Municipality hopes to achieve in the near term. Unfortunately, this lack of selectivity in terms of actions, and outlining the “how”, makes the ‘plan’ largely

ineffectual as a guide to the Municipality achieving its stated global city goals.

Furthermore, the lack of specificity makes it very difficult to measure progress toward achievement of the goals.

Within the Plan Beijing Municipality has proposed strategic goals that cover all five dimensions of global city status (e.g., environmental quality, cosmopolitanism, key infrastructure, economics and social cohesion) to both reduce the environmental stress the city currently experiences and to improve livability. The strategic goals impacting global city status outlined in this plan represent the current “strategic intent” of the Beijing Municipality as follows:

- 01) Attract more multinational corporations (p. 43)
- 02) Education for foreign students will be promoted (p. 39)
- 03) Travel by public transportation in the central urban area will account for 50% of all traffic (p. 22, 155)
- 04) Narrowing the income gap (p. 22)
- 05) Efforts will be made to enhance rural urbanization and modernization (p. 149)
- 06) Within five years, one million units of policy housing will be either constructed or purchased and those eligible families applying for such homes will be guaranteed an apartment (p. 84)
- 07) Per-capita disposable incomes increasing at an annual rate of 8% (p. 21)
- 08) Tertiary industry exceeding 78% of industrial activity (p. 21, 45)
- 09) Employing high-ranking talented people from various countries (p. 17)
- 10) Channels will be expanded to the public to participate in public affairs and increase the openness and transparency of public affairs (p. 93, 97).
- 11) 80% of all days will have national Grade II or better air quality (p. 22)

- 12) The city's GDP will increase by an average annual rate of 8 percent (p. 21)

Achieving these strategic goals, individually and collectively, will lead to a better future for the people of Beijing. Whether in the dimensions of air quality, foreign-born population, water supply, economics or social cohesion Beijing is a city ready, willing and able to resolve the complex urban problems of the 21st Century.

In terms of the dimension of *environmental quality*, the Municipal Government, in cooperation with the National Government, has moved most heavy industry to the Interior Region of the nation, closed multiple nearby coal-fired power plants, constructed what will soon be the most extensive subway system in the world;²⁴⁰ has demonstrated that air quality can be improved in short order²⁴¹ and that measures can be employed to control the expansion of motor vehicle ownership in the Municipality.²⁴² Further, “Beijing has vowed to eliminate most coal-fired boilers in the city center by the end of 2015 to reduce pollution from fine particulate matter, especially during the heating season.”²⁴³ Moreover, “Beijing plans to increase the number of taxis that run on natural gas from the current 99 to 2,000 by the end of July [2013] in a trial project to promote the use of clean energy in public transportation. Beijing now has 2,000 vehicles powered by natural gas, and that number is expected to be 10,000 by 2013, which will include 2,000 taxis, 3,143 city buses, and vehicles for some driving schools, the Beijing Environmental Protection Bureau said.”²⁴⁴

In the dimension of *cosmopolitanism*, the national government continues to ease the bureaucratic impediments to, and length of validity of visas for foreign nationals visiting China. Recently, a 10-year visa policy agreement was reached between the

United States and China, and similar agreements have been reached with other countries such as Canada.²⁴⁵ Further, there are continuing efforts to improve the livability of the Municipality including continuing construction of venues associated with the Olympic Park in north-central Beijing, continued development of international colleges and universities, construction of a new international airport and continued restoration of historical districts. Some foreign nationals are now being paid an *employment premium* to locate in the city, this allows many foreigners to establish strong foundations in the city as livability issues improve over time.

In the area of *Key Infrastructure*, due to actions by the national, regional and local governments constructing one of the most extensive mass transit systems in the world (Figure 4), “40% of travel within the municipality is now by public transport.”²⁴⁶ Further, the issue of water availability has been attacked on two fronts. First, by increasing supply²⁴⁷ through the construction of China's enormous south-to-north water diversion project which began flowing into Beijing on December 27, 2014, and, second, by increasing conservation through instruments such as demand management.²⁴⁸ Both these efforts demonstrate the success of planned interventions of the national and local governments.

In the area of *economics* there has been a very successful transition to a tertiary economy in Beijing (representing over 75% of the GDP of the region), the large number of Fortune Global 500 companies continues to increase as organizations seek proximity to the central government and other major employers. Today, Beijing is home (headquarters) to 52 Fortune 500 companies (4 more than in the previous reporting period).²⁴⁹ The growing population of Fortune 500 companies clearly demonstrates the

emergence of Beijing as a financial colossus on the global stage.

In the area of *social cohesion*, despite the construction of millions of housing units, the cost of living is nearly off the scale due to the extra-ordinary cost of housing relative to local income per capita. Currently, “an estimated two million people in Beijing are said to be living below the earth’s surface, in thousands of 100-square-foot spaces located one or two stories below street level. In August 2010, the city stopped granting new use permits for these spaces and has a three-year plan to move all the subterranean residents.”²⁵⁰

The *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing (2010-2015)* reveals that the Municipality has identified significant goals to ameliorate the negative side effects of massive urban growth over the next 15 years. “Problems such as clean air, freedom from pollution, education, and health all require government as well as personal participation. Demand for social and government action to improve living standards will increase as the middle class grows, and leverages their power through social media, in China.”²⁵¹ If successful in achieving these goals, the Municipality will stabilize at a population within the carrying capacity of the region learning to live within the constraints of limited water resources, cleaning the air of hazardous pollutants, eliminating road congestion, while increasing the capacity of the subway system, the size of foreign populations and the number of Fortune 500 headquarters located in Beijing. As is evident from the 12th Five-Year Plan, the political leadership of the Municipality is working diligently to resolve the problems associated with rapid urbanization in a reasonable time frame however, they currently fail to define the specific actions that will be required to achieve that goal. Fortunately, with good

planning, strong implementation and regular assessment, the planned future of Beijing as a global city can and will be achieved.

But the big question is whether the plan can be put into operational, i.e., strategic form, and much more difficult, can it be implemented and enforced. In sum, Beijing appears to be well aware of its constraints to achieving global city status and the general types of actions needed, but whether it can institutionally organize and implement an appropriate strategy to effectively address them is the question.

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7 – Implications for Beijing’s Future

Two inter-related phenomenon – globalization and urbanization – drove the rise of the colossal Chinese megapolitan areas (e.g., Beijing-Tianjin-Hebei, the Lower Yangtze Region, Chongqing and the Pearl River Delta), as well as, provide the backdrop and explanation for the extraordinary economic advance of China as a whole since the early 1980s. China’s now 35-year history of fast-track economic growth and urbanization, as well as, the simultaneous movement of 500 million people out of poverty is unprecedented in human history in both its scope and speed. This rapid economic and urban growth has reasserted China as a major player on the international stage and has propelled Beijing towards premier global city status. However, these huge advances in economic development have lead to numerous negative secondary effects (e.g., environmental pollution, income inequality [a national GINI coefficient of 0.49], etc.) at both the national and municipal levels that require new strategies, measures and tools to fully understand and resolve. Failure to resolve these pressing urban issues leads to the potential for social and political unrest (e.g., a decline in social cohesion) as the environmental and socio-economic systems of China evolve in the 21st Century.

The research process underlying this dissertation traces trends and performance across five dimensions of global city development (i.e., environmental quality, cosmopolitanism, key infrastructure, economic development and social cohesion) in Beijing. China in general, and Beijing in particular, have achieved enormous success on most economic, and many measures of public infrastructure (e.g., priority infrastructure such as public transit) of effective global city formation. However, the same is not true among measures used by residents to judge the livability of a megapolitian scale

metropolitan area like Beijing, particularly environmental quality. Nor is economic success alone enough to have international global city indices and the global elites recognize Beijing as a world city.

Thus, fulfilling the desire of residents and managers of Beijing Municipality to achieve premier global city status will require a fundamental shift in paradigms from those previously based largely on promoting economic development. Instead, a new emphasis needs to be adopted that stresses on policies and actions (interventions) associated with improving urban livability while maintaining a healthy economy. To some degree this change has begun in China – politicians, government officials and the media now talk about the quality of development, not just the quantity. Slowly, national and local governments have altered metrics underlying planning objectives and the assessment of performance of public officials. In particular, measures of environmental quality are increasingly being incorporated into official Chinese performance metrics for city leaders.²⁵² This strategic change in the urban planning paradigm must be fully embraced, expanded, and accelerated by Beijing Municipality if it is to achieve global city status within the 2030 planning horizon.

Strategies to Achieve an Emerging Global City

The *Status-Quo Scenario* clearly indicates that Beijing is not on the path to global city status and thus existing policies and implementation modes need to be changed. Livability, in particular, needs to be pursued with *strategic intent*. Further, the *Status-Quo Scenario* recognizes that a single air quality event like that in 1950s London or an economic crisis like that in 1970s New York or 1997 Bangkok could easily disrupt the existing social cohesion in the form of mass protests²⁵³ and/or mass movement of peoples,

particularly expatriates, out of Beijing threatening the goal of achieving premier global city status.

To circumvent disruptions while achieving premier global city status will require three new strategic thrusts that support both a strong private and public planning sector, as well as, greater participation by key stakeholders (e.g., corporate and private citizens) leading Beijing's push toward premier world city status. This will require that both the urban planners/policymakers and key stakeholders shaping Beijing Municipality become well versed in current planning thinking (e.g., new urbanism, form based zoning, smart cities, transit oriented development, etc.) as well as, application of anticipatory planning tools, such as scenario planning, to resolve urban issues. These three broad strategic thrusts, when implemented with intent by the Beijing Municipality, should assure success in achieving global city status before 2030.

First, Beijing Municipality must replace Deng Xiaoping's central strategy of placing "economic construction at the centre"^{254,255} with a new central strategy placing urban livability²⁵⁶ at the center of the development paradigm. This fundamental shift from a strategy focused on economic development to a strategy focused on urban livability requires specific intervention by local governments ranging from how municipal officials' performance is evaluated²⁵⁷ to how land-use planning is aligned with mass transportation systems.

Many of the urban livability issues facing Beijing Municipality are closely associated with the design and use of the transportation system (e.g., air pollution, traffic congestion, etc.) and/or land-use planning (e.g., density, commuting patterns, etc.); therefore, Beijing Municipality must adopt a development strategy that fully integrates

land-use planning decisions with the evolving transportation systems as the city continues to evolve. This strategy should focus immediately on the implementation of transit-oriented development (TOD) in land-use and transportation planning in all aspects of city-building in and about Beijing Municipality. This will require realignment of Floor Area Ratios (FARs), etc., to better reflect accessibility in different areas of the city.

The second major strategic thrust should be to end the senseless embargo on many parts of the World Wide Web and the free speech of citizens using social media that currently constrains Beijing's communications systems.²⁵⁸ The great promise of urbanization and globalization is predicated not just on the free flow of goods and services, but, on the free flow of information throughout the city and around the globe. This is particularly true for a city such as Beijing that intends to achieve premier global city status. The leading and/or premier global cities of the world are places of free speech and communication, a key explanatory of their innovation performance. Implementation of this strategy will range from assuring unrestricted high-speed access to the World Wide Web to full dissemination of information regards the success and/or failures of delivery of consumer goods and services, public and private (e.g., food safety and air quality) in the major cities of China.²⁵⁹ Furthermore, it will strengthen emerging "direct democracy" dynamics in Beijing utilizing social media, perhaps leap-frogging the representative democracy stage associated with Western countries.

The third major strategic thrust requires the People's Republic of China to form, fund and staff an *Office of Global City Development* in Beijing focused primarily on the collection and dissemination of data associated with the world city variables employed by the five major public ranking agencies (i.e., Martin Prosperity Institute, A.T. Kearney, the

Economist, Z/Yen, and McKinsey Global Institute) and interfacing with those organization to assure Beijing's fair and accurate evaluation. To be efficacious this office needs to demonstrate both high credibility and high transparency and might best be associated with an existing – well-respected – organization like the Institute of Geographic Sciences & Natural Resources Research of the Chinese Academy of Sciences.

Although there remain academic and practical concerns regarding the mix of indicators and/or metrics employed by the global city rating agencies in the preparation of their indices of world cities, as well as, the appropriate application of these measures to the emerging global cities of Asia; documenting Beijing's past, current and future global city status in an *Office of Global City Development* will help planners and decision-makers focus on those interventions which will provide the largest impacts with the smallest interventions. And, while the *Office of Global City Development* will collect and publish data that may not be flattering to some communities in the early stages of analysis and planning (for example air quality data), this commitment to transparent reporting of both good and bad news will be key to facilitating the development of Beijing Municipality and is quite common among cities in the western world.

Collectively, the implementation of these three strategic thrusts for achieving premier global city status (i.e., focus on urban livability, ensure freedom of information/speech, and opening an *Office of Global City Development*) will improve Beijing's livability, enhance social cohesion and assure Beijing's leadership among the great global cities of the world and, ultimately, strengthen its appeal to foreign and domestic talent, economic capital and cultural resources.

Research Questions Addressed

The primary purpose of this dissertation is to explore the use of exploratory scenario planning to assess the development of Beijing based on the current trends associated with global city variables and the implementation of the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing* (2010-2015). The research addresses a series of specific questions regards the present and future of Beijing Municipality, as follows:

01) Based on comparison with cities that, by consensus have achieved premier global city status, is Beijing a world or global city? Why or why not?

Beijing Municipality is *not* currently a premier global or world city largely because of its inferior level of environmental quality, extreme transportation congestion, low household income and GDP per capita and low level of cosmopolitanism. The foregoing can collectively termed as deficient urban livability²⁶⁰ compared to existing East Asian global cities including, but not limited to Hong Kong, Singapore, Tokyo and Seoul. These deficiencies are easily measurable, however, the strategies and interventions necessary to remediate such deficiencies will require significant changes in Beijing's urban development paradigm, planning, policymaking and prioritization of action; backed up by adequate funding to resolve the urban problems of Beijing.

02) Informed by research on the development trajectories of cities that have achieved global city status, and research on threats facing Beijing, what are the likely impediments to achieving world or global city status?

This research suggests the major existing impediment to achieving global or world city status is the full adoption of the low-emission energy production and

transportation systems necessary to clear the air. The resolution of the air quality issues has been made substantially more complex by the fact that the Chinese and Beijing's economy are now slowing, making direct costs of action, as well as indirect costs such as possible higher energy costs to industry, likely less palatable to the leadership. However, Beijing has well demonstrated that with substantial political will it can clear the skies of hazardous pollutants in very short order, construct – as necessary – the public and private infrastructure for fresh water delivery, deliver clean energy production (i.e., nuclear or renewable), quickly construct high-class mass transportation systems (e.g., airports, subways, LRT, and/or Bus Rapid Transit) and waste management facilities to support a large regional population. Beijing's history of swift completion of mammoth public infrastructure projects indicates the ability of the local and national governments to identify and resolve urban problems in an expedited fashion largely unknown in the western tradition, if there is political will to do so. In other words, Beijing's track record, particularly in terms of rapid infrastructure delivery, indicates that this inherent capacity in the city to develop a much more livable city, if this objective were pursued with strategic intent.

03) Informed by: (i) Past trajectories of global cities and Beijing's current status and immediate past trends, (ii) Accepted indicators of global city status, and (iii) Strategic Analysis, will the proposed interventions within the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing (2011 – 2015)* support Beijing's priority objective to achieve world city status with Chinese characteristics?

The *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing* (2011 – 2015) is not a strategic plan containing specific programs and policies to achieve global city status (i.e., it lacks the “how”), rather it is a comprehensive

statement of goals and objectives of the municipal government. Goals/objectives need to be supported by specific interventions to achieve the policy goals. For example, in the area of air quality this will require three broad strategies: 1) extending the system of mass transit services (particularly to suburban and peri-urban areas – which will require more corridor / TOD development); 2) continued conversion of existing coal-fired power plants to low-emission (e.g., through renewable, natural gas, and/or nuclear) electric generation and 3) sustained conversion to low-emission motor vehicles to bring regional air quality within World Health Organization (WHO) standards. Fortunately, efforts to improve Beijing’s air quality are underway. Recently the Beijing Municipal Environmental Protection Bureau, indicated that the “sulfur dioxide, nitrogen dioxide and inhalable particle density in the air has decreased 1.5 percent, 5.5 percent and 4.4 percent, respectively, from the previous year.”²⁶¹

04) How, based on the variables that the researcher examines, will we know when Beijing has achieved global city status?

Beijing needs to regularly collect, independently audit/verify, and widely publish all standard statistics (indicators/metrics) used by international global city ranking organizations (i.e., The Economist, A. T. Kearney, Z/Yen, McKinsey Global Institute and the Martin Prosperity Institute) outlining Beijing’s performance on acknowledged indices of global city status. Second, the private and public sector leadership of the Municipality should maintain regular bilateral communication with these organizations to systematically share knowledge in regard to the breadth of public and private activities the city is undertaking to improve its livability and economic development.

By following these simple steps of regular data collection and its publication, as well as, implementing necessary programs to clear the air of Beijing, thereby, improving the livability of the city, Beijing will shortly appear in the top tier of global cities. Likely, this would occur before 2030.

05) Assuming Beijing achieves Global City Status in 2030, how will it substantially differ from other global or world cities?

Although some Asian (i.e., Singapore) and most Western global cities have significantly larger foreign-born populations, it appears that this will not be the case in Beijing. Based upon a review of the academic literature and content analysis of international media, global cities with ‘Chinese characteristics’ (potentially Beijing, Shanghai, Shenzhen, Guangzhou, Chongqing)²⁶² will have relatively small foreign-born populations (similar to Tokyo and Seoul). Why Beijing, Tokyo and Seoul have lower foreign-born populations than American and European global cities appears related to cultural differences that were not explored in this research.

A second Chinese characteristic of global cities will be the scale of the metropolitan (or megapolitan) area. Similar to Tokyo (35 + million), Jakarta (30 + million), Seoul (23 + million) and Shanghai (24 + million), the city of Beijing is likely to sustain a significantly larger population than global cities in the United States (New York at approximately 10 + million) or the European Union (London at approximately 10 + million). The large size of primate East Asian cities may be related to the overall scale of activities in the Region and the greater emphasis placed on face-to-face contact, which requires agglomeration. However, like the issue of foreign-born populations, whether

there is a cultural preference for super large cities has not been investigated, nor resolved by this research.

An Asian Global Cities Model?

As discussed throughout this research, one of the objectives of the *Twelfth Five-Year Plan for the National Economic and Social Development of Beijing (2010-2015)* is for the Municipality to become a premier “World City With Chinese Characteristics.” Regrettably, these ‘Chinese Characteristics’ are currently poorly defined in the academic, administrative or general literature in regards to world or global city status. An inability to delimit this broad, yet fundamental, concept raises fresh questions that will require additional academic research and analysis to fully understand the appropriate application of the concept of “Chinese Characteristics” as it applies to urban systems, and global city formation in particular.

Data collection and assessment for this dissertation exposed multiple similarities and differences among the characteristics (i.e., metrics) of global cities employed by the established public rating agencies (i.e., Martin Prosperity Institute, A.T. Kearney, the Economist, Z/Yen, and McKinsey Global Institute). Broadly these similarities and differences appear related to the interplay of local geography, history, culture and socio-economic systems as each city developed. There appears to be a statistically significant difference across the leading global cities between East and West in the metrics associated with the number of Fortune Global 500 Headquarters, percentage of foreign-born residents, population density of the core city, environmental quality and measures such as urban competitiveness.

In particular, the differences between the global cities of the West (e.g., New York, Los Angeles, London, or Paris) and global cities of the East (e.g., Seoul, Tokyo, Hong Kong, or Singapore) are significant as they impact the ranking of cities in public indices. Which metrics are selected, how these measures are employed (e.g., percentages versus absolute numbers versus per capita statistics) is fundamental to the ranking world cities. Therefore, it is plausible that whatever the unique focus of the public ranking of world city status (e.g., livability, economics or competitiveness) the metrics selected by the reviewers are biased in favor of a particular archetype.

This issue raises several unanswered questions. The rising global cities of East Asia (e.g., Tokyo, Seoul, Hong Kong, Singapore, etc.) have unique characteristics based on their distinct geography, history, culture and socio-economic systems; should they be compared and contrasted with a well worn European or American model rather than one that reflects on their contribution to building some of the largest cities in human history? Should the public indices denoting world city status reflect differences in local geography, history, culture and socio-economic systems or should the definition of a global city remain static? Should the system of assessment of global cities be subdivided into the world cities of the East and West, or on the broader cultures of Europe, the Americas, East Asia, South Asia, the Middle East and Sub-Saharan Africa? How these questions are answered will impact when and how Beijing is recognized as a premier global city along with London, Tokyo and New York. Over time, as East Asia continues to grow in global importance, it is possible that ratings agency may adapt these indices to better reflect valued East Asian urban characteristics.

This research suggests that the subtle (and sometimes not so subtle) differences between the great cities of the East and West that should be further explored and addressed by the ranking agencies in their future analysis of world cities, by academics attempting to improve the definition of global cities, and by urban planners in their practice of city building, especially given that city building is an increasingly globalized profession. In sum, it may be time to establish a fresh public ranking of global cities that is sensitive to the unique geography, history, culture and socio-economic systems of cities in Asia.

Conclusions

The emergence of Beijing as a top-tier global city will require significant effort, the application of focused strategic thrusts with strategic intent, and the design and effective implementation of specific programs that most cost-effectively will rapidly realize the identified strategic thrusts. “Edwards (1999, p 68)²⁶³ summarizes six major elements for cities, like Beijing, to transform themselves into knowledge-based “high-tech, high-income growth centers of tomorrow”:

- “A close association with nearby colleges and universities to supply a highly educated and technically skilled work force.
- A modern information infrastructure that includes strong telecommunications capabilities.
- A cost-effective transportation infrastructure that connects with national and international markets.
- Access to venture capital to support a healthy R&D base.
- An attractive living environment and a well-defined lifestyle.
- An aggressive economic development force that understands how technology creates growth.”²⁶⁴

This emphasis, by Edwards, on “an attractive living environment” speaks directly to the issue of improving environmental quality and urban livability of Beijing. Further, his discussion – in 1999 – regards access to “strong telecommunications capabilities” speaks to the senseless and nationally self-destructive embargo on many parts of the World Wide Web by the People’s Republic of China that currently defines Beijing communications systems.²⁶⁵ Overall, a new development paradigm based on improving the livability of Beijing, while freeing the systems of local and international communication and developing an *Office of Global City Development* are key to achieving the goal of premier global city status.

History is replete with examples of disruptive events that precede fundamental change in the nature and breadth of urban policies for the development of cities. It, unfortunately, required “the catastrophic London smog of 1952 from which 12,000 people died”²⁶⁶ to instigate the introduction and passage of the United Kingdom's Clean Air Act and it required the debt crisis of the 1970s in New York City and the 1997 economic crisis in Bangkok to properly structure the long term obligations of these communities. A through reading of *The Twelfth Five-Year Plan for the National Economic and Social Development of Beijing (2010-2015)* demonstrates that Beijing’s leadership, including its urban planners and policymakers, understand the city’s serious challenges, so that a high-profile disruption should not be necessary to spur action to correct deficiencies in urban livability.

Although it does not require a disruptive event to spur action to address glaring deficiencies in major cities, as demonstrated in this report, it can be instructive to anticipate such disruptions to prevent their emergence in the foreseeable future (e.g.,

anticipatory governance), or in the worst case to respond quickly to them if they do occur. This is the essence of urban planning and policy making, to use cutting edge analysis tools, such as narrative scenario planning, to anticipate and plan the future of cities.

Development of the *Status-Quo Scenario* exploring the current trends in the development of Beijing and its potential emergence as a global city with Chinese Characteristics is precisely to “help analysts and decision makers to understand the variety of events that may come to pass and their possible impact.”²⁶⁷ I have focused on the *Status-Quo Scenario* because it indicates Beijing’s gaps and shortcoming in regard to the global city trajectory. However, scenario analysis can be equally well used to paint more optimistic scenarios based on different assumptions regarding policy and internal / external environments of Beijing. Accordingly, it is recommended that planners in Beijing use scenario analysis to a far greater extent. Beijing’s planners and other experts are well aware that “air pollution, fresh water shortage and insufficient waste treatment capacity are increasingly major problems in the city,”²⁶⁸ and that scenario-based processes can be powerful in helping decision-makers resolve these important and pressing issues.

In 2013 “China [has] set higher anti-pollution standards and implement stricter measures to achieve better air quality, Vice-Minister of Environmental Protection Li Ganjie pledged . . . at a celebration of World Environment Day.”²⁶⁹ It is only natural that “those cities with the highest level of economic development have now generally solved problems of industrial pollution (partly of course because of the movement of these industries out of such cities) and are now turning their attention to consumer related pollution such as that created by cars.”²⁷⁰ Only time will tell if the many goals proposed

in the Twelfth Five-Year plan to improve air quality issues in the city will be successful.

The *Status-Quo Scenario* indicates that Beijing is *not* on a trajectory to achieve premier global city status unless and until it realizes the goals contained in *The Twelfth Five-Year Plan for the National Economic and Social Development of Beijing (2010-2015)*. The interventions necessary to achieve those goals will neither be easy to achieve or inexpensive, but they can be achieved before 2030. Therefore, the conclusion reached by this research is simple, that the Beijing Municipality should demonstrate the following attributes to become a leading global city:

- “An enlightened mode of governance with a reinvented government working in partnership with the private sector, civil society and the third sector.
- An active and creative member in developing innovative technology and economic activities to further sustainable global and local development.
- A place not just rich in economic capital but also great in nourishing human, social, cultural and environmental capital.”²⁷¹

Beijing Municipality can best do so by recognizing that “a global city is like a great party . . . no one cares to leave.”²⁷²

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