URBAN MOBILITY AND SUSTAINABILITY IN ASIA AND THE POWER OF CONTEXT

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ABSTRACT

This paper provides an overview of recent developments in urban mobility and sustainability in Asia, highlighting the significance of understanding the 'power of context' when formulating relevant policy and planning responses to urban transportation challenges. It was first presented at the 85th Annual Meeting of the Transportation Research Board in Washington D.C. in January 2006. The author argues that the challenge of how best to go about enhancing mobility and sustainability in today's urban Asia is clearly a strategic mega issue that requires a thorough appreciation of the dynamics and influence of the context in which current Asian developments are taking place. Citing Naisbitt, the paper suggests this is significant for what is happening in Asia today is by far the most important current development in the world …not only for Asians but the entire planet. The author concludes by claiming that the translation of the aims of the sustainable development vision into the urban transport sector is one of the most difficult and challenging aspects of urban transport strategy formulation; a task made more difficult by recent forces of globalization that actively encourage a departure from past practices of using transport infrastructure to bind and unite cities and regions.

INTRODUCTION

Defining Terms

Progress in achieving better urban mobility and enhanced urban sustainability is commonly referred to in Asia and elsewhere as a yardstick of development. When citing these concepts, however, it is essential to clearly define them and for the populace at large to be made aware of the implications of the visions they sub-assume and in reality promote[1]. This is all the more important on two accounts. Firstly, concepts of mobility and sustainability in cities are complex and so critical to their future. Secondly, they are frequently misunderstood, even misrepresented, making concept clarification *crucial* to any policy-making and planning exercises for transport and city development.

The ultimate challenge arises when the concepts of mobility and sustainability become the basis for taking key policy action(s) that requires widespread political approval. Here the biggest common danger is for the concepts to be simplified or compromised to such a degree, in the effort to make them more easily understood and acceptable, that much of the sensitivity regarding their complex character is lost; a development that can resort to them becoming camouflage for a 'business as usual' approach.

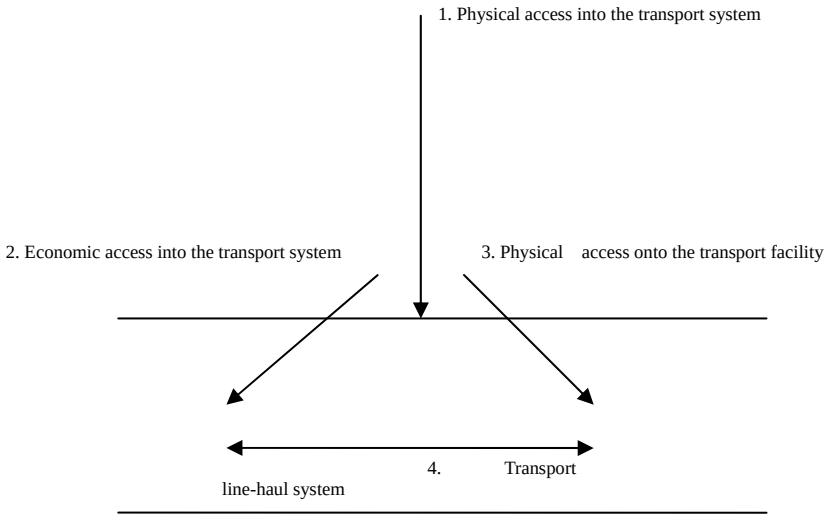
Defining Mobility

The concept of urban mobility, which for our purposes may be defined here as "an ability of an individual to move within, and interact with, the environment, usually involving the utilization of public and/or private transportation" (www.adlergiersch.com/brain_terms.cfm), has long been (erroneously) used interchangeably with other transportation terms, such as 'accessibility' and 'movement', implying that so long as vehicles and people are on the move (usually at greater speed) more benefits accrue to those enjoying the mobility and the civil society/economy at large. This was implied in the title Cities on the Move of the World Bank's Urban Transport Strategy Review in 2002.

This premise has largely developed as a reaction to things. Firstly, widespread increased urban traffic congestion problems, which are universally seen as major impedance to efficient economic performance and city development. Secondly, the transport specialists' pre-occupation with 'operations efficiency' rather than 'developmental impacts' (see Dimitriou, 1992). The truth is that this premise is a myth in so far as freeing-up one party's movement can often have negative impacts on others or other parts of the transport system, and/or indeed on the environment in which the enhanced mobility is offered (these are referred to by economists as 'externalities'). There are also, of course, equity issues involved in providing 'privileged mobility' (see Vasconcellos, 2001); a concern that highlights the importance of the 'affordability' dimension of any increased mobility provided.

Figure 1. TYPOLOGY OF ACCESSIBILITY PROBLEMS

Source: Author



[1] According to Steiner (1997:12), Confucius is reported to have said that if he were made the ruler of the world the first thing he would do is to fix the meaning of words as action follows definition.

A much preferred indicator of transportation improvement in my view is the concept of ‘accessibility’. This is on the understanding that it is seen as a multi-dimensioned concept (see Figure 1) that refers to physical accessibility (i.e., the physical proximity to infrastructure/services and the ability or otherwise to access the services on offer, determined by capacity and service frequency limitations) conditioned by the price of the transport service/facility in relation to disposable income.

Defining Sustainability

Among the clearest of many interpretations of sustainability as it relates to cities is that provided by Hardoy, Mitlin and Satterthwaite (2001:337) who explain: “at its core, the concept of sustainable development is about reconciling ‘development’ (which implies the use of resources and the generation of wastes) with the ‘environment’ (which implies finite limits of the use of many resources) at local, regional and global scales”.

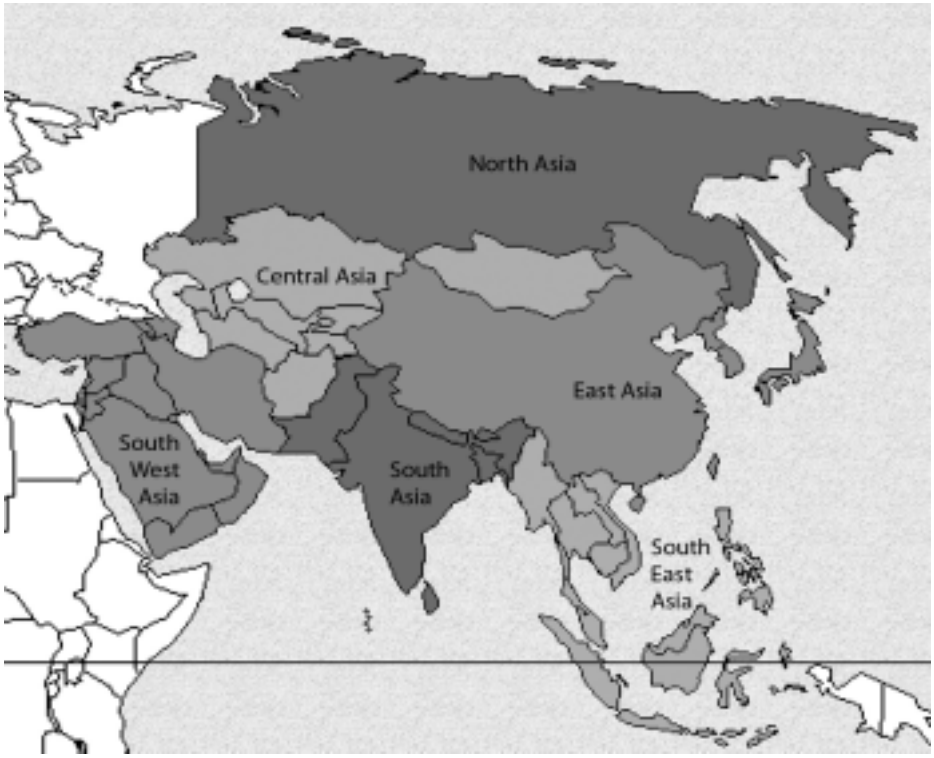
McGee (2005) argues that this definition is important since cities are often simultaneously presented as both major threats to eco-systems and generators of opportunities and wealth creation, notwithstanding an acknowledgement that policy initiatives are seen capable of reconciling some aspects of sustainability with development. The concept of sustainability is returned to later in this paper on two occasions. Firstly, as an illustration of the ‘tipping point’ principle explained below and, secondly, in terms of the problems of operationalizing the sustainability concept in the transport sector of Asian cities.

Defining Asia

As McGee has pointed out (2005:3), Asia’ is a geographical term that is often confusingly used to describe many of its different parts (sub-regions), all of which have their own distinct entities. These include (see Figure 2): Eastern Asia, South Central Asia, South-Eastern Asia and Western Asia. These sub-regions in fact are so diverse that some have argued that ‘Asia’ as an entity is an area more artificially defined by the West and the UN system than an area identified by those living within its geographic confines.

Figure 2. ASIA AND ITS SUB-REGIONS

Source: Author



Be this as it may, these sub-regions of Asia together include 3.7 billion of the world's 6.1 billion people in 2001. Together, the first three contain 2.5 billion inhabitants and is the area most commonly referred to as 'Asia'. Eastern and South-Eastern Asia – called the Asia-Pacific Region - accounts for 54 per cent of the entire region's population and is the geographical area to which this paper primarily refers.

IMPORTANT EMERGING PRINCIPLES

The Power of Context

How best to go about enhancing mobility and sustainability in today's urban Asia is clearly a strategic mega issue that requires a very good understanding of the dynamics and power of the context in which current Asian developments are taking place.

While recently preparing for a new book on strategic planning and regional development (see Dimitriou and Thompson, 2006) I was advised by a senior executive of a multi-national company, at the time engaged in global strategy formulation for his company, to read three key publications that had recently caused a stir in the global corporate world as to how best corporate companies should confront global challenges in an increasingly competitive and uncertain world. Suspecting these readings would also be relevant to future Asian urban developments, and yet unlikely to feature significantly among the reading lists of transportation specialists or urban and regional planners working in the region, I read these recommended readings with considerable interest.

What I found most significant about these publications - Malcolm Gladwell's The Tipping Point (2000), James Surowiecki's The Wisdom of Crowds (2004) and Mehradad Baghai, Stephen Coley and David White's The Alchemy of Growth (1999) - is that they all alluded to the critical importance of understanding and appreciating the 'power of context' in strategic planning, be it for planning responses to changing trends of the market or changing demands on transport and city infrastructure. They did this by highlighting the significance of three very important but different principles; namely:

- the rules of the epidemics of ideas (Gladwell, 2000);
- the wisdom of crowds and the art of decentralization (Surowiecki, 2004); and
- the importance of the three horizons of growth and staircases to growth (Mehrdad Baghai, Stephen Coley and David White, 1999).

Tipping Points

Gladwell's success in *The Tipping Point* at alerting the world of the process by which certain products, ideas and ways of behaving cross the threshold or "tip" and take off is of great significance to what is happening in Asia today. This can be seen in the successful marketing to Asian governments by Western corporate interests of visions of automobile-dependent city development and associated lifestyles. It may also be observed, perhaps somewhat paradoxically, by the unexpected 'take-off' of the concept of sustainable environmental development and its growing acceptance by national and local governments and the international development community alike albeit at too slow a pace to address the negative implications of pursuing paths of unabated motorization. The widespread acceptance of the notion that increased global pollution is contributing to climate change with potential devastating implications is another illustration of how ideas, concepts and visions 'tip' into global acceptance (even though still not subscribed to by the US and Australian governments).

Gladwell's book provides profound insights into the pivotal role certain parties and individuals can have in changing or perpetuating trends, ideas and policies; so critically important for policy-makers and planners operating anywhere in the world. It sheds light on the "rules" of what he presents as "the epidemics of ideas" that make certain ideas and visions "stick" and other fade away.

The Wisdom of Crowds

The premise of Surowiecki's book entitled *The Wisdom of Crowds* is that if you want to make a correct decision or solve a strategic problem, large groups of people are smarter than a few experts. If true, this has profound implications for how we run our governments, societies and cities, and how we structure our political systems, think about the future, and offer and undertake technical assistance in fast developing areas such as Asia.

The conventional wisdom is that when you want something done 'right' one turns to a leader, whereas, Surowieck demonstrates quite convincingly by citing a number of examples that not only this need *not* be true but is often *not* the case. Perhaps the most recent event that dramatically reinforced Surowieck's premise is the outcome of the French and Dutch referenda on the proposed EU constitution which rejected the newly proposed constitution.

The conclusion that large groups of people are smarter than a few experts has amazing implications for city planning, transportation developments, environmental management and for those involved in efforts to make policy-making more effective, democratic and decentralized - both in Asia and elsewhere.

The Three Horizons of Growth

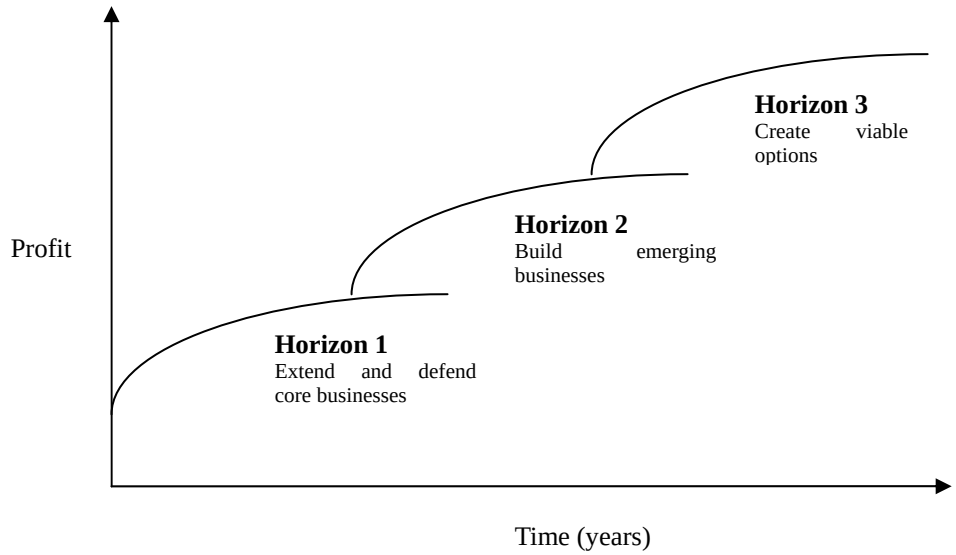
The findings cited in The Alchamey of Growth by Baghai, Coley and White are of a long-term study undertaken by consultants from McKinsey & Company, as regards what it takes for private business ventures to achieve 'sustained profitable growth' and turn-around failing businesses in climates of increased deregulation, competition and globalization. Critical conclusions of this study are that: "executives must start talking as much about where they are heading as about where they have been"; that very few companies sustain above-average growth for their industry year after year; and that the "three horizons" and the "growth staircase" concepts are critical in strategic planning for sustained growth.

Baghai et al make it clear that understanding growth is a pre-requisite to achieving sustained development and that the principles underpinning the three horizons analysis are a crucial component of this exercise. The three horizons presented (see Figure 3) represent a different stage in the creation and development of business, each of which the authors argue call for radically different initiatives and pose very different management challenges. They allow one to "distinguish between the embryonic, emergent, and mature phases of a business life cycle" (Baghai et al, 1999:4) whereby:

- Horizon 1 is preoccupied with the extension and defence of core businesses;
- Horizon 2 is focused on the building of emerging businesses; and
- Horizon 3 is concerned with the creation of viable options to current businesses.

Figure 3. ABOUT HERE: THE THREE HORIZONS AND GROWTH STAIRCASE

Source: Author



Without dwelling too long on the detailed analysis of the three horizons, what the authors argue are three important things: Firstly, it is *very* important to understand that each horizon pay-offs over *different* time frames. Secondly, successful industries are much better at tackling the challenges of Horizon 1, are less skilled at addressing the challenges of Horizon 2, and distinctly poor at confronting the challenges of

Horizon 3 - which is why the culture of short-termism prevails so much in private sector thinking. Finally, the art of achieving sustained growth is to engage in the challenging of the three horizons concurrently and *not* sequentially.

The implications of this 'staircase to growth' strategy for urban and regional planning and transport infrastructure planning are profound, especially in Asia where the growth of new industry and commerce has been so feverish. This is because on the one hand the public sector is increasingly feeling obliged to 'fall-in line' with the private sector's short-termist Horizon 1 focus at a time when business gurus are discovering the strategic importance of more forward thinking strategies. The public sector, on the other hand, is increasingly shedding its institutional capacity for forward thinking at the very time it is needed most, and is in short supply in global and local industry and commerce. This mis-match does not bode well for both the public and private sector. It has particular sinister implications for the fast developing areas of Asia as evidence is rapidly growing that the private sector *needs* a strong public sector to succeed which is contrary to what much conventional thinking about globalization would have us believe.

UNDERSTANDING THE ASIAN DEVELOPMENT CONTEXT

Understanding Context

Other seminal pieces of work of relevance to the context-setting of urban and transportation policy-making and planning in Asia include:

- Manuel Castells' trilogy on the Information Age which include: The Rise of the Network Society (1996), The Power of Identity (2004) and End of Millennium (1998) which among other things together emphasize the importance of globalization, the role of communications infrastructure and flows in re-structuring territories and economies, and the threat to the nation state and identity of communities and territories. The last of these books elaborates extensively on the impacts of globalization in the Asia Pacific.

- Ulrich Beck's series of publications on risk, including: The Risk Society (1992), Ecological Politics in an Age of Risk (1995), What is Globalization? (1999), The World Risk Society (1999) and The Brave New World of Work (2000) which emphasize in different ways that the Western post-industrial society has experienced (is still experiencing) decisive transitions that place uncertainty and risk at the milieu of every day life and policy-making and planning for the future, calling on more holistic thinking and skills of coping with complexity as globalization forces become more prevalent and forceful.

- John Naisbitt's books on mega trend analysis includes: Megatrends (1982), Megatrends 2000 (with Patricia Aburdene, 1990) and Megatrends Asia (1996). The first of these publications accurately predicted ten major patterns which shaped the world in the 1980s. The second, expands upon these ten mega trends and predicts the privatization of the welfare state and the rise of the Pacific Rim, while the third of Naisbitt's publications cited above (referred to more extensively below) predicts a China-led Asia will be the dominant region in the world in the new millennium and that it will shift the world's centre of economic and political gravity back to Asia.

Globalization[2]

We are constantly reminded that we live in a time of 'globalization', "a time of instant communication, a time when trade barriers are being smashed and Europe is unifying, a time when you cannot help but feel that the march to a 'borderless world' is proceeding briskly" (The Economist, 1998: 19). Castells (1996:1) has hailed globalization as a new technological revolution, centred on information and communication technologies that are reshaping the material basis of society at an accelerated pace never experienced before. Emphasizing the dynamic nature of the globalization process, Held et al (1999:1) describes the phenomena as "forces that are fast moulding the world into a shared social space by critical economic and technological influences which lead developments in one region of the world to have profound consequences on individuals and communities on the other side of the globe".

Globalization is then the new economic, political and cultural order we live in. It is not only the backcloth

[2] This section has been extracted from a paper presented at the 84th TRB Annual Meeting in January 2005 in Washington D.C. entitled 'Globalization, Mega Transport Projects and the Making of Mega Places for the Session on Socio Economic Factors of Transportation.

to many major transportation investments in Asia (both urban and regional) but, in many cases, their very raison d'etre. We are also advised that today's world is one where nation states no longer represent meaningful economic units, and where consumer tastes and cultures are homogenized and standardized by global products, created by global corporations with no allegiance to place or community (Dicken, 1999: 1). What is less frequently pointed out, however, is that it is these very 'stateless interests' that frequently rely on these national economic units to guarantee the finance, even subsidize (sometime by default), the construction and operation of many major transportation projects and that are developed in a way that make selected places more conducive to capturing globalized benefits and generating globalized traffic.

Kay (2003) concurs with Thomas Friedman who makes it abundantly clear in his book The Lexus and the Olive Tree (1999) that the centre of this new globalized world order is unashamedly the USA, notwithstanding the deep scepticism of Europeans and others about the universality of ABM (also see Biel, 2000, and Bobbitt, 2004). Kay (2003: 7-8), like Palast (2002), claims that ABM/globalization reflect above all "the principles of market fundamentalism (i.e. the belief that interference with the functioning of free markets is almost never justified) and the doctrine of the minimal state, whose economic role should extend little beyond the definition of property rights and the enforcement of contracts". Kay perceives this "to pander to a deep-seated need by neo-liberal economists for simple, universal explanations of complex phenomena with an appeal that parallels that of the Marxist doctrines it has supplanted" (Kay, 2003: 8). Serious doubts of the suitability of the application of ABM to project finance are now beginning to emerge especially in numerous Private Finance Initiatives (PFI) associated with major urban transport projects which in many instances are deemed to have failed to offer good value for money.

Megatrends

It has long been recognized that an appreciation of the context of problems is a prerequisite to effective problem-solving (Koenigsberger, 1964; Gladwell, 2003). This premise is especially relevant to the subject matter of this paper because, as John Naisbitt claimed in his seminal book entitled Megatrends Asia (1996): "What is happening in Asia is by far the most important development in the world today…not only for Asians but also for the entire planet."

Although now more than eight years on from the time Naisbitt's book was first published, his claim about the importance of Asia's development is truer today than ever before, especially regarding trends in economic development, urbanization and motorization (see Castells, 1998; Cartier, 2001; The Economist, 2004a and 2004b; Cannon, 2004). Naisbitt identified the following eight changing megatrends in Asia:

- The transformation from nation-state economies to networks, where the economic influence of Japan in the region has especially given way to the dynamic collaboration of the overseas Chinese ("bamboo") network of family businesses;
- The change from public sector-led government control of economies to market-driven developments, generating an explosion of economic growth and opportunities;
- The change from export-led to consumer-driven country economies, generating a fast-emerging middle class and a massive growth in motor vehicles;
- The transition from Western-influenced developments to a new emerging Asian identity, where the most significant outcome is the modernization of Asia, despite the bumpy years associated with the regional currency crises;
- The transition of the populations' dependency from rural environments to mega cities, with migration from rural areas to cities taking place at an unprecedented pace, transforming Asian societies built on a rural heritage towards urban values, high technology and the information age;
- The change from labour-intensive work practices to high technology-based activities, where a dramatic shift is taking place from labour-intensive agricultural and manufacturing practices to state-of-the-art technology in both manufacturing and services (most pronounced in cities);
- The transition from male dominance in society towards the emergence of a more acknowledged role of women, reflected by a significant emergence of an increased role for women in entrepreneurial activities and a growth of their influence as consumers, members of the workforce and (in some instances) voters;
- The transformation from a reliance on Western models of development to Asian ones, leading to an increased belief among many in Asia that the globe is moving towards the Asianization of the world.

These developments have hardly gone unnoticed internationally, more especially because the region currently contains 56 per cent of humanity and has experienced phenomenal economic development, notwithstanding the Asian currency crises in 1997. In 2003, the Financial Times of London ran a special feature on the scale and impact of Asia's recent megatrends under the provocative headline "Why Europe was the past, the US is the present and a China-dominated Asia is the future of the global economy" suggesting that Japan was "but the harbinger of an Asian future" (Financial Times, 2003). World Bank statistics quoted in this same article reveal three major global developments: that the United States, China, Japan and India (in that order) have the highest gross national income at purchasing power parity in the world; that the Asian proportion of world trade stands at almost 25 per cent; and that the Asian share of the world's GDP amounts to approximately 38 per cent, with China, Japan and India constituting more than 50 per cent of this. These are hugely important developments.

URBAN ASIA AND TRANSPORT

Cities and Urbanization

Figure 4. MEGA AND PRIMARY CITIES OF ASIA

Source: United Nations Population Division, World Urbanization Prospects (2001)

1950

Rank	Name	Pop. ['000]
6	Shanghai	5,333

1 Asian City among 8 Cities World-Wide (13%)

1975

Rank	Name	Pop. ['000]
1	Tokyo	19,771
3	Shanghai	11,443
6	Osaka	9,844
10	Beijing	8,545
13	Calcutta	7,888
15	Bombay	7,347
16	Seoul	6,808
19	Tianjin	6,160
22	Manila	5,000

9 Asian City among 22 Cities World-Wide (41%)

2000

Rank	Name	Pop. ['000]
1	Tokyo	26,444
5	Mumbai	16,086
7	Calcutta	13,058
8	Shanghai	12,887
9	Dhaka	12,519
10	Delhi	12,441
12	Jakarta	11,018
13	Osaka	11,013
14	Beijing	10,839
16	Karachi	10,032
17	Manila	9,950
18	Seoul	9,888
21	Tianjin	9,156
27	Bangkok	7,372
29	Teheran	6,979
30	Hong Kong	6,860
33	Madras	6,353
34	Bangalore	5,567
36	Lahore	5,452
37	Hyderabad	5,445
38	Wuhan	5,169

21 Asian City among 39 Cities World-Wide (54%)

2015

Rank	Name	Pop. ['000]
1	Tokyo	27,190
2	Dhaka	22,766
3	Mumbai	22,577
5	Delhi	20,884
8	Jakarta	17,268
9	Calcutta	16,747
10	Karachi	16,197
13	Shanghai	13,598
15	Manila	12,579
16	Beijing	11,671
20	Osaka	11,013
21	Tianjin	10,319
22	Seoul	9,918
25	Bangkok	9,816
28	Lahore	8,721
29	Bangalore	8,391
30	Teheran	8,178
32	Madras	8,068
33	Hong Kong	8,025
34	Wuhan	7,833
37	Riyadh	7,536
38	Hyderabad	7,513
39	Chongqing	7,440
40	Ahmedabad	6,612
42	Baghdad	6,549
44	Chittagong	6,360
45	Yangon	6,258
46	Ho Chi Minh City	6,251
47	Pune (Poona)	6,112
49	Surat	5,715
51	Shenyang	5,429
52	Kabul	5,397
55	Bandung	5,245
56	Hanoi	5,227
57	Jidda	5,183

35 Asian City among 58 Cities World-Wide (60%)

Rank: City's population size ranking among all cities with more than 5 million inhabitants

Data Source: United Nations Population Division, World Urbanization Prospects (2001)

Cities (particularly mega and primary cities) (see Figure 4) have been the epicentre of this growth throughout Asia. They have acted as focal points of rapid industrialisation and have been linked closely to significant rising levels of international and regional trade in an increasingly globalized world. According to United Nations sources, the urban population in the Asia and Pacific region stands at approximately 1,230 million and is predicted to reach 1,970 million by 2020. This would represent 46 per cent of its projected total population of 4,298 million in 2020 (United Nations, 1999). By 2025, the same source foresees the majority of the region's population living in urban areas. The vast majority of this urban growth is currently concentrated in mega cities and metropolitan and other major urban areas with populations in excess of 750,000, with annual urban growth rates of 3.02 and 2.84 per cent for China and India respectively, and 3.3 per cent for Indonesia.

The fast-rising numbers of middle-class inhabitants of Asian cities, and the rapidly changing lifestyles and consumption patterns of the fortunate (Myers and Kent, 2004; The Economist, 2004b), accompanied by dramatic increases in motorization levels (see Willoughby, 2000), are acknowledged worldwide not only to signify important development progress but to also to pose major resource and environmental challenges, both locally and globally (see Schipper and Lewis-Davis, 1998; Zegras, 2003). Among the most important of these challenges is the huge increase in China's demand for oil and the resulting impact on raising the world's oil prices. In the USA, the American Automobile Association is attributing much of the recent oil price rises to increasing demand in China and India. Other major challenge is the growth in the numbers of the urban poor[3], the acute (and fast-rising) housing and infrastructure shortages, the widespread environmental degradation of cities, the loss of productive agricultural land to increased road construction, and the increased loss of productive time through rising traffic congestion. Numerous influential international reports and publications have underlined these concerns, citing urbanization, motorization and transport problems in the region as posing dire consequences if left unaddressed (see Weisbrod, 1999; WBCSD, 2001; World Bank, 2002; Bandurski, 2003; Cannon, 2004).

The major proportion of global urban population growth in the next 25 years will occur in Asia of which 58 per cent (1.3 billion) of this global increase (depending on which source one uses) will take place in Asia. Of this, almost 80 per cent will occur in India, Pakistan, Bangladesh, China and Indonesia (McGee, 2005:6). It should be pointed out, however, that these estimates under-emphasize the true scale of growth as many urban activities take place in rural areas surrounding urban locations and because many official urban population estimates exclude seasonal working populations in cities and non-registered urban residents.

According to McGee (2005:7-10), what is clear is that over the next 30 years the expansion of urban areas and populations is "an underlying 'demographic imperative' that drives all policy formation" and that in order to understand the significance of this growth it is critical to deconstruct the urbanization process that is taking place and understand the challenges and policy implications that arise. His very interesting analysis highlights among other things the fact that:

- Mega cities and mega urban regions (MURPS) are given undue emphasis and that more attention should be paid to smaller settlements (also see Dimitriou, 1996).

- There is a need to better understand the processes that are fuelling the growth of urbanization in the region especially the transition processes from traditional societies to modern/post-modern globally-connected societies (see Naisbitt, 1996).

- The implications and consequences of the compressed timeframe in which urban environmental problems are emerging are taking place in a context where previous development priorities remain unresolved (see Marcotuillio and Lee, 2003).

- Developments have contributed to the increased centralization of urban systems, not only in terms of large urban regions but also in terms of their territorial configuration, whereby urban systems increasingly cling to major transport corridors or leap-frog from the urban core to a series of poly-nucleated cities which form large urban regions as experience as in Southern China (see Yeung, 2000).

- The increased (and increasing) dependency on automobile based transport systems, providing for greater private car and motorcycle use, and the use of various forms of motorised public transport

[3] The World Bank regards people earning less than 1 US$ a day (in 1993 purchasing power parity) to be "absolutely poor".

such as buses and mini buses (see Barter, 1999).

- The outward spread of urban based activities in growing mega urban regions contributing to the consumption of increasing amounts of space, the need to construct increasing kilometres of roads and related motor vehicle support infrastructure and services, and control systems (see Kenworthy and Laube, 1999).

- The trend whereby urban-regions compete to capture some of the transactions generated at both the national and local levels, and in so doing 'go the extra mile' "to create a favourable environment that will increase their flow of transactions by investing in new airports, conventions", science parks, new industrial estates and other mega projects (see Graham and Marvin, 2001).

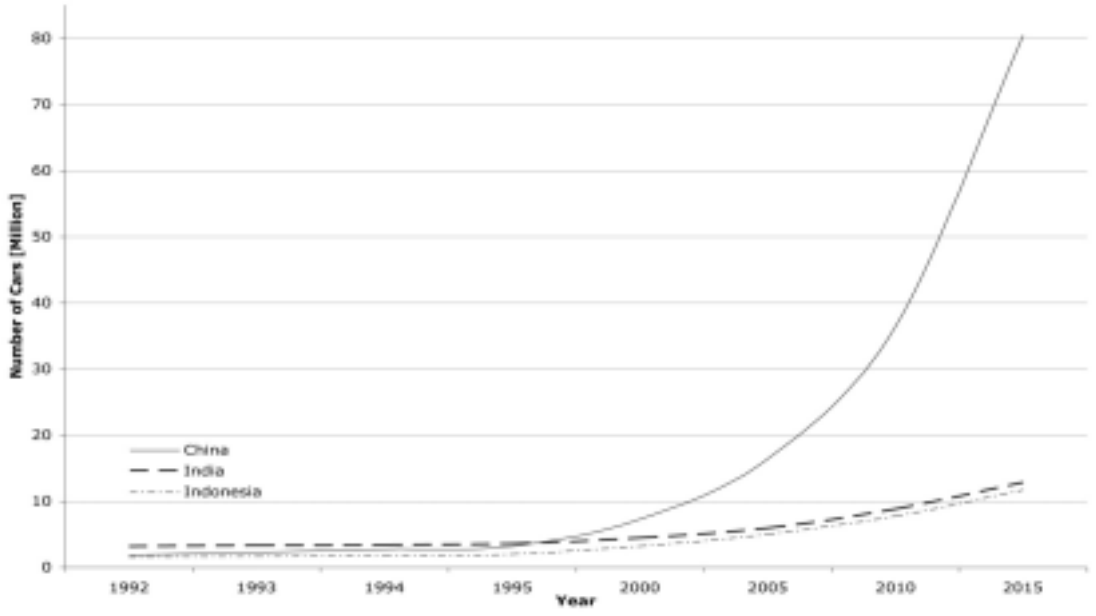
Asian City Transport

Almost five years ago the author jointly wrote an article for Competition and Change (see Dimitriou and Ernst, 2001) that reported on the 'undeliverable vision' of motorization in Asia which reflected a similar more general diagnosis offered by Thynell (2003). In essence, the argument presented in the former publication was that in the emerging economies of Asia, urban areas face seemingly insurmountable challenges which include the accommodation of rapid population growth while providing sufficient infrastructure to serve as hubs for the national economy competing in an increasing global market.

Figure 5. MOTORIZATION RATES IN LARGE ASIA ECONOMIES 1992 TO 2020

Source: IEA and Lawrence Berkeley National Laboratories

	Year	1992	1993	1994	1995	2000	2005	2010	2015	2020
China	GDP/capita	2,134	2,407	2,697	2,897	3,877	5,189	6,944	9,293	12,436
	Cars (Thous)	1,681	2,296	2,754	3,239	7,342	16,450	36,507	80,407	176,029
	Population (Million)	1,172	1,185	1,199	1,213	1,287	1,350	1,402	1,445	1,480
	Cars/GDP	0.8	0.8	0.9	0.9	1.5	2.4	3.8	6.0	9.6
	Cars/1000 capita	1.6	1.9	2.3	2.7	5.7	12.2	26.0	55.7	118.9
India	GDP/capita	1,084	1,101	1,138	1,186	1,375	1,574	1,847	2,142	2,483
	Cars (Thous)	3,205	3,330	3,434	3,534	4,494	6,002	8,863	12,863	18,414
	Population (Million)	873	897	921	946	1,083	1,206	1,315	1,409	1,489
	Cars/GDP	3.4	3.4	3.5	3.6	4.2	4.9	5.8	6.8	7.9
	Cars/1000 capita	3.7	3.7	3.7	3.8	4.2	5.0	6.7	9.1	12.4
Indonesia	GDP/capita	2,877	3,017	3,191	3,397	4,440	5,803	7,584	9,912	12,966
	Cars (Thous)	1,591	1,700	1,839	2,022	3,253	5,059	7,756	11,756	17,656
	Population (Million)	186	189	192	195	213	229	243	254	263
	Cars/GDP	3.0	3.0	3.1	3.1	3.4	3.8	4.2	4.7	5.2
	Cars/1000 capita	8.6	9.0	9.6	10.4	15.3	22.1	32.0	46.3	67.1



Source: Rapid Motorisation in the Largest Countries in Asia: Implication for Oil, Carbon Dioxide and Transportation
Published by: Lee Schipper and Cloie Marie-Lilliu, Energy Efficiency and Policy Office and Gareth Lewis-Davis, Oil Markets Office, International Energy Agency, Paris

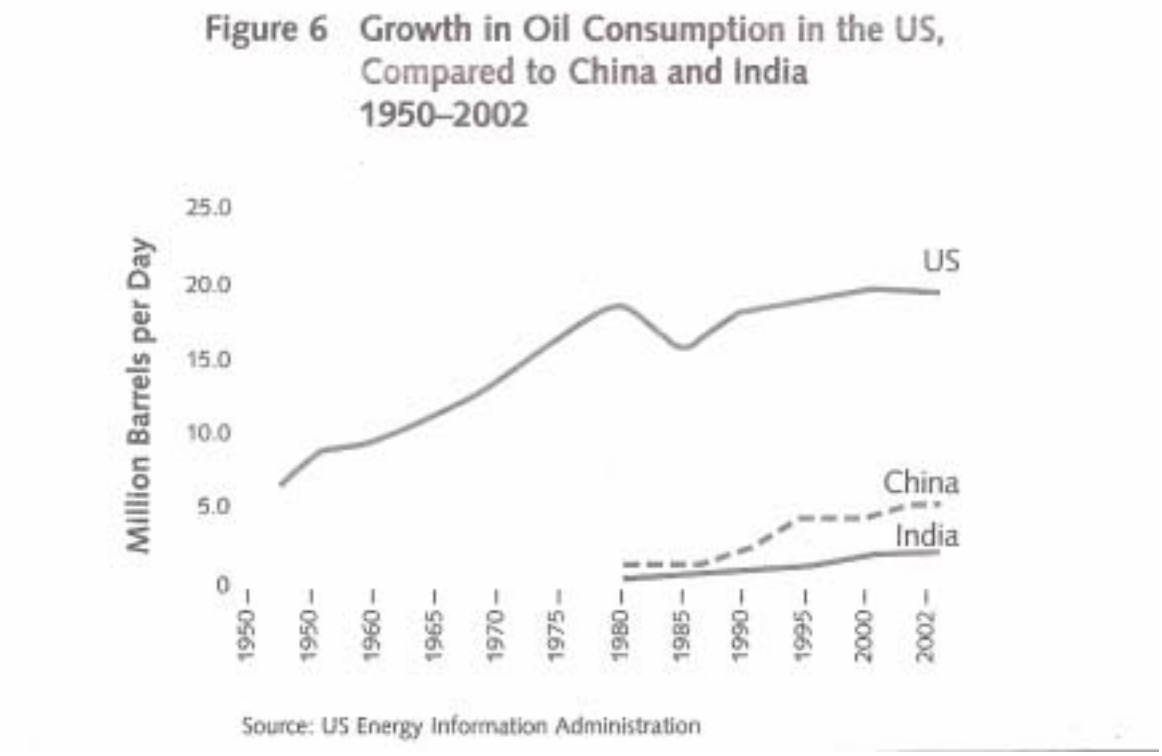
Data Source: IEA and Lawrence Berkeley National Laboratories

What was not realized at the time of preparing this article is how so much more profound the motorization trends would be than originally predicted (see Figure 5), and the extent to which urban transportation infrastructure has been unable to keep up with freight and passenger traffic growth as both politicians increasingly become enmeshed in a globalized vision of motorization, aggressively promoted by the motor car industry. Caught in this vision, despite it's increasingly unaffordability and some minimal opposition, cities in Asia have too often pursued road-building projects to service their development needs and relieve traffic congestion with high (sometimes unknown) opportunity costs. This has seen a transport system develop that caters to the needs of an affluent minority while reducing the public space available to the poorer majority. It has become increasingly apparent as globalization forces spread that these developments are not only associated with individual (and household) 'winners' and 'losers' but also with 'winner and loser' settlements, as newly built infrastructure link some settlements and by-passes others.

A recently published report that examined the implications of the current transportation boom in Asia for United States (see Cannon, 2004) has brought to the forefront the global importance of two major trends underway in Asia. The first is the soaring rates of oil use in India and China (see Figure 6) with consumption concentrated in urban areas. The second trend is the slow recognition by these two countries of how unwise it would be to build transportation systems that depend totally on oil-derived fuels.

Figure 6. GROWTH IN OIL CONSUMPTION IN THE US, COMPARED TO CHINA AND INDIA 1950-2002

Source: US Energy Information Administration



The rates of growth of oil use in India and China are reported to far exceed the countries' domestic production capabilities and has led to a fast rising dependency on overseas sources for which these two countries are having to increasingly compete internationally. The report makes it clear that the choices the governments of these countries make regarding vehicle fuels and efficiency, along with mass transport and land use planning, "will all profoundly affect their transportation and oil use futures" and that "if current transportation and oil use trends continue, the consequences for US of increasing competition from Asia for the world's oil will be dire and could well set-off a resource grab on a scale unparalleled in history" (see Figure 7) (Cannon, 2004:3).

Figure 7. PROJECTED GROWTH IN POPULATION AND OIL CONSUMPTION IN US, ASIA AND WORLD-WIDE

Sources: UN Secretariat, Dept. of Economics and Social Affairs, Population Division and US Energy Information Administration

	Population	% of World	Oil Use (Barrels/Day)	% of World
2000				
US	285,003,000	5%	17,7000,000	26%
China	1,275,215,000	21%	4,800,000	6%
India	1,016,938,000	17%	2,100,000	3%
Asia	3,679,737,000	61%	14,5000,000	19%
World	6,070,581,000	100%	76,9000,000	100%
2000				
US	300,038,000	5%	NA	NA
China	1,322,273,000	20%	NA	NA
India	1,096,917,000	17%	NA	NA
Asia	3,917,508,000	61%	NA	NA
World	6,453,628,000	100%	NA	NA
2015				
US	329,669,000	5%	22,700,000	25%
China	1,402,321,000	19%	9,200,000	9%
India	1,246,351,000	17%	3,500,000	3%
Asia	4,370,522,000	61%	23,700,000	24%
World	7,197,247,000	100%	100,500,000	100%
2020				
US	344,270,000	5%	26,400,000	24%
China	1,429,473,000	19%	11,000,000	10%
India	1,312,212,000	17%	4,400,000	4%
Asia	4,570,131,000	61%	27,600,000	25%
World	7,540,237,000	100%	110,300,000	100%
2025				
US	358,030,000	5%	28,300,000	23%
China	1,445,100,000	18%	12,800,000	11%
India	1,369,284,000	17%	5,300,000	4%
Asia	4,742,232,000	60%	31,600,000	26%
World	7,851,455,000	100%	120,900,000	100%

The slow recognition by both India and China of "how unwise it would be for them to build transportation systems that depend totally on oil-derived fuels" rests on a combination of concerns, including: forecasted diminishing supplies of world oil supplies, severe health impacts on urban dwellers of increased fossil fuel use in cities, the negative environmental impacts (including pollution) caused by dramatic increased vehicular use, the increased consumption levels associated with automobile-dependent settlements and the implications for global climate change . Having assessed these implications the governments of both countries have, apparently, embarked upon an aggressive strategy of moving toward increased use of natural gas vehicular (NGV) technology which "is not only diversifying their fuel use and addressing air pollution problems but also paving the way for the use of another gas – hydrogen – to power pollution- free transportation in the long term" Cannon (2004:v).

Mobility and Sustainability[4]

There is no doubt that the translation of the aims of the sustainable development vision into the urban transport sector at the local level, is one of the most challenging aspects of urban transport strategy formulation; where sustainable development is defined as "development that meets the needs of future generations without compromising the ability of future generations to meet their own needs" (WCED, 1987).

A "new realism"[5] is, however, slowly emerging in Asia and elsewhere which acknowledges that cities cannot road-build their way out of traffic congestion without incurring major detrimental effects on sustainable development and this has been articulated in a number of publications and legislative initiatives in both the developed and the 'so called' developing world (see, for example, Goodwin, 1991; Madison et al, 1996; Newman and Kenworthy, 1999; WBCSD, 2001; Banister, 2002; World Bank, 2002; Cannon, 2004). What these various legislative efforts, reports and publications have in common is their attempt:

- To broaden the appraisal criteria of urban transport studies to accommodate limitations of the

[4] The following two sections have been extracted from a paper submitted for publication to *Habitat International* entitled 'Towards a Generic Sustainable Urban Transport Strategy for Middle-sized Cities in Asia (Dimitriou, 2006b) which in turn was based on the findings of a study undertaken for World Bank and UNDP (Dimitriou, 1998b).

[5] This term was coined by Professor Philip Goodwin in a report to Rees Jeffrey's Road Fund in 1991 entitled *Transport: The New Realism* (Goodwin, 1991).

market system (i.e., market failures) and to promote opportunities associated with the concept of sustainability;

- To enhance the economic and financial sustainability of transport investments and have users pay more to cover the social costs of their transport;

- To examine ways of reducing personalized motorized movement and enhance public transit;

- To investigate opportunities of reducing the pollution impacts of transport provision and internalize more the external costs of transport;

- To alter the functions and role of government in transport and build up the participation of key stakeholders in transport policy-making and decision-making;

- To improve the social and distribution impacts of transport that impact on the wealth creation effects of transport on poverty alleviation.

The 'new realism' acknowledges the urgent need to abandon trend-planning as a basis for transport policy-making and planning and instead advocates the adoption of an approach oriented towards a more sustainable vision, using urban transport as an agent of sustained change rather than as a tool of transport systems optimization that primarily services economic growth goals (Dimitriou, 1992).

Notwithstanding this international call for a change in thinking this has not, unfortunately, led to a step-change in transport developments in Asia. This is despite the sterling efforts of numerous international development agencies and non-governmental organizations, and recent reports in the press which suggest that fears about climate change in China may prompt its government to make an energy U-turn to reduce its growing emissions. Instead, too many new transport projects in Asia (and elsewhere) adapt the concept of sustainability to conventional thinking rather than regard the concept as a trigger of new ways ahead (Tengstrom et al, 1996). Hajer (1996) attributes this in part to the fact that the "the concept of sustainability fits very uncomfortably in a technical design rationale that is expected to arrive at 'solutions'." What this has resulted in, with some notable exceptions, is a 'business-as-usual' mentality, irrespective of the rhetoric as the retrospective analysis of the three case-study cities confirm.

Visions as the Driving Force of Urban Transport Futures

For any urban transport strategy to be effective, it must have a vision and address both 'manifestation' and 'root problems'. It also needs to acknowledge that urban transport problems have their origin as much outside the transport sector as within it. The megatrend developments outlined earlier illustrate how intricately interwoven and interdependent many of the root problems of the transport challenges of cities in Asia are, and the critical need for transport strategies to reflect the dynamics of these influences as underlying driving forces.

The pursuit of 'sector-blinkered' transport strategies in this context is inappropriate because, apart from anything else, they inadequately take into account the workings of a competitive global market that sees efficient urban areas as the focus of local, as well as regional and international economic productivity. In this sense, the absence of smooth flows of traffic and efficient and affordable transport services, as well as adequate transport infrastructure, is increasingly seen by governments and the private sector alike as the Achilles heel of development. Furthermore, rises in disposable per capita incomes have dramatically altered the traditional perception that views urban traffic problems primarily as a municipal concern.

Because many Asian governments see the motorization of their country and cities as the fulfilment of a development vision and a sign of economic virility, they have welcomed the dramatic increased activity of the motor vehicle industry as in the case of China (see Figure 8). There is as a result a widespread bias in many national governments in Asia towards the investment and provision of motorized rather than non-motorized transport (Dimitriou and Ernst, 2001). While this encouragement of unabated motorization undermines efforts at developing sustainable transport strategies for cities of any size, it has special significance for middle-sized cities where non-motorized movement is particularly prevalent.

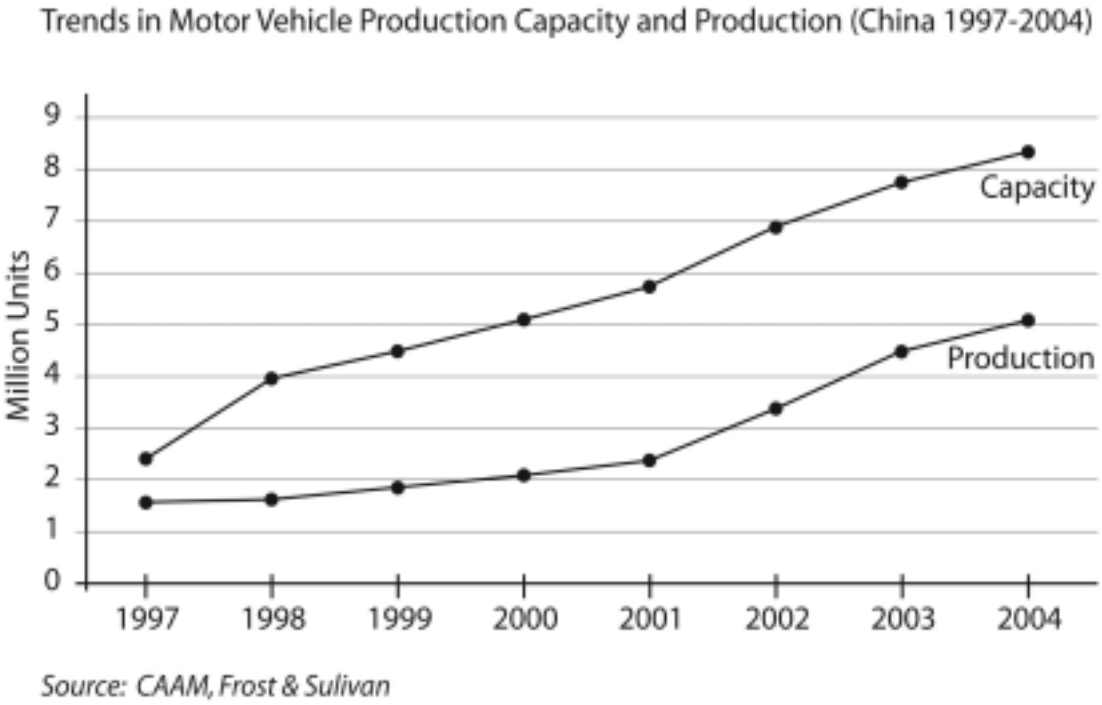
Adams (1996) argues that by relaxing important constraints on the appetite for higher levels of motor vehicle ownership, many national and local governments imply that they can deliver a level of road infrastructure provision that is far greater than what they can in reality provide (and indeed afford). He also makes the point that an unrestrained motorized vision caters more for the transport needs of an

affluent minority which too often seem only too willing to kick away the ladder behind them soon after they have improved their lot. This is an outcome that is more likely than not to make one section of society (the poor) less mobile, as another (the affluent) is made more mobile (Peng, 2005). The worsening of this divide is in grave danger of increasing the resentment between these two sets of people, reducing their levels of mutual understanding and potentially culminating in social conflict (ESCAP, 2000; Vasconcellos, 2001; DFID, 2003).

While movements exist both globally and regionally to promote alternative sustainable visions for the future development of city transportation (see, for example, the work of SUSTRAN, ITDP and EMBARQ), earlier research conducted by the author in the region (see Dimitriou, 1998b), and developments since, reveal that urban transport founded on un-sustained rapid economic growth and an unabated motorized vision of development are at the root of the more serious identified urban transport problems in Asia. The starting point, therefore, for providing alternative foundations for urban transport development must be to examine the contribution that urban areas make to sustainable economic, social and physical developments both locally and globally, and the role of transport within this. New strategies should seek to exploit the indigenous pre-motorization-era strengths of existing settlements, including the prevalence of non-motorized movement in narrow streets and neighbourhoods, the typical short trip travel patterns within the city and the important role of the informal sector in providing affordable public transport services.

Figure 8. CHINA AS AN EXAMPLE FOR ASIA'S MOTOR VEHICLE INDUSTRY PRODUCTION

Source: CAAM, Frost & Sulivan



The most convincing case for the need for a new sustainable transportation vision for cities in Asia (particularly for third-tier/middle-sized cities) can be revealed by examining (and modelling) the impacts of unabated motorization, whether arrived at by policy drift or an explicit attempt to accommodate unrestrained motorization. The systematic analysis of the implications of unabated motorization, together with an appreciation of archetypal transport problems, provides invaluable insights into the common ingredients of a potentially effective generic urban transport strategy previously advocated by the author (see Dimitriou, 1998) which seeks to simultaneously:

- increase economic growth, productivity and employment;
- raise investment and ensure cost recovery;
- enhance equity and affordability
- address the special needs of the disadvantaged;

- reduce traffic accidents;
- reduce air pollution;
- reduce noise pollution;
- conserve energy consumption;
- promote and protect cultural heritage;
- enhance participation and consultation; and
- improve institutional development and delivery.

CONCLUSION

Transport, utility and communication infrastructure networks have in the past been traditionally seen as agents that bind cities, regions and nations together, and have been planned and operated with the underlying premise that they are 'public local goods ' available generally to all individuals at equal cost (Pinch, 1985:10). Today's developments in Asia and elsewhere, however, see rampant forces actively encouraging a departure from this ideology, leading to a whole range of infrastructure facilities increasingly being 'opened-up' to the private sector through management and service provision agreements that are much more based on Horizon 1 rather than Horizon 3 visions of development, propelled by ideas (such as privatization, PFIs etc.) that have 'tipped ' into acceptance and actively promoted by transport specialists and special interests rather than in a more inclusive manner.

Graham and Marvin (2001: 14) argue "this has made the infrastructure sector now one of the most lucrative targets of global flows of finance, capital, technology and expertise, as international infrastructure firms roam the world in search of high rates of return from niche infrastructure markets or franchises". Actively supporting this shift, the World Bank (IBRD) and the International Monetary Fund (IMF) have for some time now reportedly incorporated conditions on the loans they offer and structural reforms they promote that oblige many national and local governments in Asia to privatize previously monopolistic (often public sector) provisions of infrastructure and infrastructure services (see Palast, 2002: 67-72). These ideologically driven actions have also been supported by the World Trade Organization (WTO), the Group of Eight, the EC and the other regional economic blocks (McGowan, 1999).

The implications of this largely unchallenged development could prove fateful for urban and transportation developments and sustainable development in Asia as certain kinds of major transportation projects hereto largely funded and operated by the public sector will not/cannot be built. This changed ideological context will/has dramatically transformed and created totally new urban, regional and transportation infrastructure landscapes described by Graham and Marvin (2001) as 'splintering urbanism of the kind witnessed in Southern China, and predicted by Doxiadis in the 1970s (see Doxiadis and Papatoannou, 1974) for which he was, incidentally, much maligned.

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