

Urban Space Design (Chengshi Huanjing Shiji), 04/2007-19
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ABSTRACT > > > The introduction of mass car ownership has had a profound impact on the social as well as the physical structure of modern occidental cities. In the desire for individual motorized mobility much was sacrificed of what once was dear to the city. Since the rise and well being of many western economies relied and still rely significantly on the performance of the automotive and its related industries, no fundamental change in direction away from the automobile - dependent city was able to be realized. In the attempt to establish China as a world leading economic power the automotive industry in China has now equally been designated a pillar industry. The future prospects for China's car industry most certainly are bright. An estimated 130 million Chinese families are likely to buy an automobile in the coming 10-15 years. This article will address some of the short as well as long-term problems and dependencies resulting from mass motorization in China.

KEY WORDS > > > Automobile, Mass Car Ownership, Urban Planning, Urban Sprawl, Sustainability

I N – C A R – N A T I O N

MOBILITY - THE NEW GOD OF CHINA AND HIS DESCENDANT – THE AUTOMOBILE[1]

There are probably few inventions that have changed the face of our cities as dramatically as the invention of the automobile by Karl Benz and Gottlieb Daimler in 1885. Arguably cities before the rise of motorized traffic had roads – even extremely wide roads – and transport was as much of a concern to ancient Chinese and Roman city planners as it is of concern to us today. However, with the introduction of the automobile a completely new concept of space and time had to be integrated into our cities. Before the age of the automobile, before Henry Ford started the industrial mass production of his Model T in 1908, the city was to be considered a rather compact element. With the rise of the industrial revolution and the introduction of public rail transport a first wave of urban territorial expansion and suburban sprawl was initiated. However, this first expansion was pretty much limited to the actual corridors of public rail transport, along and around which new settlements shot up. After all it was mass car ownership that enabled ordinary citizens to penetrate every corner of the city and country at any given moment, to move further and further away from the city center, and thus as in the case of some US American cities like Los Angeles promote extreme territorial expansion – promoting the actual demise of the city as such.

Due to its enormous impact on the form and shape of our cities it comes at no surprise that throughout the course of its history the automobile has attracted much attention from planners around the globe. For some it was an ICON OF HOPE and PROGRESS, enabling the urban masses to leave the misery of overcrowding of the

industrial towns of Europe and America behind and start a happier life in suburbia, a healthy life close to nature. For others it became the EMBODIMENT OF EVIL – a synonym for all problems of our modern city. There is probably no renowned architect or planner of the 20th century who has not at some point or another voiced his opinion on the automobile. So much having been written about this topic – why write another article about the automobile and its impact on the city?

Since the introduction of market reforms under Deng Xiaoping China has experienced tremendous economic growth. National economic growth fosters prosperity of individual households. After having equipped their household with a television, a washing machine and a computer in the 1990s the emphasis of Chinese middle class urban households has shifted to mobility: the dream of their own automobile. "The total civil motor vehicle population in Beijing increased from 0.34 million in 1992 to 1.04 million in 2000 with the annual growth rate of 14.9%. In Shanghai, the biggest city in China, the civil motor vehicle population growth rate was 11.8% during the same period. In some cities, the vehicle population growth rate exceeded 30%." (Zhang/Hu,2003). And the boom is just beginning. "As China's economy barrels forward, annual household incomes in major cities are reaching or exceeding the 4,000-dollar mark regarded as a take-off point for private auto ownership on a massive scale." (People's Daily Online, 06.10.2004). By the year 2020 the number of vehicles in the city of Beijing is expected to double again to a total of over 5 million. Some analysts predict that nation wide there are about 130 million Chinese families likely to buy a car in the coming 10-15 years. (Dominic Ziegler,2007). The future prospects of China's car industry certainly are bright – but how about the prospect of China's cities? Already today the roads of pretty much all major Chinese cities are clogged. How to accommodate an additional 2.5 million cars on the roads of Beijing? How much road space needs to be constructed, how many millions of square meters of fertile land will have to be converted into parking lots in order to meet this gigantic demand? [2]. Whatever the specific answer to these questions might be one thing is for sure: the unprecedented increase in the number of vehicles in Chinese cities will significantly alter their structure. The below article is not written as a scientific analysis on the influence of the automobile on the structure of our city. It is a critical account designed to stimulate a discussion if the future road chosen is the right one.

THE AUTOMOBILE - A SYMBOL OF PROGRESS ? > > >

For most of us the automobile has been and still is a symbol of progress. Regardless of the fact that it was invented in Germany in a time as China still was under the reign of the late Qing Dynasty, the automobile, in contrast to most things associated with late 19th century Europe has not lost any of its novelty, has not lost any of its "sex-appeal" and still ranks among the most desired items for most of us. Why is the automobile so successful? Why do we all want to possess our very own car? What is the automobile's magic that makes us blind to all the problems attached, that makes us destroy our own cities and sacrifice our environment? What do we hope to get in return for it? Is the only reason for purchasing an automobile really the aim for mobility?

For most of us the automobile is a symbol of leaving the past behind – moving on to a better future. As detected already by the Italian Futurists of the 1910s, the automobile is a SYMBOL OF INDIVIDUAL FREEDOM OF MOVEMENT. Mass car ownership for the first time in human history enabled ordinary people to independently travel long distances. Once you own a car you can go wherever, whenever you feel like it. There is probably few who would dispute the advantage of this instant availability of a privately possessed car. Independent of others we can drive out to the Great Wall right now – without having to ask or wait for others.

In addition to this the car functions as a highly visual STATUS SYMBOL, socially elevating us from our surrounding. In contrast to static status symbols like a house or an apartment a mobile status symbol like the automobile is wherever we are. In certain respects it is a prothesis. We become one with the machine. The machine, not our own skin is the outer most expansion of our body. Whereas the symbol of a Xiali tells us that the owner has not yet quite made it, a shiny star of a Mercedes Benz indicates that the owner is most probably a successful person. By these means the value of a car is not only a physical one – the true value is rather to be found in its social status attached. However, most certainly the social elevation attached to possession could also be interpreted as an attempt to compensate inferiority complexes.

Apart from reflecting the economic strength of the household, the car can be regarded as a SYMBOL OF PERSONAL EXPRESSION. Automobiles are mass-customized industrial goods. I cannot only determine the colour and material of the inside furniture, I can also choose the outside colour and the shape of various items. Once again – the car functions as a prothesis. The car, like my cloths, as part of me, mirrors my personal taste. However, “mass-customisation” of vehicles, the individual freedom to choose the outside colour and form of the car can only productively been taken so far. If the car would be so highly “individualized,” to a degree that outside spectators could not immediately tell what brand of car I am driving, the desired effect of social elevation (STATUS SYMBOL) would be diminished. By these means personal expression via the outside appearance of the automobile has to stay within limits. Nevertheless even the determination of the outside colour of such a large object within the urban landscape equips the owner with a certain power over his surrounding. A bright pink coloured automobile parked in front of an apartment block or the bank respectively has a significant impact on the constitution of urban space.

Emotionally a private automobile can be understood as the EXTENSION OF OUR PERSONAL SPHERE, a bobble of personal space in an ever anonymous city. In a way we could say that while driving our car we are actually carry our “living room” around with us. Like at home we can decorate this “room” with as many stuffed toy elephants as we like. By dragging this “living room” around with us we are virtually at home wherever we are, even in the midst of the unfamiliar. Probably this adds enormously to the value of the automobile and to its popularity. If I commute to work by bus or subway, I have to wait till I open the door to my apartment to be home. In contrast – driving my own car, I am immediately “home”, once I leave the office and open the door to my car.

This list of advantages of car ownership certainly is not an extensive one, but it gives us an idea why so many of us aim for the possession of an automobile. However, if we would take a closer look, many of these proposed "advantages" virtually vanish once a true mass car ownership is achieved, once many people can afford to drive around in a Mercedes Benz, once there are so many cars, that there is no parking space to be found, once there is virtually no room on the roads left to manoeuvre, once our car, the icon of mobility is condemned to stand still. Even today, as only one in every eight residents of China possesses a car, severe speed restriction due to overcrowding is all too familiar to most of us. "In central Beijing (within the third ring expressway), the average traffic speed was 45km/hour in 1994, 33km/hour in 1995, 20 km/hour in 1996, and 12 km/hour in 2003. On some arterial roads, the speed has dropped to 7 km/hour. During the rush hours, about 20 percent of roads and intersections are in total gridlock and the traffic speed is less than 5 km/hour." (Peng Zhongren, 2004).

EMPIRE BUILDING > > >

Many great ancient empires such as the first united Chinese empire under Qinshi Huangdi or the Roman empire owed a great deal of their strength to their advancement in infrastructure, to the construction of canals, bridges and roads. Such infrastructure was vital for the mobility of troops, communication and the economy. In modern times the development of many great economic powers equally relied on the construction of infrastructure coupled with the rise of the automobile industry. The economic ascend of the US as the undisputed world power after WWII was rooted to a great deal in road construction and the promotion of mass car ownership. President "Eisenhower (...) accepted the argument that new roads were not only vital for national defense in an era of Cold War, but could also generate an economic boom." (Hall,2002). In 1956 a new highway system extending for over 65,000 km was commissioned. Similar to this European countries like Germany and France owed much of their economic resuscitation after the second world war to the automobile and its related industries. In later decades, inspired by the US and Europe, Asian countries such as Japan and South Korea equally founded great parts of their economic prosperity on the four wheels of the automobile. Today, in the hope to transform the nation into a world leading economy, it is China worshipping the GOD OF MOBILITY and his descendant: THE AUTOMOBILE. Consequentially the automotive industry in China has been designated a pillar industry. "China's auto market has been heavily protected because the government has tried to make China's auto industry become an important driving force in bolstering China's economy. Driven by job creation and tax revenue incentives, local governments are often enthusiastic about developing a local auto industry." (Zhang/Hu,2003). "Some 45,000 km of expressway have been built or are under construction. Through cheap petrol and other means, the government is supporting a domestic car industry, which it sees as an engine of future economic growth." (Dominic Ziegler,2007). It is widely expected for China to emerge as the world's largest car market in the next two decades. [3].

However, proclaiming the automotive industry a central pillar of economic development implies the danger of long-term dependencies. Indeed, the more people buy cars, the more people will find work in the automobile industry and

related fields (from steel all the way to road construction) – which again almost certainly translates into increasing prosperity of the individual household. By these means a large body of society will profit from the rise of this industry. However, once the car producing industry employs a significant amount of people, once a huge part of the economy is effectively reliant on the well being of this industry there is practically no turning back: as in the case of the US and European nations it is hard to oppose the dominant position of the automobile industry once it is set into place. China wants to be the economic superpower of the 21st century – in order to achieve this it certainly cannot rely on an outdated 20th century model, which proved to provoke enormous long term problems. Apart from an economic dependency mass car production and mass car ownership evokes numerous problems:

VICIOUS CYCLE >>>

With the rise of early 20th century mass car ownership in the US the horizontal spread of the city was dramatically amplified. Middle class citizens capable of purchasing an automobile retreated into suburbia escaping the often-devastating living conditions of the central areas of the city. In a way the pressing problems of overcrowding and congestion of the industrial town was solved not by planners but by the people themselves, who simply left the city. Mass car ownership provided the basis to empty out America's cities and foster extreme suburban growth.¹ Some planners proclaimed the horizontal city as the city of the future. Even renowned architects like Frank Lloyd Wright with his Broadacre City of the 1930s celebrate the new opportunities of the automobile. [4]. In his dispersed city structure distances would no longer be measured in meters or kilometres but in time, thus in minutes. The increase of radius of mobility granted by the automobile enabled people to live in "harmony" with nature while still being in immediate reach of all public facilities. Despite the fact that Wright's vision like Soviet Deurbanists' ideas of a townless, fully decentralized and evenly populated country largely remained on paper at the time, with the end of World War Two a suburban building boom created a kind of Broadacre City all across America. However this realized deurbanist "utopia" had nothing in common with Wright's visions in regards to the economic basis and the social order.

The proclaimed "harmony" with nature of dispersed city structures certainly is not a factual one. Despite the individual living peacefully amidst pastures and trees, his retreat from the big city combined with his daily commute to the downtown area generates an enormous waste of energy. Not only the gas consumed by the automobile while commuting for hours back and forth, the endless kilometres of roads and infrastructure needlessly constructed to make each and every house far away from the city accessible but also the destruction of arable land in the city's proximity has to be taken into account. The dispersed city – as peaceful and healthy it might appear is by no means a sustainable model.

¹ This is not to say that mass car ownership was the only reason for the suburban sprawl. Hall singles out four reasons: "There are four main foundations for the suburban boom [after WWII]. They were new roads, to open up land outside the reach of the old trolley and commuter rail routes; zoning of land uses, to produce uniform residential tracts with stable property value; government-guaranteed mortgages, to make possible long-repayment low-interest mortgages that were affordable by families of modest incomes; and a baby boom, to produce a sudden surge in demand for family homes where children could be raised." (Hall,2002).

Whereas in a small compact towns people (ideally) can walk or take their bike to work and in large compact city structures public transport facilities can be used to commute, dispersed cities often leave their residence with no other choice but to rely on the private automobile as the prime method of transport. Once financially better-off households start to move further away from the city center, once the city starts to disperse, it becomes less financially feasible for the providers of public transport to operate. This usually results in a reduction of public transport services and/or an increase in transport fees. The economically less fortunate, the households not yet able to purchase a car in a way have to pay for it. However, once they manage to save up enough money to buy an automobile, they too will escape the city and thus "escape" public transport and join the circle of the fortunate to enjoy the new freedom of mobility. In order to provide road space for all those new commuters additional roads need to be constructed, thus additional urban land areas need to be sacrificed for transport. Already in 1911 did Frederick Law Olmsted, Jr., the famous American landscape architect point out the correlation between road construction and land prices. If more land is covered by roads, less land is available for construction, and consequently land prices will be higher. By these means we can even detect a social implication – for if the land prices within the urban areas soar, less financially fortunate households can hardly afford the higher rent and have to move out into more distant locations, which than itself generates additional amounts of traffic. Virtually a vicious cycle is started.

Despite the fact that already „by 1923, traffic congestion in some [US] cities was already so bad that there was talk of barring cars from downtown streets; (...)” (Hall,2002), despite the fact that some planners in of the 1960s campaigned for banning cars from the city altogether; despite the fact, that the automobile dependent city as such came under severe attack after the world energy crisis of the 1970s and consequently city fathers across the US and Europe invested large amounts of tax payers money to revitalize public transport; despite the fact that US planners later initiated the anti-automobile oriented movement of "New Urbanism," all those efforts pretty much were in vain trying to stop the dominance of the automobile and thus its destructive impact on our cities in economies and societies already reliant on the it.

By these means we can conclude: Once the automotive industry is pronounced a central pillar of the national economy, once mass car ownership is installed and public transport deteriorates, once a dispersed city structure is cast into concrete, once properties far away from the city center are allocated or sold, once huge roads cut the urban landscape, there is almost no way that people who possess the financial means freely would choose not to buy a car and break the vicious cycle. What first strikes us as a matter of personal choice of the individual – "I have the money, I can and I will buy a car," will end as a matter of necessity for pretty much all of us. Without adequate access to public transport a person in a large urban agglomeration eventually has to rely on the automobile to commute to work and go shopping.

The here depicted vicious cycle describing the impact of the automobile on the US American and in parts European city certainly cannot function as a prediction of how

mass car ownership will affect the Chinese city. The situation in China simply is all too different from the occident. However, as China is the most populous country in the world, with an extreme arable land shortage, we can assume that the impact of mass car ownership is likely to be even more dramatic. Lets now go through some of the problems potentially arising from mass car ownership in China.

Oil > > > Until the mid-1990s, China was oil self-sufficient. However, by now China, already the second biggest consumer of oil worldwide, has to import large quantities of oil. It is estimated that the oil consumed by motorized vehicles has grown from about 10 per cent of the countries oil usage a decade ago to almost one third. For the end of the decade it is predicted to increase to up to 40 per cent. "The oil consumption of motor vehicles in 2005, 2010, and 2015 is projected to be 51.75 million tons, 59.84 million tons and 73.14 million tons, respectively, even taking into account of significant improvement in road traffic condition, fuel quality and vehicle performance. Currently China's oil output is about 163 million tons each year, and there will be no significant increase in production in the future. This is to say that civil motor vehicles will have consumed nearly half of China's oil output in 2015 or the total oil import in 2000. Another projection shows that the oil consumption of motor vehicles would reach 150 million tons in 2020. In that case, the oil consumption of motor vehicles alone would be equal to China's oil output, making China's oil consumption much more dependent on the international oil market." (Zhang/Hu,2003). By these means, the extreme rise in oil consumption will not only result in an increase in pollution and thus a decrease of living standards in Chinese cities but also in an increase in international political dependencies of China.

Public Transport > > > For most of us it seems virtually unimaginable that the passenger numbers of public urban transport in Chinese cities could ever drop. Many are so used to parroting the phrase: "the biggest problem of the Chinese city is that there are too many people." And indeed wherever you go, on whichever bus or subway you sit or stand there are people, people, and more people. By these means some probably might even rejoice if the passengers numbers on public urban transport systems would drop. In December of last year passenger numbers on the urban transport system of Beijing have indeed for the first time in 30 years dropped. This most certainly is not due to the fact that there are less people searching for methods of transport. With a deregulation of the labour market an increase of labour mobility is coupled. Whereas in Maoist times, as the *danwei* provided a place to live and to work, the need for urban transport was limited, a dramatic increase in passenger numbers occurred with the introduction of market reforms. Whereas in 1984 the Beijing urban transport system had a volume of annually 1.61 billion passengers this number skyrocketed to 3.11 billion in 1995. (BTG - Beijing Public Transport Holding Ltd.). A decrease in passenger numbers today is most probably due to people switching to other methods of transport – most likely the automobile. For now a drop in passenger numbers might not have a significant impact on the overall public transport system. But once passenger numbers continue to drop a vicious cycle as depicted in the above section could arise. Presently the governments of many urban centers, especially of Beijing and Shanghai, preparing for the 2008 Olympics and the 2010 World Exhibition respectively, invest large amount of capital in the construction of urban transport system. However, if at the same time as these constructions are undertaken the purchase of individual automobiles is encouraged,

thus less people will make use of the new urban transport facilities, it is questionable, how such systems in the long run can operate economically.

Beautiful Wide Roads of China > > > Similar to 19th century America, where in aspiration of future development communities constructed extra wide roads, today in China virtually every village prides itself providing super size roads. Mumford writes: "Even where overcrowding of the land did not exist – for example in many of the smaller towns of midland America – the broad street or avenue was valued as a symbol of progress: so that it was laid out with an amplitude that bore no functional relation to its present or its potential use, though the excessive cost of paving and upkeep would be reflected in increased taxes on the abutting properties. The value of such street planning, a sort of belated caricature of the baroque enlargement of space as an expression of princely command, was largely decorative: it was a symbol of possible traffic, possible commercial opportunity, possible conversion from residence into more extensive business use." (Mumford, 1961). Similar to 19th century America many Chinese cities engage in the construction of super size roads predominantly not for functional reasons but to impress and to attract business. However in many cases these roads will do nothing else but constitute a permanent financial burden for the community. [5].

Since many roads in China's large urban centers are permanently clogged, some might argue that an extension in width is the only possible solution to ease traffic congestion. However, as we know from the experience in some occidental towns, there will never be a road constructed wide enough to prevent future traffic jams. As discussed earlier, an increase in the width of urban roads is likely to translate into higher land prices, driving the less financial fortunate further out, generating extra amounts of traffic and thus apparently "justifying" the enormous width of the road. In the years 1996 to 2003 the road area of the central city of Beijing has been increased dramatically from 38.07 million square meters to 61.5 million square meters. (Peng Zhongren, 2004). Applying a low plot ratio of lets say only 0.5 to the land now converted into roads this would translate into a potential gross building area of 11.7 million square meters. Assuming that an average household would occupy an area of 100 sqm of gross building area, 117,000 households could have been housed in these areas. Since these areas, before having been converted into roads most probably have been occupied by buildings of some sort or another the magnitude of outward movement and thus territorial expansion of the Chinese city primarily evoked by the automobile and the construction of extra wide roads can be understood.

Apart from the desire to demonstrate economic strength, the need for the construction of wide roads in China largely results from the size of the urban road grid itself. In contrast to European cities, Beijing's ancient road grid of almost 800x800m is, as numerous scholars pointed out, the prime source for traffic congestions in the old town. Since the number of roads is limited, there are hardly any options to circumnavigate an area once a traffic accident or any problem arises. Thus a problem on any one of the few major traffic arteries immediately causes widespread traffic congestion. Certainly it would not be an easy task to change the existing road pattern within the Second Ring Road of Beijing without altering or even destroying the historic structure of the city itself. [6]. But what about the areas

outside the Second Ring? Freed from the burden of historical street patterns planners would have had the chance to install a road system capable of coping with a future increase in vehicle numbers. However, since most Chinese favour living in gated communities, which manifest themselves usually as large scale "islands" fragmenting the city, even new areas of the town apply a large scale road grid structure. In the age of rising vehicle numbers the street pattern of modern Beijing and other major Chinese cities needs to be reconsidered. [7].

Scarcity of Arable Land > > > With less than a third of the world average of arable land per capita land suitable for agriculture in China is to be considered an extremely limited resource. With the increase of the overall living standard, coupled with the territorial expansion of cities and infrastructure the situation is becoming even more severe. Calculating the amount of parking spaces required to accommodate the 2.5 million additional automobiles predicted to roam around the streets of Beijing by 2020 alone might exemplify the vast amount of fertile land needed to be sacrificed for our desire to possess our own car. It can be estimated that a car parking space on average in China takes up 30 sqm of space in total. Being defined as a mobile object, we can assume that each car needs more than one parking space: at least one in the residential compound we live in and partially another one at our place of work, the bank or the shopping center. Since residential compounds are formulated as mono-functional elements, the parking space occupied by our vehicle at night is unlikely to be occupied by another car during the day time. The same is applicable for most office buildings. By these means let's assume that each car needs 1.5 parking spaces – thus in total 45 sqm. Since new regulations force investors to construct underground parking spaces, let's further assume that only 10% of these newly added parking spaces would be installed on ground. Even this would leave us with an incredible 11.25 SQUARE KILOMETERS or an area roughly measuring 3.35 km x 3.35 km of fertile land sealed off in the city of Beijing. A single parking lot of this size would bury the entire Forbidden City and its surrounding areas beneath it. [8]. Despite not suggesting to tear down the Forbidden City and convert it into a central parking lot, it is time to revive Mumford's words: "(...) for the time is approaching in many cities when there will be every facility for moving about the city and no possible reason for going there." (Mumford, 1961).

"The loss of arable land to construction in the fertile areas of eastern China has been partly offset by irrigation efforts elsewhere, but on a per head basis China's cropland is declining slightly." (The Economist Intelligence Unit, 2007). Despite the fact that the decline in arable land has been offset by irrigation efforts, we have to keep in mind that water is an equally scarce resource, thus the current procedure cannot be considered sustainable. With the increase in per capita car ownership and the resulting destruction of further croplands in the course of territorial expansion of the cities, China will become more dependent on import of crops from elsewhere in the world. Thus similar to the imports of oil, mass car ownership not only fosters the destruction of the environment but also translates into a higher international political dependency of China.

Social Imbalance > > > Vehicle owners will profit from the increase in personal mobility, while non-vehicle owners have to suffer from increasing congestion, pollution, an increase in property prices within the urban core area and consequently

longer commuting distances. By these means it is questionable if the current development is in any way compatible with Hu Jintao's vision of a "harmonious society."

The above list of problems potentially arising from the decision to rely on the magic of the automobile to shape China's future is by no means an extensive one. It is only to exemplify the magnitude of change in all areas linked to mass car ownership – from international relation all the way down to the way our city looks and the way we live. China is a socialist market economy. By these means it is not only the government and planners who actively shape the way our city looks; it is not only the government and planners who are responsible to design a healthy and sustainable living environment for our future. We as consumers have an important share in the shaping of our urban environment too. As the section "The Automobile – a Symbol of Progress?" already indicated, it is us, the ordinary consumers, for one reason or another who buy automobiles and thus fuel the automotive industry, fuel the territorial expansion and destruction of our city.

RECONSIDERED: USAGE & POSSESSION > > >

Before we deal with the automobile in specific again, let's undertake a short excursion first. It is an age-old truth that the primary value of almost all objects lies in their usage not in their possession. We buy a hammer not to simply own a hammer but to use it. We buy a book because we - usually - are interested in the book's content and not because we simply want to possess another stack of paper neatly arranged between two covers. At first glance this simple truth certainly does not strike us worth elaborating on. However, in his book "Factor Four: Doubling Wealth - Halving Resource Use" Ernst Ulrich von Weizsäcker invites us to pause for a second and consider again. Despite the original intent to purchase an object in order to use it, reality turns out quite different at times. In modern consumer societies households are often cluttered with objects and machines seldom used. The book we buy because of its interesting content all too often ends up unread – and thus unused. And even if we read the book, we usually read it once only. For the rest of its lifetime the book's function is reduced to stand around on a bookshelf in our apartment. By these means it turns out that we ended up buying the book primarily to possess it rather than to use it. The same is applicable to pretty much any kind of modern household machinery. For most of its life time a vacuum cleaner for example is stored away unused. Even in a household extremely fond of clean floors where the machine would run every single day for an hour, the vacuum cleaner would only be in use for as little as 4.2% of its entire life time. Over 95% of the time the machine's "function" would be reduced to occupying space in the apartment. In other words – we not only equip our household with an item with an extremely low utilization rate, we also have to sacrifice expensive apartment space to store the object in. In order to maintain the spaciousness of our household, we have to invest into ever bigger apartments, that provide enough space for our vacuum cleaner, our washing machine, our dish washer, our TV and our stereo to be "stored" in.

It's not the actual function of these objects that should be questioned at this point. We all agree that life should be as comfortable as possible, thus the usage of a machine to clean our floor or wash our cloths should not be pulled into question.

However, the question that we have to ask is: is it really necessary that each and every household invests the money to purchase all those objects, sacrifice apartment space in order to acquire the desired functions. Potentially a book could be borrowed from a library, a vacuum cleaner or a washing machine could be communally purchased and communally used by a group of households.

In difference to contemporary China where pretty much every household desires to possess its own washing machine, multi-family housing complexes in Germany for instance are often equipped with communally used washing machines. Apart from the obvious advantage of not having to spend the money to buy a machine yourself, the communal usage of washing machines is appreciated by many planners for its social value. In modern urban societies a high degree of social alienation can be detected. In order to counterbalance this phenomenon planners of residential areas in Germany often try to integrate points of communication, areas where residents have the opportunity to meet and get to know one another effortlessly in their daily life. Usually located in the basement these washing machine areas function as communication zones, as "meeting grounds" for residents, who otherwise would have little incentives and opportunities to get to know one another. Since, generally speaking, people who know one another tend to watch out for one another, the installation of communally used objects and thus the stimulation of communication among residents inevitably makes the entire compound a safer and thus better place to live in.

Why do we – despite all those advantages of communal use of certain household appliances still insist on buying our own machines. For one we have to consider the specific historical situation in China. As recently as 20 years ago, the first nationwide urban housing census conducted in 1985 by the then called Ministry of Urban and Rural Construction and Environment Protection and the State Statistics Bureau disclosed that only: "9.66 million units of urban housing, 24 per cent of the total under survey (...), are self-contained." (Communiqué on First Nationwide Urban Building Census, 1986). After decades of forced collectivism the urge to create self-contained households that under no circumstances have to rely on others to function smoothly is certainly most understandable. After years of having had to share a kitchen and/or bathrooms with other households, people are certainly tired of social communication and quarrels attached to communal usage of objects. However, this radical retreat into the world of self-contained households is in many aspects, social as well as long-term economic and ecologic aspects questionable. As applicable to so many areas: a radical approach in either way, be it a fanatical collectivism or "individualism" is certainly unhealthy for a society as a whole.

Apart from this contemporary "China-specific" reason for the fondness of self-containment of urban households, we have to acknowledge a general problem of communal usage of objects: the lack of instant availability. If I have an hour of spare time and feel like vacuuming my apartment right now, I can - if I possess a vacuum cleaner do so right now. In the case of shared use I first have to deal with other potential users, who might happen to have the same plan at the same time. However, we have to ask, is instant availability enough of a reason to reject communal usage? As we saw, communal usage stimulates communication which again translates into safer and better living environments.

Last but not least we have to acknowledge the social prestige attached to possession. We don't only buy an object or a machine in order to use it but also to demonstrate the economic strength of our household. Some objects – like the AUTOMOBILE as we saw in the paragraphs above – obviously are more prestigious to possess than others. This brings us back to the main concern of this article: THE AUTOMOBILE.

The foremost reason for buying an automobile certainly is that we aim for mobility. The automobiles prime function thus is to transport us from point A to point B. However, as we discovered earlier, once mass car ownership is achieved in the Chinese cities, it is likely, that for most of the time we will not move at all but stand still with our precious ICON OF MOBILITY. Even if there will be enough roads constructed for all those cars to freely move upon, we have to acknowledge that an automobile – like all elements depicted in the above section – usually is only in use for a tiny fraction of its lifetime. The following scenario might demonstrate this imbalance: If a car owner uses his car to drive to work from Monday to Friday each way for about 45 min – and takes an additional detour each day of about 30 min to go to the grocery store, the doctors etc., his car would be in motion for a total of 2 hours a day. Since we can assume that the family will not undertake extensive excursions each and every weekend, we can simply add two hours for each, Saturday and Sunday. This would translate into an average usage time of only 8.3 % of the time. For 92.7% of the time the car, our ICON OF MOBILITY is actually not moving at all, thus is to be considered a static object that almost constantly furnishes our roadsides. Despite the fact that apparently Chinese car owners use their car more frequently than car owners in big cities of the occident like New York and London, we can assume that it is unlikely for the average private car owner who works every day for 8-10 hours to use his car for more than 3 or maximum 4 hours a day. Even in the unlikely case of 4 hours of usage per day the car would only be in motion for 16.6% of its lifetime.

Some might wonder where this argument might lead to. For most purposes we are told that the less we use our car, the less gas we use and thus the less we pollute the environment. This undoubtedly is true. However, we have to acknowledge that the energy we consume while actually driving the car is only a fraction of the energy our "mobility" consumes in total. In other words, the environmental destruction caused by us driving a car cannot be reduced to the actual pollution caused by the engine. In order to calculate the overall life-cycle-wide energy consumption of an object (and thus its impact on the environment) the Wuppertal Institute invented the so called MIPS concept (Material Input Per Unit of Service). According to this concept all materials and the respective energy consumption to produce these materials, the complete "ecological rucksack" has to be considered. By these means we have to keep in mind that even before we drive the very first kilometre in our beloved car, massive amounts of energy have already been used up to ship raw materials and individual parts all around the globe, have been used to produce and assemble our car. Since the production of an element such as an automobile already eats up enormous amounts of energy a reduction in usage of the later car is actually of no major ecological benefit. Most certainly not to produce and not to use automobiles in total would be best for our environment. However, we all know that such a suggestion would be a naïve. But how could we then reduce the environmental

impact of our mobility without significantly having to reduce comfort in transport and thus living standard.

Since we already dismantled the central argument for purchasing an automobile, since we already proved that the MOBILITY associated with the AUTOMOBILE is in many regards pretty much fictional, there are only few reasons left for the purchase of a car: PRESTIGE, EXTENSION OF PERSONAL SPACE and INSTANT AVAILABILITY. Lets start with instant availability:

In difference to many western cities Chinese cities are equipped with an additional element of mass transport: the TAXI. Despite the few times a year where it rains in Beijing and cabs are hard to flag down, taxis are virtually wherever you are. In most cases it is probably quicker to find a cab than to find your own car parked two blocks down. By these means, taxis under the current system indeed manage to satisfy our need for constant availability. Taxis, in comparison to seldom-utilized private cars have to be considered ecological and sustainable. Despite carrying the very same "ecological rucksack" as a single private car and producing the same amount of pollution per kilometre usage, a cab has a much higher utilization rate than privately owned and used cars. For the same amount of kilometres of service less automobiles need to be produced, thus less energy used. Since one cab functions as a method of transport for a number of otherwise potential car owners, all additional negative elements attached to the automobile (extension of road size, adding of additional parking spaces etc.) are reduced. Taxis in comparison to private motorized traffic thus manage to significantly lessen the ecological impact high-comfort-mobility has on the city and the environment.

Except the prestige attached to the possession of an automobile as well as the right to place your teddy bear in the back window of YOUR car, a clean taxi with a friendly driver can replace everything your own car could offer– and more. The usage of a taxi relieves you of the burden to go to the filling station, clean your car and get it fixed. Furthermore taxis create jobs. Since jobs are vital for a healthy and sustainable development of a society this should not be underestimated. Obviously some could argue that jobs would also be created in the automotive industry if we buy more cars – however, jobs in the taxi industry create far less dependencies as in the car industry.

The single reason left is PRESTIGE. Despite acknowledging that the social elevation attached to possession is probably irresistible to pretty much all of us, we have to ask, if all the negative implications mass car ownership causes can seriously be justified with this single reason? The price might truly be too high.

WHAT CAN BE DONE ? > > >

There are numerous proposals on how to reduce the impact of the automobile on our cities. As with all things there is no single magic solution, no single model to follow. Rather a whole set of various ideas should be applied. Only a small number of possible ideas can be introduced and discussed here:

In order to limit the number of vehicles on the road cities like Singapore or Shanghai have applied an auction system for licence plates. The price for a licence plate in Shanghai can be as high as 30,000 or even 40,000 RMB. Despite the fact that we have to acknowledge that this kind of procedure does indeed effectively limit the number of vehicles, this model generates its very own problems – firstly a large social imbalance. In addition to this: by asking the to-be-car owners to pay a lot of money to get the right to use the roads, they feel like they virtually purchased a RIGHT FOR MOVEMENT. Any kind of limitation in their mobility, be it traffic jams or desolate road structures, will automatically arouse their anger. Once you pay for something you certainly are allowed to expect it to function. Besides this, a payment for a licence can easily be misinterpreted by the purchaser that he does really cover all the costs created by his mobility. Since the economic, social as well as the long term environmental and health costs resulting from motorized mobility are much greater than even the high amount paid for the licence, this system, as any such system, sends out a wrong signal.

An alternative method to reduce the impact of the automobile/mass car ownership on our city would be to stop constructing ever wider roads. Since there will never be a road wide enough to satisfy the ever increasing demand for road space, the money currently invested into road construction should rather be used for public transport.

Upgrading Public Transport > > > The government, especially in the capital is currently doing a lot to improve the availability of public transport. However, in order to convince people to give up their dream of their own automobile public transport should not only be available but also clean and pleasant. Other Asian mega cities such as Hong Kong, Singapore or Tokyo could function as models for clean, customer oriented mass transport systems, used by people from all income groups, including the affluent ones. Once large masses from all income groups use public transport, it remains affordable to all. In order to generate capital for the construction of new transport lines and the cost involved in upgrading the existing systems, alternative methods of funding should be explored: "The public transportation sector is often strictly controlled by the municipal government. Most public transportation sectors run in loss, and cannot provide quality service. This largely leads to some residents switching from public transportation to individual transportation. To improve public transportation service, substantial investment is needed. Due to the budget limitation, municipal governments often cannot provide adequate funds for the purpose. On the other hand, however, under existing management systems, private investors are either not allowed to invest in the sector or reluctant to invest in the sector due to lack of incentives. In this regard, substantial efforts should be made to liberate the public transportation sector and diversify the financing resources." (Zhang/Hu,2003). In order to make public transport more attractive and to increase the speed of buses for instance, even more lanes should be designated for public transport exclusively. On a three-lane road potentially one could be reserved for buses and another one for taxis, ensuring that people choosing public over private traffic will be rewarded. [9].

Newly designed cities or areas should be designed around urban transport. The very first step in doing master planning should not be the design of fancy building complexes beautifying the rendering but should concentrate on the planning of urban

public transport. China – presently building more cities than any other nation - has the opportunity to create truly sustainable cities. This chance should not be wasted.

Revising the Position of the Role of the Bicycle in Chinese Cities > > > “Some public officials view the bicycle as a cause of road congestion and are trying to ‘build their way out’ of congestion.” (Liu Zhi,2001). In some cities bicycles have been banned altogether from certain central areas. However, bicycles are a cheap and clean method of transport. In many European cities the bicycle has regained prominence in recent years. The vanishing of the Chinese “Bicycle Kingdom” is not a sign of progress. A uncritical and blind believe in the healing power of technology and progress, as we can study in so many cases of 19th and 20th century European and American city planning, often resulted in long term problems that some occidental cities still suffer from today. Non-motorized methods of transport, as little “sex-appeal” they might have, are the backbone of every sustainable city.

In addition to this models such as “flexi-hours and flexi-week scheduling, thinning out traffic by spreading out peak time travel, and reserving the most desirable parking places at the work site for car-pooling commuters” (Krowitz,2007) could be experimented with. Last but not least we have to question the necessity of our household to purchase an automobile. The more people “restrain” themselves from buying an automobile, the more people use public transport, the more people search for alternative forms to attract the desired SOCIAL PRESTIGE currently attached to the possession of a car, the brighter will be the future of our cities. It is not the government and planners alone who have an impact on the shape of our city.

We don't need to waste our time discussing in which style we should build, we don't need to waste time discussing how to make our cities more beautiful, we don't need to discuss how to elegantly design a park ---- all this is cosmetic. We need to discuss if it is really worth sacrificing Chinas beautiful cities and landscapes to the GOD OF MOBILITY.

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