A CONCEPTUAL FRAMEWORK FOR SUSTAINABLE URBANISATION IN FUTURE CHINA

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Abstract

Rapid urbanisation of China is a phenomenon putting huge pressure on the society, environment and services in the existing cities. The growth of large regional centres is usually seen as an unwelcome but unavoidable both source and result of the Chinese urbanisation. The paper disputes this 'unavoidability' claim. The reasons for the present day urbanisation and concurrent 'de-ruralisation' processes in China are outlined. Opportunities arising from IT-age technologies as life style-generating agents are presented. They are matched with the corresponding characteristics of the rural setting. The paper examines a possibility of urbanisation based on the existing village networks. A brief presentation of various possible social and economic benefits, derived from the village urbanisation, follows. The offered solution could adequately address issues of accommodation and job provision without losing energy expenditure and sustainable use of scarce resources from its focus. Environmental benefits stemming from this different approach to problems of development are then discussed. The paper is concluded with an attempt to predict whether (if at all) and to what extent the proposal of the urban village is a feasible alternative to the current trends in the most populous country in the world.

Keywords:

Urbanisation; ESD; low-impact countryside development; China.

Introduction: Urbanization of the Past

China was a predominantly rural nation throughout almost entire its history. For a very long time it had one of the lowest rates of urbanisation in Asia (Heilig, 1999). At the end of 2006, the countryside was still a home a home to about 56% of China's population—around 737 million people (Encyclopaedia Britannica, 1991; Shen, 1997; Urbanization in China, 2008). China also enjoys the longest continuous development of all surviving ancient cultures in the world (Rich and Wallace-Hadrill, 1991). Over the millennia, Chinese villages and towns were built and re-built to create networks (Figure 1) reflecting political, economic and social needs of the nation. Local bureaucracies, in a fashion unique in the world, worked towards achieving maximum efficiencies in the areas in their care (Zurndorfer, 1989; Fei, 1975; compare Tuan, 1968). The traditional 'central place' (a term coined by Walter Christaller for standard market towns, as quoted in Skinner, 1964) preserved the

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ecology of its supporting hinterland. Resource consumption and overall environmental impact of such settlements were relatively much smaller than those of any large city of today. They have also enjoyed enviable social coherence (Rich and Wallace-Hadrill, 1991; Hillier, 2008).

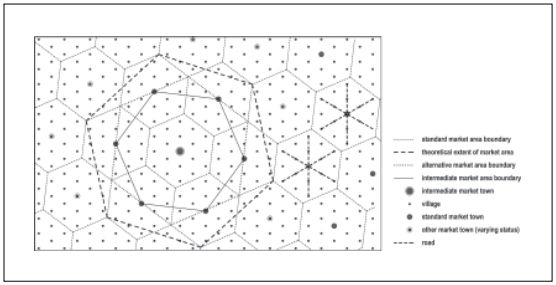

Figure 1: A model of the Chinese standard marketing area as a stable spatial system, together with other possible models of intermediate marketing areas (based on Skinner, 1964 and Zurndorfer, 1989).

The first change to that arrangement came with the social revolution of 1949 (Heilig, 1999) when China's socio- economic system was converted overnight from feudal to communist. The economy became driven by inflexible ideology and local needs as well as conditions were dismissed as unimportant. This was particularly evident at the time of the Great Leap Forward 1958-60. Then, the Cultural Revolution 1966–76 brought to the village millions of urban youths and a 'program breakdown' of the traditional values (Encyclopaedia Britannica, 1991).

Yet, changes to the countryside in China during the last half-century were not as dramatic as those observed in the city. Living standards have not changed much and remain very low. At the end of 1996, there were 19 per cent of villages still inaccessible by road (Pang, 1997). More than 50 per cent of countryside houses have no permanent heating—even in Northern China where temperatures in winter can drop to –30°C. Generally, there is very limited infrastructure (including roads, electricity and sewage) in small towns and villages, few schools or health services, and potable water is often of dubious quality (Shen, 1997). There are few jobs, as the countryside is overpopulated (Heilig, 1999; Encyclopaedia Britannica, 1991; Yang, 1996). Chinese peasants have many good reasons to migrate. (Figure 2).

A number of studies have tried to identify why people migrate and have come up with a variety of answers generally subsumed under the push–and–pull hypothesis. This suggests that people migrate from rural areas to the cities because of one of two general causes: overpopulation and environmental deterioration in the rural areas (the push factor), or the allurement or the attraction of the city (the pull factor or the so–called 'bright light theory') (Mabogunje, 1970).

The situation of the Chinese countryside described above clearly constitutes a 'push factor' in terms of the 'pull–push hypothesis' (Hillier, 2008; Herberle, 1938) believed to offer a still valid explanation to the migratory behaviour (Heilig, 1999; Shen, 1997; Mabogunje, 1970; compare Wolpert, 1965) The massive migration from rural areas to urban centres started soon after regulations in this regard were relaxed in the early 1980s. However, not until 1997 they were allowed to change the place of their residence permanently. With this limitation being now removed, cities started to swell (Shen, 1997; Urbanization in China, 2008; Li, 1997).

Figure 2: A village in Hua-ying County, Jiang-su Province: lack of amenities and low living standards are the 'pushing power' driving rural population out of the countryside (Source: Author).

Urbanization of the Present

In most general terms, urbanisation is a process of concentrating the country's population in a limited number of its urban centres (compare Encyclopaedia Britannica, 1991). There are many ways to urbanize a country. Very few countries enjoyed a harmonious growth based on developing numerous townships spread evenly throughout the countryside. In most instances, a few major centres attracted a vast majority of the migrating population. In break with its ancient traditions, China belongs today to the latter category (Urbanization in China, 2008; Li, 1997).

The current scale of urbanisation in China is staggering. The official figures for 1997 gave urban population at 28 per cent of the total, concentrated in 666 cities and 17,000 larger and around 50,000 smaller towns (Shen, 1997; Pang, 1997). In the following ten years, the urban population has increased by some 370 million. This includes around 65 cities, which have more than 1,000,000 inhabitants. Janice Perlman, president of the expert organization Mega-Cities project based in New York, believes that large urban entities are a natural result of the modern development (Nordland, 1996). World Bank and other international aid agencies are in a process of shifting their focus from rural areas to mega-cities and other large urban centres (Shen, 1997). At the "Cities' Summit" conference, held in 1996 in Istanbul, the trend was opposed by most Asian governments (Nordland, 1996). It seems that China has finally given in. In 1997 new pro-migratory regulations were introduced (Yang, 1996). Initially, it has been easier to obtain residence permit in smaller towns and a few selected larger cities (Urbanization in China, 2008; Li, 1997). It is expected that the regulations

will become a norm applicable to each city in China. Large cities, which at present attract mostly young males going there to work and then returning to their villages, will increase their pulling power.

Modernization and urbanisation are the terms most frequently used to define China's undergoing development. However, one must be concerned about the method, chosen to give those terms a meaning. The reason to be concerned is that modernization and urbanisation seem to be miscarried as a pursuit of an image rather than a sincere attempt to find an original solution to problems created by a very unique mix of China's geo-political and socio-economic situations.

The most obvious result of uncontrolled urbanisation in China is an increasing density in urban centres. Most Chinese cities record densities of well over 1000 people per hectare (Hook, 1997). This is twice as much as it is believed to be an upper limit for an acceptable and manageable density. At this level, city services, infrastructure, health care and other indices of living standards must suffer from overload. City living is not only about having a flat of a decent size. It is also about access to schools, medical facilities and recreation areas. It is about transportation infrastructure and adequate fire protection. It is about response time in emergencies. The increased density will hinder access to the amenities and provision of the services (compare Cao, 1997) All large urban entities outstrip carrying capacity of their respective environments (Shen, 1997; Watts, 2006; Zhao, 1997).

Chinese cities 'go high' as the number of urban towers increases by day. There are high-rise buildings containing offices, and high-rise apartment blocks, hotels, banks and even high-rise factories. In just five years, from 1992 to 1997, Shanghai has built 220 such buildings with at least 20 of them about 200 meters tall. A survey carried out early in 1997 in Beijing counted 29,389 high-rise residential buildings (Cao, 1997). From professionals and laypersons alike one could hear "We must build high because it is how you build a modern city". There have also been tall structures built in the West. They still are being built, which does not mean that it is not a mistake—a professional error by architects, city planners and relevant authorities (Watts, 2006; Knevitt, 1985). Over thirty years ago, Peter Blake, a well-known American architectural critic, said that:

[i]t is outrageous that towers more than a hundred stories high are being built at a time when no honest engineer and no honest architect, anywhere on earth, can say for certain what these structures will do to the environment—in terms of monumental congestion of services [...], in terms of wind currents at sidewalk level, in terms of surrounding water tables, in terms of fire hazards, in terms of various sorts of interior traumata, in terms of despoiling the neighborhoods, in terms of visually polluting the skylines of our cities, and in terms of endangering the lives of those within or without, through conceivable structural and related failures (Blake, 1977). (Figure 3). While incidents regarding the environmental damage go (as yet) unnoticed, reports of accidents following the structural failures are visibly on the rise (compare Zhao, 1997).

Then comes the need for transportation within and without such huge urban settlements. In today's China, ownership of cars is at a level of

1.3 per 100 families. Respective bike ownership is around 200 (Hook, 1997). Yet, it is difficult to find a 'parking' place for a bicycle both in front of one's house and anywhere in the city centre. A 'motor city' is a city of a low population density. In countries like Australia, where cars were the dominant mode of transportation for fifty-odd years, there is, on average, more than one car per household. The resulting 'urban sprawl' is as big a problem in the cities 'Down Under' as it has been, for even longer, in the United States. Chinese cities are not designed for cars, and the ongoing increase in population density is not going to help. However, "there are warning signs that China is about to dismantle its bicycle and rail-dominated transport system in favor of a supposedly more 'modern' system based on private automobile ownership."(Hook, 1997).

Any attempt to build a 'Western style' city in China is bound to result in enormous costs. There will be social cost to the communities: living in high-rise apartment blocks isolates and alienates individuals, it impedes the normal social development of children, prevents natural functioning of the units of social importance—the family and the neighbourhood (Knevitt, 1985; Blake, 1977). There will be environmental cost: pollution levels in numerous Chinese cities exceed norms adopted internationally. Quality of life will suffer. In the opinion of sociologist Fei Xiao-tong, expressed after his visit to Jiang-su in a letter to the editor of the China Daily on November 20, 1996, "Resources are voraciously consumed. The (physical) environment has been seriously damaged, and the social environment compromised." Processes of urbanisation have strong impacts on the elements of the atmosphere, the geosphere, the hydrosphere

Figure 3: High-rise apartment blocks in central Kowloon, Hong Kong are a typical example of substandard living conditions associated with densely populated urban environments in China (Source: Author).

and the biosphere. Basing its development on large cities, China will increase its need for transportation. At the end of this year, there will be 1.25 million kilometres of roads in that country, including some 10,000 kilometres of expressways (Pang, 1997). This makes 13,000+ square kilometres of land covered with concrete and bitumen, and used for not much more than moving from point A to point B.

Chinese experts have already noticed the negative impact, which the country's development—proceeding in the current direction—makes on the country. Increased use of energy, pressure on services, irrational and wasteful use of land and regional disparity are to be soon addressed (Shen, 1997). Nevertheless, one has an impression that the enormous potential, which China has at its command, has not been fully utilized if not—misdirected. Most projections assume that China's population will increase to 1.48 billion but also that nearly all this growth will occur during the next 20 years (Heilig, 1999). China is entering a critical period in its history when decisions about the physical and spatial form of the built environment can have far-reaching social and environmental outcomes (Hillier, 2008).

A (Low-Impact) Urbanisation of the Future

The above discussion must have convinced the reader that neither the village nor the city offer a kind of environment, which would satisfy needs of an individual without compromising national prerogatives and vice versa. Nevertheless, there are a number of solutions available. One of them suggests returning to the path developed by the Chinese in their ancient past. It would be necessary to emphasize a few points.

Firstly, it appears that the social life has a relatively greater importance to the Chinese than to the Western people. Lives in China are organized around closely knit ties with other family members, relatives and neighbours (Skinner, 1964). Hence community size will make a vital difference. As V. Papanek pointed out,

[w]ith our objective a benign, neighbourly way of life, rich in interconnections and cultural stimuli, we can say that 'face-to-face' communities will consist of 400 to 1000 people (the ideal is around 500), 'common neighbourhoods' will accommodate roughly 5000 to 10,000 residents (or 10 to 20 face-to-face communities), and the 'ideal city' will house about 50,000 souls (or 10 to 20 common neighbourhoods). Special functional reasons may decrease city size to 20,000 or increase it to 120,000—beyond that lies social chaos (Papanek, 1995).

It is worth to note that a standard marketing community size in China was somewhat over 7,000 in the 1950s (Skinner, 1964). It may be expected to approach 8,000 nowadays.

Secondly, it is widely accepted that the 'car-reliant' culture destroys neighbourhood identity and builds mental and physical barriers that separate us from our concern for the environment we live in and the people who live in it. Let us recall Peter Blake again: Ideal Cities, it seems clear, are pedestrian cities: dense concentrations of people and of many varied activities, including good schools, good jobs, and good fun, which will make most mechanical transportation systems rather unnecessary (Blake, 1977).

In urban areas, bikes' flexibility enables door-to-door travel; they are space–efficient,

'greener' and often quicker than other modes of transportation for distances of 8 kilometres or less. It seems that all transportation needs can be well served by a network of exclusive bus and non-motorized vehicle lanes. In the long run, planned investments into light rail and subways should help to solve congestion problems in high–density areas. The Chinese bicycle also could use a technology upgrade: lighter weight and more gears. The same goes for the non-motorized truck fleet. The three–wheeled trishaw could be upgraded with lighter, stronger material, new aerodynamic designs, increased number of gears and various forms of electric or biogas motor assistance (Hook, 1997).

Thirdly, the Chinese see themselves as part of nature. Preservation of the natural environment is deeply embedded in Chinese system of values (Tuan, 1968). Their beliefs have always supported a settlement by helping the ecology of the hinterland. It was preserved by consciously integrating it into the processes of the biosphere with the intent of maintaining the optimum for human purposes. It is as sustainable an approach as it can be. Sustainable cities are about balance within human society as much as they are about balance between humans and nature (Downton, 1999). Arguably, this is easier achievable in a small settlement than in a mega-city, which is 'self–destructive' in that respect.

Taking the above into account, it appears that the new life style and required improvement of living conditions could be based on the existing network of 'de-populating' villages. They would have to be retrofitted with modern amenities and high-standard infrastructure. They should also be re-designed to offer higher densities, (Figure 4).

Figure 4: Traditional residential buildings in Gao-you, Jiang-su Province have offered high density living comparable with modern-day expectations but better suited to Chinese life-styles and social fabric (Source: Author).

It is true that China largely lacks modern equipment and technologies and what is available is not suitable for 'modern' buildings. However, for low-rise buildings, they are adequate. Moreover, the tradition does not have to be so much 'out of date' since builders in the West turn to traditional technologies as more efficient and effective way to build. What definitely requires improvement is not equipment or technology but quality. Quality assurance and strict budget/timetable adherence are basic ingredients of success in the modern building industry. This is usually being achieved in two ways: either through competition or through closely scrutinized artisanship. While the former belongs to the economies of scale, the latter is typical for smaller projects.

Obviously, high-rise apartment blocks are not required when one wants to achieve the desired population densities. The British architect Peter Land, following his research into low-rise high-density housing, demonstrated that densities of 500 people per hectare (NB such densities were common in antiquity) could be achieved in urban situations using only two-storey patio houses with individual gardens. He has also built a high-density town quarter in Lima, Peru sweeping away disbelief among housing officials worldwide (Blake, 1977). Similar densities have been achieved in low and medium-rise estate of Lillington Gardens in Pimlico, south-west London by architects Darbourne and Darke (Knevitt, 1985).

"The scarcity of land for development necessitates the intensification of the use of available land to accommodate future needs." One should find this argument insufficient. China's average population density is less than that of most European countries. The requirement of concentrating urban development in areas with easy access to sea and navigable rivers has lost its validity. The world of the future is the world of competitive air transportation and services offered by the way of electronic media (von Weizsacker, Lovins and Lovins, 1997). In attempt to cut operating costs "[employers] are increasingly adopting technology that allows employees to collaborate face-to-face without boarding a plane [since it] can raise productivity by cutting travel time and making more frequent, focused meetings possible" (Masuike, 2008). The advanced videoconferencing technology becomes the fastest growing segment of the information technology industry. Polycom, Cisco Systems and Hewlett-Packard have lead the way but many others develop in this rapidly growing market.

Today's technology enables working from home in many occupations, as well as holding long distance business meetings through video-conferencing facilities. It does not matter where your office is, it does not matter where you live. This is the future. Alternatively, one could think about use for wastelands in China. Large land reserves have been identified for various uses if only infrastructure and capital investment were provided (Heilig, 1999). New settlements can be built there for the professionals of the times to come. Settlements designed for a new style of living: settlements developed for enhancement of neighbourhoods, towns with or without mechanical means of transportation, cities where the time lost to commuting could be equal to that required for walking from one's own living-room to a studio a few steps away and under the same roof. Proximity to urbanized areas would also improve economic viability of

nearby farms.

Some steps leading in that direction have already been taken by the Chinese government. Since 1991, 90 million of surplus rural labour has been directed to 50,000 small towns; 1.6 trillion yuan has been spent since 1999 on infrastructure: roads, bridges, dams, pipelines. It has been a part of on-going 'Go West' government strategy to combine social and economic development with the country's urbanisation process and address inequalities between the rich eastern provinces and the poor interior. Urbanization of small towns and villages is seemingly more cost-effective and brings better results quicker (Yang, 1996; Watts, 2006).

Conclusion

Current development of the urban environment in China visibly does not cope with modern life style requirements and aspirations of the Chinese. A number of undesirable phenomena associated with urbanisation processes in China call for urgent research to find a solution, which would be both country and culture–specific. Revival of community values and anticipated trends in business practices demand and support an idea of the future development based on decentralized population—whether in new or existing settlements. This idea has a fair chance of offering a sustainable platform, on which quality of life can be improved for many more people at much less cost to the environment.

It is high time to thoroughly investigate the problem of urbanisation in China. In the author's opinion, planners should start thinking about the future rather than the present. Some processes are difficult to stop without government support. However, the People's Republic of China is in a unique situation where macro-scale processes still can be planned and carried out in an orderly manner due to State intervention. Unlike in countries with rampant free-market economies, land speculation and particularism driven by ambitions of the few can be curbed. The interest of the many can be properly protected. This interest would be best served if one followed F.L. Wright's urban axiom: "Decentralize and reintegrate". It is equally difficult to predict social impacts of the proposed 'rural urbanisation' and impacts stemming from the current development trends (Hillier, 2008). Quite certain is that the 'urban village' has a chance to continue what has been inherent in the Chinese culture while the large city makes a clear break with the past and reaches out to the world in a very globalised manner.

The proposed countryside-based urbanisation has several distinct advantages:
1. It stops displacement of large groups of population;
2. It maintains the existing social fabric, family ties as well as relatives and friends inter-dependencies;
3. It offers employment opportunities locally this way addressing the 'overpopulation' issues;
4. It creates local markets for agricultural produce this way releasing potential of 'agricultural reserve' areas;
5. It lifts living standards in the most disadvantaged in this regard parts of the country;
6. It helps to make the spread of modernization more uniform bringing life styles closer;
7. It makes much less environmental impacts then urbanisation based on large cities;
8. It continues the ancient culture and

traditions.

The most significant drawback of the proposed model is that, at the required substantial level of capital investment, there is a fairly high level of uncertainty as to the desired outcome. This kind of outcome, however, can be expected with virtually every model in spatial–social development prediction.

If the question were whether it is possible to live urban life in a village, the answer would have to be a firm 'Yes'. 'Urbanization' of the village is possible, and at the same time providing a more humane environment, better suited to endemic Chinese needs. Situation in China verges on the extreme but the offered solution's application is universal. Fritjof Capra once pointed out that the Chinese ideogram for crisis, 'wei-ji', is composed of two interlocked characters. One is danger and the other is opportunity. Thus, the beauty of a crisis is that it holds within its image inherent change. The Chinese I Ching, or Book of Changes, demonstrates that existence is a cyclic movement where the process of breakdown is also the moment of breakthrough. Disintegration becomes renewal.

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