

# Econ With Eco



## Hope and Hazard in Rural China

by Shannon May

**C**HINA'S LEADERSHIP IS faced with the political need to provide its citizens with the fruits of economic development. Yet they must do so at a time when a carbon-fearing world is focusing on how the waste of China's growth pollutes far beyond its borders. Nevermind that it is the United States that carries the largest natural debt to the rest of the world for its cumulative carbon emissions since industrialization began. It is the rise of China and its rapid urbanization and increased per capita consumption that has been singled out as the greatest threat pushing humanity toward destruction.

Such doomsday scenarios often invoke a Malthusian response to the anticipated effects of global climate change. The specter of the overly fertile poor pushing the earth toward ecological collapse has now shifted to the hobgoblin of the poor clamoring for the "American Dream." If each person in China were to consume the same

amount of energy as the average person in America, China would metabolize more than 80 million barrels of oil per day—or the entire world's current daily supply. This way of analyzing ecological crisis does more than highlight contradictions between supply and demand. It preserves present hierarchies of privilege and power as the norm. In this logic the rise of China becomes an idiom not only for the increasing consumption of Chinese residents, but also for the five billion people in the developing world.

If equity is to return to the forefront of sustainability debates, the urban-rural divide must no longer be seen as a natural barrier that preserves the harmony of the Earth's present ecosystem. The ethical and

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political quandary posed by the juggernaut of energy and consumption is how humanity can move to greater equality of resource distribution, without deprivation—for Americans, Chinese and the rest of the world alike. What if rural urbanization could be done in such a way to both increase quality of life and economic opportunity for rural Chinese, while also positively affecting the globe's carbon calculus? Ecocities in the countryside may prove to be the bridges that cross the socioeconomic chasm between rural and urban populations without the hazard of ecological collapse.

### What Are Ecocities?

RATHER THAN ADDRESSING environmental degradation in a piecemeal fashion, identifying a source of pollution and seeking to scrub it or stop it, ecocities are the embodiment of a way of envisioning the world in which there is no pollution. In the words that made architect and designer Bill McDonough famous, it is a place where “waste equals food.” In an ecocity, human habitat is designed with the recognition that the city, as the Earth, is a closed system. When a thing ends its life cycle in a place in which it is treated as waste, it is polluting a closed system that will eventually become too full of detritus to support life. In this vision, by not recognizing the false premise of “waste” in a closed system, the economy of the industrial revolution and the cities it bore have replicated this cradle-to-grave mentality at the planetary scale. With metric tons of carbon dioxide equivalents now taken as the unit of measurement through which to approximate ecological hazard, ecocities strive for a carbon-neutral footprint.

Achieving the promise of carbon-neutrality requires integrated systems planning and construction—systems that are not present in most existing rural Chinese villages. While modifying existing systems

of public infrastructure, waste management, and building practices within existing cities can create carbon-neutral buildings and blocks for urban residents, ecocities in the countryside hold the promise of sustainably increasing quality of life while bridging the last structural (if not legal) divide between the urban and rural populations through the extension of public infrastructure.

Housing and public infrastructure act as the life-giving veins that form the city's backbone and circulatory system, supplying the basic necessities of life (water and fuel). The population is no longer required to be entirely self-sufficient. Through the solidarity created by trade of products and exchange of services, the population is freed from the burdens of subsistence.

Still responsible for the provision of their own basic needs—fuel for cooking and heating, and water—during harsh weather and environmental conditions, the days of many rural Chinese households are consumed with struggling to survive. For the two coldest month of winter in eastern mountain villages of Liaoning Province, households must allocate five labor hours per day to build and manage the fires necessary to warm the room up from the frigid minus 30°C temperatures outside, and another six labor hours preparing chopping and hauling wood fuel in preparation for next year's winter.

Since reform and opening began in 1978, rural residents have witnessed the income of their urban comrades outpace their own by a ratio 3 to 1. When urban in-kind subsidies are included the income gap jumps to a ratio of 6 to 1, making this the largest such income disparity in the world. Yet the inclusion of in-kind urban subsidies such as housing allowances and healthcare still does not fully price in the economic opportunity cost of being born in rural China. Those 11 household labor hours a day in the dead of winter necessary

not to freeze to death are 11 labor hours that cannot be spent earning income that can be spent on health care and education for one's family.

The integrated waste and energy systems of ecocities have the promise of relieving rural households of these subsistence burdens while decreasing overall carbon emissions. Rather than burning carbon-based fuels for energy procured individually by each household, biogas systems can take human, animal or agricultural wastes from the household and return converted gas for heating and cooking.

Such plans, in addition to a grey water infrastructure and solar-powered electricity, were at the core of the master plan to rebuild Huangbaiyu village as an example of the solutions that ecocity could bring to rural China. Rather than cutting down the mountain woods, agricultural waste would fuel a biogas plant sustaining the community with energy; electricity would come from the sun; running water would enter houses for the first time; and houses would be built only with materials that could be safely returned to earth or recycled. Architect and designer Mr. McDonough took on the challenge of designing a sustainable housing development in this rural valley, turning to the perspective of a bird to guide him to decide the overall design of the habitat, and following the drainage of the watershed to indicate where the new, consolidated sustainable development should be constructed in the valley.

Leading the way in establishing best practices in the field of sustainable design, Mr. McDonough inadvertently designed an ecologically sound plan—from the perspectives of both birds and the green movement—that would devastate the local

economy and bankrupt the households whose lives were to be improved. From the perspective of lessening both the burden of the Earth in processing carbon and the burden of rural residents to remain alive, shifting the local fuel source from wood to agricultural waste seemed a brilliant solution. The mistake was having government leaders and designers assume what was waste in an agricultural economy in which they did not participate.

The corn stalks and cobs that were mistaken for waste by the development team are the critical winter-food supply for one of the leading cash crops in the area: cashmere goats. The 30% of the local population whose household income depends upon selling cashmere fiber each spring, the corn stalk “waste” already equals food, and without it their herds would have no fuel, and the family no income. The soil near a stream within the watershed that was deemed inefficient for cash crops was incorporated into the housing plan, and in the middle of the new ecocity development a lake was created as a community

gathering point and scenic spot. While these lands are poor agriculturally, they are rich for aquaculture, for which they are presently used. With no consideration for fish as a cash crop within the ecosystem, these pools had no place in the master plan, and the 10% of households who depend on this income would fall victim to a so-called improved quality of life.

At the heart of the promise of ecocities in the countryside is the provision of public infrastructure to liberate families from the burden of survival, and freeing up their time for more productive pursuits. While the biogas plant taking agricultural waste devastates the families that require that

*Mr. McDonough designed a sustainable plan that would devastate the local economy.*

fuel as feed, it takes precious cash from the limited purses of each household in the valley. Along with the benefits of centrally provided public service come regular cash payments. In the case of the Huangbaiyu biogas plant, between 15% to 20% of the median households annual income would now have to be paid to the utility. This cost competes against a families' choice of paying for a spouse's health care, a child's education or an adult son's wedding.

While a biogas plant may free up hundreds of labor hours per year per household, there is no employment to be had in this valley in the dead of winter. Chopping down wood and burning fuel is the most economical use of one's time, as it saves the family the expense of paying for services with cash that is dear. With family mountain forest lands sustainably managed eight to 10 year cycles for household use, in Huangbaiyu the implementation of a biogas plant would impoverish the local community while at the same time meeting the goals of global sustainability: low-

ered carbon emissions.

There's the rub of sustainable development: Who does it sustain? Designing from the perspective of a bird, the soil, the water, the current best practices of sustainability erase the people from Huangbaiyu from the ecosystem, leaving only nature—and the gaze of the designers. Seeing the promise of ecocities from the perspective of those living the “American Dream,” the mission of the development became ensuring that any increased energy use in the countryside would not contribute to collapsing the foundations of their own livelihoods. The livelihoods of the impoverished had become invisible. This does not have to be the case. Huangbaiyu could have lived up to the promise of ecocities in the countryside—bridging the urban-rural divide while not contributing to ecological hazard. But for that to have been possible, sustainability would have had to begun from the premise that the lives and livelihoods of these rural residents were worth more than just their equivalence in carbon. ■

## Nurturing Asia's World Cities

by Saskia Sassen

**A** RECENT STUDY OF more than 60 global economic centers yielded some interesting results. The survey confirmed a familiar fact: A significant number of Asian cities are now major global cities, i.e., they possess capabilities for servicing the global operations of firms and markets, for organizing enormous geographic dispersal and mobility, and for maintaining centralized control over that dispersal. Other findings were less obvious. For example, the yawning gap between Asia's older established global centers such as Tokyo, Hong Kong and Seoul, and the global-city newbies such as Shanghai, Mumbai and even glistening Dubai.

As globalization expanded in the 1990s it created a systemic demand for more and more global cities. Today, the worldwide network of the 50 or so global cities that are dispersed throughout the world, provides the organizational architecture for crossborder flows of people, capital and information. As many of the world's economies shift their reliance from the manufacturing to service sector, the growth of global cities will continue. Yet even an economy centered in manufactur-

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ing or mining will feed the urban corporate services economy. These are profound structural transformations that operate at regional, national and global levels. As a result we see the growth of these services for firms also in nonglobal cities. The difference for global cities is that they have to deal with the most complex segments of the transformation: when a firm or a financial exchange goes global, the level of uncertainty, the diversity of national legal, accounting, insurance systems, etc., all add to the complexity of management.

The network of global cities has also expanded as more and more firms go global. The management and servicing of much of the global economic system takes place in this growing network of global cities and city-regions. The reconstruction of these cities—whether downtown and/or at the edges—is part of this new economic role. It amounts to rebuilding key parts of these cities as platforms for a rapidly growing range of globalized activities and flows, from economic to cultural and political. This also explains why architecture, urban design and urban planning have all become more important and visible in the last two decades.

This combination of deep structural transformation in all developed economies and the need for building the strategic urban spaces of the new economy also creates a whole range of new environmental challenges as more and more global cities expand their ecological footprint to a global scale. China is only the grandest and most noted of this new generation of economies, after that older generation represented by the United States and the European powers have firmly planted their vast ecological foot on the world.

The tables nearby confine themselves to a few of the hundred data points in the larger study, but are sufficient to illustrate some interesting points. First, we include the top five “winning” cities to provide context. Then, we look at how Asian cities perform in the same category. (Occasionally an Asian city makes the top five.) For the most part, the data shown are subindicators, i.e., nonaggregated data. The one exception is Table 1, which describes the consolidated number based on the combination of the 100 data points in the study organized into more than 40 subindicators. These subindicators include very detailed economic data (how many days it takes for a foreign firm to open up a business, or to get a trading operation executed) as well as quality-of-life issues and knowledge economy variables (such as the presence of top-level research centers).

Table 1 shows clearly that four cities in East Asia rank among the top 10 in the world. Of course, the table also shows that some Asian cities, such as Beijing, Shanghai, and Bangkok—cities we might have expected to be in the top 10—are not.

The next two tables measure general social conditions. Table 2 looks at the provision of basic services including public transport and building maintenance, etc. The results show that only one Asian city is in the top five. Of note, Hong Kong and Seoul are in the middle range of the total group, while Shanghai and Beijing are way down the list, and Mumbai is at the bottom.

Regarding issues that concern firms and markets, some Asian cities perform very well, especially in the area of investor protection where Singapore, Hong Kong, and Kuala Lumpur rank first, second and

#### GLOBAL CITIES

Table 1 Overall Ranking

1 London	6 Singapore
2 New York	9 Seoul
3 Tokyo	32 Shanghai
4 Chicago	36 Bangkok
5 Hong Kong	46 Beijing

Table 2 Basic Services

1 Singapore	30 Hong Kong
2 Copenhagen	35 Seoul
3 Frankfurt	45 Shanghai
4 Munich	46 Bangkok
5 Vancouver	62 Mumbai

Table 3 Ease of Doing Business

1 Vancouver	12 Hong Kong
2 Toronto	16 Tokyo
3 Montreal	45 Bangkok
4 Singapore	48 Shanghai
5 London	60 Mumbai

SOURCE: MASTER CARD GLOBAL CENTERS OF COMMERCE STUDY, 2007

third followed by the group of nine U.S. cities in the study. Tokyo, coming in 20th place, performs poorly, as do Seoul, Jakarta and most cities of the Chinese cities surveyed. Table 3 shows the ranking for ease of doing business. Singapore again excels among the Asian cities, while Hong Kong and Tokyo are in the lower end of the top 20. The others are in the second half, with Mumbai and Delhi at the bottom.

So what does the data mean for Asian cities, and for the issue of sustainability? The established Asian cities such as Tokyo, Singapore, Hong Kong, and Seoul do rather well as economic centers and, to variable degrees in terms of general population issues. Kuala Lumpur and, to some extent Bangkok, occupy median positions. But the newly invented or reinvented economic centers such as Mumbai, Delhi, Shenzhen, Jakarta and Chengdu, find themselves at the bottom of these 60 major economic hubs in several of the variables under consideration.

These patterns are replicated in some of the other criteria not shown here. Perhaps most striking for a general public, given common notions in the media, is how poorly Shanghai, Beijing, Delhi and Mumbai do, all four major and glamorous newly re-globalized cities. Although, perhaps for those who live and work in these cities, these findings may not be so surprising.

The cities that can be considered “most balanced,” i.e., that score well on factors that appeal to both corporate economic interests and as well as the general population’s desire for a good quality of life are, perhaps not surprisingly, cities in Western Europe.

The challenges faced by Asian cities are both old and new. Among the old ones

are access to basic social services, the need for better urban infrastructure, and the need to address growing numbers of poor and barely housed residents. Among the new challenges are those linked to environmental standards. There are also the new demands imposed by the global corporate economy. Both, old and new types of challenges will ultimately be critical for any reasonable understanding of sustainable development.

Chinese cities offer both examples of failure as well as signs of potential. The Chinese cities that made the overall top 100 are extremely dynamic and have seen the most dramatic construction. Never in the recorded history have we seen such accelerated and vast growth. This scale of development should have facilitated the incorporation of existing environmentally friendly technologies. It is truly tragic that this, by and large, has not been the case. There is an extreme imbalance between China’s massive financial effort and first-rate conventional urban planning in its major cities and the absence of such environmentally friendly options. This goes from elementary but important items such as the absence of bike paths throughout Shanghai’s newly rebuilt city center, to the failure to implement solar and other alternative modes of handling energy needs, including through the use of particular types of architecture. With its vast and accelerated urban-development process China could have shown us how to do it. Even now there is a whole new generation of city-construction under way in China, including the building of entire new cities. No other country is building on this scale. It is imperative that China do it right this time and show the world. ■