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A Few Observations: The Environment and Development in China

At nearly 1.3 billion the People's Republic of China (PRC) entered the 21st century as the world's most populous nation. Since then, the PRC has also assumed the rank of the world's primary consumer of grain, meat, coal, raw steel and surpassed the United States as the world's largest emitter of CO₂ earlier this year. All of these interrelated factors -- high levels of population, consumption, and pollution-- ensure that the future of this single country will have significant impacts on our planet and on humanity as a whole. To an unprecedented extent, China's problems are global problems and China's decisions are global decisions.

On a recent trip to Mainland China I visited one of the world's largest producers of steel, arguably the single most important material input for the rapid urban growth that has overtaken much of the developing world. This steel company, whose identity will remain concealed for political reasons and to which I will henceforth refer to as Company X, employs upwards of 50,000 workers. To put its physical size into perspective, Company X's main production site, located along one of China's grand rivers, is more than eight times the size of New York's Central Park and more than twelve times the size of ASU's Tempe campus. The sprawling site is not just a factory or collection of factories, but an entire production city with schools, hotels, restaurants, and leisure facilities. Navigating the site, one is taken through an intricate maze of two- and three-lane cracking concrete roads lined with dozens of towering smoke stacks and smelters.

Wandering between and connecting buildings to stacks and smelters is a three-dimensional collection of gas-carrying tubes as thick as cars. In terms of transportation infrastructure, Company X has several of its own deep-water harbors fully equipped with massive ocean-going freights and thousands of red and green containers stacked on top of one another in dense rows. The production site also has a self-contained railroad network with miles of tracks.

As for the steel production itself, which takes place inside gargantuan assembly factories, it is a hot and noisy automated process. Pig iron is smelted into long glowing sheets of molten steel that radiate incredible heat as they shoot from one end of the factory to the other. As the sheets travel, they are gradually stretched out like dough by giant, greasy, metal rollers. By the time they reach the end of the roller belt they have lost all but a hint of their original molten glow and are sufficiently cool to be coiled into six-ton blooms. Here is the epitome of the dirty, heavy industry that is meeting the demands of urban growth in China and around the world.

As we toured the grounds of Company X, the relationship between development and environment (at least for this one massive company) began to emerge. One high-ranking employee proudly remarked to me, “Our corporation cares deeply about the environment. We have planted beautiful flowers everywhere and trees grow freely. Many foreign visitors comment that our grounds are like a garden.” As she talked, we made our way to the “zoo” feature of the site, which was comprised of a few dozen deer fenced into a dusty lot and about ten peacocks squawking loudly from behind netting on the side of a road. Another employee then explained, “Humans are not so affected by pollution. That’s why we have a zoo, so when the animals get sick we know we must make less pollution.”

So, it turns out, the deer and peacocks are not there for the enjoyment of workers, but instead to act as mega-faunal versions of the proverbial canary in the coalmine.

While I am wary of making sweeping generalizations and by no means intend to assert that my experience at Company X exemplifies how all Chinese industries interact with the environment, I do think that it speaks to a trend prevalent amongst government, industry, and universities of engaging with the environmental concerns of economic growth and rapid urbanization in a purely rhetorical manner. That is to say that although growth and environmental protection are often packaged together, there is, in reality, little substance to this relationship. Here, some historical contextualization of the current state of China's environment and development is necessary.

A vast majority of China's urban and industrial growth has occurred since Deng Xiaoping, former leader of the Chinese Communist Party and successor of Mao Zedong, launched sweeping reforms beginning in the late 1970s. The cornerstone of these reforms was what Deng coined the "four modernizations"- agriculture, industry, science and technology, and national defense. In tandem, these reforms and a handful of policies associated with them led to the rapid growth of Chinese industry and the analogous explosion of Chinese cities throughout the 1980s, 90s and into the 21st century. Whereas in 1975 China's urban population was at just over 17% of the national total, roughly 40% of Mainlanders live in cities today (*1*). This urban explosion, fueled by rural urban migration and the replacement of agriculture with industry, is charted to continue and China is expected to have an urban majority by 2015.

As industry and foreign direct investment grew steadily during the reform period, so too did China's levels of literacy, child education, standard of living, and average life

expectancy, collectively calculated as human development index or HDI (1). For a country to increase its HDI by 46% (from 0.527- roughly where Ghana and Sudan measure up today- to 0.768, which is close to the present level of Saudi Arabia) within a single generation is an accomplishment worth noting. This raises the issue, however, that China's dramatic HDI growth has been accompanied by severe and widespread environmental degradation. As we all know, many developed countries including the United States allowed their initial leaps of industrial growth to come at the expense of the environment. Why, then, should the developed world expect more from China than its own dirty history warrants? Well, in addition to having more robust knowledge of our environment and more technological ability to develop while protecting it, the primary answer to such a question is *scale*.

China's environmental degradation is not only more extreme than that of its temporally and geographically disparate counterparts, but the scale on which it is operating is absolutely unprecedented in that it has the potential to impact *at minimum* a full quarter of the global population. The pursuit of new technological frontiers and historically unparalleled population and consumption levels have given an added punch to the potential environmental impacts of urbanization and industrial growth.

Accordingly, about 19 million acres of arable land (roughly the size of Delaware) were lost to urbanization, soil erosion and industrialization between 1979 and 1986 (2). China is a big country, you might be thinking, and losing one Delaware in seven years is insignificant, but only 10 percent of China's land is arable in the first place. To be sure, it's quite possible that this land is more productive as a non-agricultural asset. After all, cities provide jobs, foster the valuable clustering of human capital, and, of course,

industry can be incredibly profitable, but these potential benefits do not negate the ecological or social consequences of rapid land-cover and land-use conversion.

Rapid urbanization and industrial expansion have also ruined much of China's water resources. As Chinese historian Jun Jing notes, "A 1988 survey of 532 rivers found 436 badly polluted; 80 percent of the waste water discharged into these rivers was untreated" (2). A spectacular recent example is the 2005 Jilin Petrochemical Company benzene spill. This 200,000-pound toxic "leak" created a 50-mile long slick and that poisoned the water supply of Harbin, a city of 10 million (3). And then, of course, there is the Three Gorges Dam (TGD), the largest hydroelectric power project on the planet. While the dam provides the nation with more than half of its green energy, it has left millions of people homeless and wreaked irreversible havoc on the fragile ecosystems of the middle Yangzi River region. The case of TGD clearly illustrates how politics frequently render environmental policies utterly useless in that, "[...] since this is a state-sponsored construction project of unusual political importance, its devastating environmental impact is not subject to the possible scrutiny of the country's environmental laws" (2).

As the case above indicates, China's authoritarian political structure, weak environmental regulations and lax enforcement, have served to further exacerbate the impact of urban growth on the natural environment. Consider the following excerpt from a document issued by the Chinese government:

Responding to stresses on natural resources caused by fast economic growth, development and urbanization, the state [...] responded with a "green strategy" that includes developing a revolving economy, increasing resource-use efficiency, developing clean production, reducing pollution costs in production processes, developing green consumption, reducing ecological impact of consumption [...] and creating a balanced ecological environment (4).

Yet, while the central government spouts and touts its “green strategy” of development and mitigation of “stresses,” local nodes of government, the arteries and veins of China’s political heart- Beijing- have been rendered powerless. As Elizabeth Economy, Director of Asia Studies at the Council on Foreign Relations, notes, this devolution of authority “[...] has given [local officials] free rein to concentrate their energies on economic growth, pushing aside environmental considerations with few consequences from the center” (5). So, while the Chinese government claims to recognize the need to adopt an environmentally conscientious development pathway, its political structure prevents any meaningful action from being taken.

All of these points raise the issue of trade offs, of whether or not it is justifiable to irreparably damage rivers, soil, forests and human communities for a few decades of rapid economic and urban growth and improvements in quality of life for a major constituency of the population. For me the answer is clear: the trade offs being made at present need to be reevaluated. Sure, it is good to make steel to help cities grow and people prosper, but it needs to be done in a more environmentally responsible way. Although China’s current growth trajectory has yielded tangible social benefits (as measured by HDI), it is drastically reducing the options of future generations to thrive and is thus fundamentally unsustainable.

On the whole, it seems to be the case that the PRC (and even some developed countries including the United States, in many ways) are just paying lip service to the idea of sustainable development simply because they can get away with it. This tactic, driven entirely by economic logic, allows China to continue on its path of rapid urban and

industrial development, quality of life improvement, and wealth accumulation, while holding concerned outsiders at bay. But economically they may not be able to get away with it much longer. Annual losses to pollution and environmental degradation are estimated at around 8% of China's \$2.5 trillion GDP, or roughly \$200 billion. Clearly, the old adage of economic development versus environmental quality must be re-evaluated, but when more environmentally friendly development behavior will become economically viable is, as of yet, still unclear.

So, in the meantime, what can be done to minimize permanent ecological damage and a further reduction of intergenerational equity? Given China's current political structure, the policy route is destined to be a dead end. As the above discussion of power devolution between the central and local governments illuminates, even if well-framed environmental and development policies were to be formulated, there is no effective way to implement them within the existing political structure. Furthermore, the Chinese government (or any government, for that matter) is not going to make policies that protect the environment at the expense of development of which it is the primary driver and beneficiary. Elizabeth Economy postulates that an extra-governmental environmental protection apparatus could provide a partial solution (2). She may be on to something, but where does one begin? What might a new system of environmental valuation and protection incentives look like and how might it be developed?

In a continuing discussion on these issues, I would like to invite everyone to share their views and ideas on the blog for the Project on Global and Comparative Knowledges, which can be reached at <http://www.cspo.org/gck/discussion/index.htm>.

References:

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