Can China Lead the World towards an Ecological Civilization: a Manifesto

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What is civilization?

By *civilization* I mean those expansive forms of culture established by the sedentary, stratified, usually literate, administratively centralized, but above all *agrarian*-based societies that originated in the Neolithic and predominate in the world today. Civilization is, in other words, defined here in contrast to hunter-gatherer societies. Where hunter-gatherer societies took their livelihoods directly from a relatively pre-existing natural or ecological system,[1] civilized societies make their own living, so to speak – by clearing a space within nature and dedicating it exclusively to human use. With the advent of civilization, cultivated and often engineered systems began to replace natural landscapes. Recourse to artifice rather than reliance on nature ultimately gave rise not merely to agriculture and the urbanization of society but to industrialism, and it is in this industrial form that civilization dominates the world today.

Members of hunter-gatherer societies were required by their circumstances to develop intimate knowledge of their own local ecologies since they depended on the affordances of their natural environment for food and other requisites. Their cultures reflected a sense of enmeshment in, and responsibility for, an intricate set of ecological interdependencies. For people living under the conditions of civilization, on the other hand, the natural environment was mere background to the sphere of human agency. While they required a bare knowledge of the principles of agriculture, "nature" was otherwise discounted as outside the sphere of the social; it was largely ignored and little understood and it was expected to take care of itself.

In this sense there is a tendency within civilization per se for a dualistic construction of culture versus nature to open up and a corresponding valorization of culture at the expense of nature to occur.

In the contemporary world, civilization under its industrial aspect has largely overtaken the natural environment. In its ignorance of, and disregard for, the principles underpinning the integrity of natural systems, this form of civilization has ransacked and ravaged nature, with the consequence that the health and integrity of the entire biosphere is now under serious threat.

What is eco-civilization ?

[1] This is not to say that hunter-gatherer societies did not alter and manage their landscapes, but that they did so in collaboration with the ecologies of their environments. (Gammage 2011)

"Eco-civilization", a term with particular currency in China, is defined by its aim of making civilization, as a social formation, consistent with the repair and ongoing renewal of the biosphere.

This aim might be achieved in a range of different ways:

(1) By a drastic reduction in levels of human production and consumption or by a drastic reduction in the level of human population itself.
(2) By a vast expansion in the areas of land and sea set aside for conservation, where this would allow adequate space for the recovery and regeneration of biosphere processes (eg vast areas of forest for respiration and carbon sequestration; vast marine reserves for the replenishment of fish stocks and the protection of ocean metabolism).
(3) But there is a third approach, and it is the one on which I wish to focus here – though it should also be combined, to a degree, with the first two. This approach involves re-designing our productive processes, and indeed the whole fabric of our material culture, so that these processes are regenerative for nature rather than destructive of it. In other words, this approach involves designing human productive systems, and the economic systems that supervene on them, in imitation of natural systems, so that they become fully integrated with biosphere processes rather than antagonistic to them. If we re-design all our productive systems, together with our ways of organizing and administering them, so that these systems become productive for the biosphere as well as for us, then there would be less need to curb our activities or even our population (though a certain upper limit on population would always still apply). Like the activities of *ants*, whose total biomass on the planet is greater than the total biomass of humanity, our activities would nourish and replenish the earth community, rather than ravaging it. There is of course already a name for this philosophy that seeks to design human systems in imitation of natural or biological systems: *biomimicry*.

What is biomimicry?

The design philosophy known as *biomimicry* was popularized by thinkers such as biologist, Janine Benyus, economists, Amory and Hunter Lovins, and architect William McDonough. Benyus defines biomimicry as "a new science that studies nature's models and then imitates or takes inspiration from these designs and processes to solve human problems, eg a solar cell inspired by a leaf." She adds that biomimicry is also "a new way of viewing and valuing nature. It introduces an era based not on what we can *extract* from the natural world, but on what we can *learn* from it."(Benyus, 1997, front pages) According to Benyus, nine principles can be identified as underlying nature's designs. Nature, she argues, (i) runs on sunlight (ii) uses only the energy it needs (iii) fits form to function (iv) recycles everything (v) rewards cooperation (vi) banks on diversity (vii) demands local expertise (viii) curbs excesses from within (ix) taps the power of limits. (Benyus, 2002, p. 7) If we designed our industry and our built environment in accordance with such principles, Benyus and others suggest, we would be well on the way to living in cooperation with the biosphere, and thus achieving our goal of repairing and renewing it.

Biomimicry then is surely a key, if not the major key, to designing an ecological civilization. However, while biomimicry is, for the West, a radical new design philosophy that departs dramatically from the thinking that underlay the industrial revolution of the 18th-19th centuries, in China this philosophy may be seen as merely a contemporary expression of a very ancient approach not only to design but to life itself, namely Daoism.

What is Daoism?

In China, *Dao* is understood as the Way of nature, the way that natural systems unfold when left to their own devices. Daoism, at least insofar as it rests on the teachings of Laozi, is the philosophy that enjoins us to follow Dao in the conduct of our own lives. This involves studying the patterns of behaviour of all living things, the dynamics of the ecological and cosmological systems that surround us, and allowing those patterns, those dynamics, to inform our own agency. Daoists studied the behaviour of natural systems at a far more profound level than have contemporary adherents of biomimicry, and they explained them not in terms of fixed laws but in terms of open-ended underlying flows of energy, or *qi*. They observed that economies of energy in natural systems follow the twin pattern-principles of *wu wei* and *yin-yang* polarity. *Wu wei* and *yin-yang* balance may be cultivated at a personal level, through bodily practices such as calligraphy, taiji and other martial arts. But in Chinese history these principles were also applied in the design of public systems, including agricultural and engineering systems.

One notable example of a public system explicitly designed in accordance with the principle of *wu wei* was the ancient irrigation system of Dujiangyan, established in 256 BCE on the Min River in the province of Sichuan. The system was built to protect local people from the dangerous annual flooding of the river. Instead of constructing a dam, the then governor, Li Bing, devised a series of channels, held in place by bamboo baskets filled with stones, that harmlessly and productively dispersed the flood waters across the flood plain, making that flood plain the richest agricultural area in China. In contrast to the massive dams built according to the philosophy of 'scientific' development in the latter half of the twentieth century, the Dujiangyan system did not damage the ecology of the river, even though it reconfigured it: fish and other aquatic life had free passage through the system. Where dams generally succumb to ecological death and silt-up in a matter of decades, and are thought to contribute to geological instability, Dujiangyan is still as benignly functional and productive today as it was more than two thousand years ago, and it emerged almost unscathed from the catastrophic Sichuan earthquake of 2008 (Watts 2010).

China's cultural advantage in developing an ecological civilization

So biomimicry may be viewed as a contemporary science-informed counterpart to the ancient Daoist tradition of "following nature". That ancient tradition represents a thread of continuity back to the very early indigenous origins of

Chinese civilization. In preserving such a thread of continuity, Chinese civilization has remained in dialogue with the eco-cosmological wisdom of its pre-civilized ancestors in a way that Western civilization has not: in its art and literature, China has, until relatively recently, retained a reverence for and sense of immersion in nature that has softened the otherwise inevitably harsh environmental impact of the advent of civilization in China. It follows that, where biomimicry lacks deep philosophical roots in the West, it could, in China, be grafted onto the deepest and most generative philosophical roots of the entire culture. As a design philosophy then, biomimicry should find itself more at home in China than it does in the West. And if biomimicry is a major key to ecological civilization, and that key is much more fitted to the hand of China than it is to the hand of the West, then it would appear that China is better placed than the West to develop a truly culturally grounded ecological civilization.[2]

However, for China to acknowledge and act on the affinity between biomimicry, as a revolutionary design philosophy, and its own deepest cultural wellsprings, it would be necessary for China first to reclaim and to an extent renovate its Daoist heritage. Daoism is a diverse and diffuse set of traditions and lineages that over many centuries has become overlaid with superstition and associated with disreputable practices that often tended to exploit the gullibility of pre-modern communities. Daoism in this sense needs to be "cleaned up" for the present era: its core ideas need to be rescued from the morass of sorcery and chicanery that has accumulated around them and these ideas need to be brought into dialogue with science. The present environmental crisis, in China and the wider world, provides an occasion for this rediscovery and re-evaluation of Daoism, and in this sense the crisis represents an opportunity for Daoism to start to evolve again, as it has so many times in its long history of stops and starts and successive transformations. In recovering its Daoist tradition, in a new, relevant and responsible guise, China would also be recovering a touchstone of values for a populace already becoming jaded at the moral shallowness of the materialist outlook of modernity. In this sense, an ecological civilization, designed in accordance with biomimicry principles but rooted in a re-articulated and re-affirmed Daoist wisdom that reconnected Chinese people to their cultural origins, would be a quintessentially Chinese civilization, with greater integrity and hence moral strength than the rather hybrid form of part-Western, part-Chinese modernity that currently prevails in China.

As China is the engine of industrial development - and increasingly of innovation - in the world today, it is in the interests of the rest of us for China to "grow" a deep eco-civilization out of its own native soil. This will not only soften the impact of China's development on the biosphere at large but will also provide a model of eco-civilization which other societies can, in their own culturally distinctive ways, adapt and follow.

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[2] To consider the potential contributions of other civilizations, such as those of Hinduism and Islam, to sustainability is beyond the scope of the present paper. Here I am only considering the relative merits of the civilizations of China and the West in this respect.