

MOVING TOWARDS SUSTAINABLE DEVELOPMENT: THE CHINESE CONUNDRUM

Yuk-Kuen Annie Cheung,

York Centre for Applied Sustainability (YCAS), York University, Toronto, Ontario, Canada; The University of Toronto -- York University Joint Centre for Asia Pacific Studies (JCAPS), Toronto, Ontario, Canada

Keywords: Gaia, life-support systems, environmental degradation, paradigm, conflict resolution

Contents

1. Introduction
2. Symptoms of Systemic Malfunction
3. Towards a Greater Understanding of the Key Forces at Work -- Who is Responsible?
4. Sustainable Development – Integrating Social Equity, the Economy and the Environment
 - 4.1. Sustainable Development as a Goal
 - 4.2. Sustainable Development as an Objective: The Chinese Conundrum
 - 4.2.1. Population growth under natural constraints:
 - 4.2.2. Infrastructure development to meet economic needs:
 - 4.2.3. Environment as a living resource for economic growth
 - 4.3. Sustainable Development as a Process
- Glossary
- Bibliography
- Biographical Sketch

Summary

The concept of sustainable development is a response to a new awareness - a new environmental consciousness. It accepts that the peoples of the world depend for their survival on an ecological system that is both global and finite. Observing Nature's limits is important in order to prevent an irreversible depletion of our life support systems. Successful mobilization of community and human intellectual resources towards this goal depends on a broad base of trust and co-operation. Community solidarity rests upon some basic conditions for human dignity and social cohesion. Therefore, the role of governance is fundamental - first in the encouragement of civil society, and, ultimately, in facing the sustainability challenge.

The definition of sustainable development provided by the Brundtland Report is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCED 1987). While Nature imposes limits, societies will have to search for ways to create the social capacity to pursue the ideals of a sustainable future. Sustainable development is sometimes considered a goal which can be achieved through the improvement of economic tools. Sustainable development is also regarded as an objective that is important for generating and supporting economic growth. In addition, sustainable development should be a process

which involves raising public awareness, and using that public value to create the momentum for change in the public system. These general points are illustrated through an examination of the sustainability challenges facing China.

1. Introduction

The state of the environment is an important indicator of the performance of society. When a society allows its industries and activities to produce excessive non-naturally occurring environmental contaminants, in turn creating health hazards for its people, that society is presenting symptoms of malfunction. Given this warning, a society ought to revisit its path of development in search of an alternative path which is more conducive to long term systemic improvements and maintenance, namely sustainable development. Considering the irreversible noxious nature of many of the toxic substances on public health, sustainable development ought to be regarded as an overarching principle for governance. One corollary of sustainability governance is the Precautionary Principle, adopted as part of the Rio Declaration in 1992, which states that “In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” (For a broader discussion of the Rio Declaration see “Sustainability in international law”)

2. Symptoms of Systemic Malfunction

According to the "Gaia hypothesis" the earth can be seen as a living organism. Humanity is a part of this living whole, both adapting and contributing to the resilient natural system. Survivability of the earth and the human community are not the same. The generally accepted age for the earth and the solar system is 4.55 billion years, while fossils of human ancestry are only 4 million years old. The earth is much older and more resilient, and it offers a clue to understanding human vulnerability. We know that pollution and other man-made environmentally degrading activities that are depleting our life support systems are causing a great deal of harm to the health of the inhabitants of the earth, but Gaia, planet earth, will most likely carry on. Its resilience and continuity have been reflected by historical cycles of boom and bust of various life forms such as the dinosaurs. Should the human community persist in irresponsible behavior that causes harm to its life-support systems, it may, like other extinct life forms, cease to exist.

The recklessness of contemporary practices leading to depletion of natural resources has been highlighted in some revealing UN and WTO statistics: about 1.1 billion people, 17.92 per cent of humanity, including over 62 million urban dwellers, still lack access to safe drinking water. Yet of the seventy per cent of total exploited freshwater resources used for irrigation in farming, only thirty per cent is actually absorbed by the crops. Although with modern agricultural practices, there has been steady improvement towards food security, in 1997, almost 792 million people in the world were still starving. And seventy to eighty per cent of deforestation worldwide was due largely to land clearance for accommodating mechanized agricultural practices. The world has lost about 4 per cent of forested areas between 1990 and 2000. Amongst other important

natural functions, forests can mitigate climate extremes, and function as reservoirs for fresh air, and catchments for freshwater resources. Seventy eight million people are added to the world population each year.

Our failure to uphold, care for, or sustain what is necessary for our well-being and survival is rendering us unfit to exist in the larger system of Gaia. Humanity's imminent downfall can then be compared to the demise of the dinosaurs. The small brain, large brawn of a dinosaur is a useful metaphor for those who lose the survival ability because they become too big, their daily needs for survival are too great, and their consumption rate surpasses the available resources of their life-support systems. These are compounded by the failure to adjust the appetite according to changing conditions. As Darwin's survival of the fittest concept implies, the predator-prey relationship is a delicate one, but the relationship is reversible -- those who were once predators can also become prey. The Gaia perspective helps to highlight the risks that are latent in our own existence -- if we are callous about our environment or our own life-supporting systems, we can expect to reap harsh consequences.

Many actions of the past, though drastic, irreversible and dangerous when we think of them now, simply resulted from a combination of ignorant, perhaps innocent decisions. In spite of the fantastic progress we have made as a species in our civilization, our proud endowment of intelligence and the accomplishments in the realm of science and technology, our decision-making skills are still somewhat lagging behind all these marvelous achievements. Has our brawn become too large for our brain? Have we increased our knowledge at the expense of our wisdom – our capacity to make wise choices?

We seem to be ensnared by the economic framework we created. Inflation, unemployment and ecological crises are all artifacts of modern society. We have constructed a very complex economic system and methods of measurement, upon which we depend for understanding our society. But these measurements leave natural, social, and human capital off the balance sheets of governments and businesses. In turn, the economic system greatly influences our lives and perspectives. Unfortunately, some of the assumptions we adopted are quite erroneous. For example, as Eugene Loebel pointed out in his 1976 publication, *Humanomics*, although classical economics suggests that the dynamics of production equal that of consumption, the relationship is not so simplistic. He argued that the American society has never really been a consumer's society, but is a business-oriented society. When businesses base their decisions on profits, technology, and politics, the consumer's needs become a very insignificant consideration, especially when the consumption pattern can be manipulated through the power of advertisement. The general preference for fast-food over a more balanced indigenous diet, as is prevalent in all new frontiers of the fast-food world: Mexico City, Jakarta, Beijing, and so on, illustrates the point.

Our indulgence in the artifacts of our own invention is evident by the operation of the world's financial markets. Nuclear physicists are hired to apply scientific theorems to the estimation of prices and derivatives, and bio-physicists are hired to look into risk transfer, absolute losses, built-in safeguards and so on. Such practices demonstrate how creative businesses can become in areas where they wish to minimize risk and maximize

profit.

The economic structural arrangement of modern society has created a dichotomy between large transnational businesses and civil society that is based on the different goals of these two very significant constituents of society. The distinction may help us to better understand why we don't seem to be promoting well-being when our economic indices are all generally going in an upward trend. We may begin by asking these questions: What are business activities promoting? For whom? And how?

For business, the ultimate goal is profit accumulation, which will be reinvested to achieve greater levels of capital accumulation. The process will then repeat and the cycle goes on. To gain profit, costs can be cut to a minimum in production, product price can be raised and markets can be expanded. These are the basic ways of attaining the objective of increasing profits. Though business creates employment for a great majority of the world's population, the success of business does not necessarily imply improvements in the quality of life or upward mobility of everyone involved in the process. In 2001, The Centre for Social Justice released a report: *When Markets Fail People*, which maintained that the periods of economic growth in the past twenty-five years have not provided benefits to the poorest 10% of the population in Canada. The wealth accumulation that occurred during the economic boom periods affected mainly the top income group. Conversely, during economic recession, the poorest were the ones who consistently suffered the most. Evidently, both economic recession (1981-1984; 1989-1993) and recovery (1973-1981; 1984-1989; 1994-1998) periods did not generate changes in the direction of income equality. Instead the gap between the rich and the poor has widened continuously.

The symptoms of market-driven business-oriented activities can be found everywhere today. We have experienced an explosion of machine production, such as in the automobile industry. Whether they are needed or not, there are always new car models every year. Once produced, these machines place a demand on our resources such as capital, energy, land (space) and natural amenities. An over-production of manufactured goods is flooding the shopping malls of North America, Europe and other affluent centers where the primary demands for these goods have already been satisfied. Advertisement and enterprising promotion do the trick, such as the recent "zero interest" promotion campaigns for car sales. Massive consumption and a wasteful attitude driven by trends and fashion are promoted by advertising agencies. For a higher profit, the added costs (management, promotion, packaging, tax and tariff, etc.) have to be absorbed. Manufacturing cost has to be cut. With the aid of modern communication devices and computerized management systems, manufacturing processes can be farmed out to all the remote places of the world, including Tibet and Mongolia. This development creates an endless flow of cheap labor, generates new economic activities in the hinterlands, and often as part and parcel to this arrangement, the recipient community is unable, by virtue of its place in the hierarchical commercial structure, to devise and implement policies addressing the challenges necessary to prevent environmental degradation.

In recent years, partly due to public outcry, which calls for better social and environmental practices, new markets have emerged for products that are produced by

more sustainable processes. These "sustainability brands", capitalizing on good corporate ethics, thrive on reputation. They adopt voluntary standards and codify their practices as a declaration of sound environmental or labor practices. Examples of such are new environmentally aware business practices, including development in the manufacturing sector. Specifically there is a change from selling products to selling services in which raw materials and waste are minimized and recycled. Scavenging, or recycling, is being revived and rediscovered to be good business. Socially responsible investment is beginning to gain a significant niche in the financial investment domain. Although these are important and positive changes, the global market share of these products still remains rather low.

-
-
-

TO ACCESS ALL THE 20 PAGES OF THIS CHAPTER,
Visit: <http://www.eolss.net/Eolss-sampleAllChapter.aspx>

Bibliography

Bell D.V.J. (2002) "The Role of Government in Advancing Corporate Sustainability", <http://www.yorku.ca/ycas/publications/index.html>. 31pp. [This paper, prepared for the G8 Environmental Futures Forum, discussed the new government business relationship in promoting sustainability.]

Bevan R.A. (1973) *Marx and Burke – a revisionist view*. Illinois: Open Court Publishing Company, 197 pp. [Bevan's work underlined the need for our society to embrace different political theories, to begin to define some underlying social values that transcend all political boundaries, and to use these values to guide us in making decisions for the future.]

Cheung Y.-K. A. (1997) "Chapter Four: A Conceptual Model for Environmental Management and Planning". *An Environmental Assessment Approach for Hong Kong and the Pearl River Delta: Principles and Practices*. Ph.D. Thesis, The University of Hong Kong. 27pp. [This thesis covers the emergence of the concept of sustainable development, its various definitions and interpretations, its implications at the global and local levels, barriers to sustainability, and its policy implications.]

Curry-Stevens A. (2001). *When Markets Fail People: Exploring the widening gap between rich and poor in Canada*. Toronto: Centre for Social Justice. [The report indicated that throughout the last twenty-five years of economic boom and bust, the gap between rich and poor in Canada continued to widen. The analysis was based on the most current Statistics Canada data.]

Franklin U. (1990). *The Real World of Technology* (CBC Massey Lectures Series). Toronto: CBC Enterprises, 132 pp. [This statement examined the evolution of society from the time of the Industrial Revolution, focusing on aspects of relationship between man, society and the machine.]

Lindblom C. (1977). *Politics and Market: The World's Political-Economic Systems*. New York: Basic Books, Inc. Publishers, 403 pp. [An exposition on the world's political-economic systems, depicting the close relationship between businessmen, corporate executives, and government officials and how the private sector influences the public sector.]

Loebl E. (1976). *Humanomics: how we can make the economy serve us – not destroy us*. New York: Random House, 164 pp. [A critique of capitalist society.]

Lovelock J.E. (1988). *The Ages of Gaia – A Biography of our Living Earth*. Oxford: Oxford University Press, 252 pp. [This provocative book issued a warning to human kind. It was argued scientifically that if humanity continues to act irresponsibly towards its environment, causing great disruption to the life-support systems, man might risk extinction.]

Smil V. (1996). *China's Environmental Crisis: An Inquiry into the Limits of National Development*. New York: M.E. Sharpe, 257 pp. [An exposition of environmental problems in China.]

World Commission on Environment and Development (1987). *Our Common Future*. Oxford: Oxford University Press, 400pp. [A seminal document, which popularized the term sustainable development, and paved the way for more dialogues at all levels, local and international, on the subject, culminating in the organization of the Rio Summit to focus on the discussion.]

Newspapers, Journals & Speech

"A Food Crisis – or a Blip", *World Press Review*, Science Section, February 1996. Vol. 43. Issue 2. [It reported that the UN estimated 800 million people were undernourished. Also, China imported grain heavily in 1994.]

Brown L.R. and Halweil B. (1998), "China's Water Shortage Could Shake World Food Security" and "China's Water Shortage Could Shake World Grain Markets" *Worldwatch* Institute, <http://www.worldwatch.org>, 5 pp. and 3 pp. [The article warned that China's grain shortage will impact on the world market and impact on the 1.3 billion poor people in the world. Its analysis suggested that China's agricultural performance is closely related to its decreasing share of access to fresh water, as the residential and industrial use of water increased dramatically in recent years. A major part of the problem of water shortage for agriculture lies outside the sector.]

China Daily (November 29, 2001), "China sets targets for Rural Work in 2002", <http://www.chinadaily.com.cn/news/index.html>, 1 pp. [The report maintained that The Central Economic Working Conference defined rural reform as an important task in 2002. This includes improvement in rural wages and living standards, higher safety and health standards for farm produce, and land conservation through reforestation.]

China Daily (February 4, 2002), "Grain Output Slightly Down, Farmers' Income Up in 2001", <http://www.chinadaily.com.cn/news/index.html>, 1 pp. [The report stated that grain output in 2002 is expected to reach 500 million tons in China. And for every percentage point drop in grain output, China will have to import an increase of 5 million tons of grain.]

Department of Agriculture, China (c. mid-1990s), "Report from the Secretary of Agriculture", http://www.osearth.com/resources/sampleNWG/NWG_beta/reports/ch/agri.html, 1 pp. [This article gave a brief overall picture of the agricultural sector in China, and maintained that China imports \$17 billion worth of food annually.]

CIA 2002 "China", <http://www.odci.gov/cia/publications/factbook/geos/ch.html>, 11 pp. [This section provided up to date statistics on China -- 10 per cent of land in China is arable land. In 2000, China's GDP per capita was \$3,600. China is the second largest economy in the world after the US.]

EMC (2002). "Air Pollution Robs China of Grain" Pennsylvania State University, <http://www.ems.psu.edu/info/explore/ChinaGrain.html>, 1p. [The article stated that research has shown that air pollution in China may have depressed China's farm yields by 5 to 30 percent.]

Han T. (c.1998), "China: a shared poverty to uneven wealth?" The George Washington University, The Elliott School of International Affairs, <http://www.gwu.edu/~econ270/Taejoon.html>. 16 pp. [The article focused on issues of income disparity in China, resulting from the present economic restructuring -- urban rural income disparity and inter-regional economic disparity.]

Klein L.R. (2001). "The World Economy in an Uncertain Environment", for presentation to the General 14 Assembly of the United Nations. [China's economic figures for 1996 to 2000.]

Mintzberg H. (1996). "Managing Government, Government Management", *Harvard Business Review*, May-June 1996. [Ultimately, human values control our system of governance.]

Datong N. (2002). "An Assessment of the Economic Losses Resulting from Various Forms of Environmental Degradation in China", <http://www.library.utoronto.ca/pcc/state/chinaeco/land.htm>, 9 pp. [The analysis suggested that the economic loss from the deterioration of farmland in China is in the region of 59.3 billion yuan -- the figure takes into account (i) lost farmland, (ii) erosion; (iii) decreased reservoir capacity.]

Nizeyimana E.L., Petersen G.W. and Warner E.D. (2002). "Tracking Farmland Loss", http://www.agiweb.org/geotimes/jan02/feature_land.html, 4 pp. [The article analyzed the impact of the loss of farmland and soil productivity in the US, and included the Chinese experience -- 50 percent of Suzhou and the adjacent area, where high quality soils were found, have been converted to urban use in recent years.]

Penney S. (1994). "Assessing CEAA: Environmental Assessment Theory and the Canadian Environmental Assessment Act", *Journal of Environmental Law and Practice*. Vol. 4. No. 3. [This article differentiated "development" from "sustainable development".]

People's Daily (February 11, 2002), "China Releases Quotas for Imported Grains", http://english.peopledaily.com.cn/200202/11/eng20020211_90329shtml, 1p. [The report stated that China will import 8.468 million tons of wheat this year and provided further break down of the figure.]

Pimentel D. et al. (1994). "Natural Resources and an Optimum Human Population", *Population and Environment: A Journal of Interdisciplinary Studies*. Vol.15. No.5. May 1994. [A comprehensive look at the patterns of consumption between the developed and the developing countries, with an emphasis on the impacts of population on the resource base.]

Rawski T. (2001), "What's Happening to China's GDP Statistics?" -- Prepared for China Economic Review Symposium on Chinese Statistics, USA: Department of Economics, University of Pittsburgh. 14 pp. [The article questioned the official economic statistics of China in recent years, noting inconsistencies registered in the different levels of reporting. It provided a set of alternative figures to the official GDP for 1998, 1999, 2000, and 2001 -- -2.0/+2.0, -2.5/+2.0, 2.0/3.0, 3.0/4.0 respectively.]

Reuters, "Excuse me. Pardon me. Excuse me.", *The Globe and Mail*. August 4, 1994. [A World Bank reporting that China's population will grow to 1.5 billion in 2030.]

Ruggie J.G. (2002), "Taking Embedded Liberalism Global: The Corporate Connection" -- Keynote Address -- Workshop on Global Governance: Towards a New Grand Compromise? Canadian Congress of the Social Sciences and Humanities, University of Toronto, May 29, 2002. 9 pp. [The speech gave a diagnosis of today's problems in the issue of governance from a political economic perspective. It described the "Global Compact" as a new measure to engage the business sector in global governance, and in the civil society dialogue.]

The World Bank Group (2001), "China at a glance" <http://www.worldbank.org/data>, 2 pp. [Data in this article indicated that the agricultural sector's share of GDP shrunk from 30.1 percent in 1980, to 27.0 percent in 1990, to 17.6 percent in 1999, and 15.9 percent in 2000.]

The World Bank Group (1999), "Traffic Congestion and Air Quality in Three Chinese Cities are Target of New World Bank Project", 2 pp. [The World Bank approved \$150 million loan to the Liaoning Urban Transport Project as an effort to help solve the traffic related air pollution problems in these localities. It gave a synoptic overview of the major issues faced by the urban transport sector in China.]

United Nations Economic and Social Council (2001). "Implementing Agenda 21: Report of the Secretary-General". 20 December, 2001, 63 pp. [The report provides a comprehensive assessment of the state of the world, and broad discussion on the progress and achievement of Agenda 21 activities.]

US Embassy Beijing (June 1997). "China's Farmland Loss Rings Alarm -- Satellite Photographs Reveal A Serious Problem", <http://www.fas.org/spp/guide/china/earth/landloss.htm>, 4 pp. [The report analyzed

conditions related to the loss of farmland in China, and current policy responses to the problem. It noted that China is losing 0.5 per cent of farmland to conversion each year.]

World Resources Institute (2002). "The Environment and China: Transportation", <http://www.wri.org/china/transpor.htm>, 4 pp. [The article discussed the current urban transportation policy in China. The emphasis is on the use of motor vehicles. Although the current per capita registration of vehicles in China is only 3 per cent of that of the US, the total figure reached 28 million in 1995. Car emissions is already a major problem impacting on public health, on greenhouse gas emissions, and the depletion of domestic energy resources.]

World Resources Institute (2002). "The Environment and China: Water and Air Pollution", <http://www.wri.org/china/water.htm>, 3 pp. [This article provided useful statistics on the impact of water shortage and air pollution on health in China.]

Biographical Sketch

Yuk-Kuen Annie Cheung, Ph.D., MCIP, RPP is presently a Senior Associate with the Centre for Applied Sustainability (YCAS) York University, Toronto, Ontario, Canada. She is also a Research Associate with the University of Toronto, York University -- Joint Centre for Asia Pacific Studies (JCAPS), and a Research Associate with the Multicultural History Society of Ontario (MHSO). Dr. Cheung's current research interests include sustainable communities, culture and society, and Chinese communities.