

Beyond The Dilemma Facing China's Agriculture - Toward a Chinese Constructive Postmodern Agriculture

Wyzwania rozwoju rolnictwa w Chinach - w kierunku konstruktywnego rolnictwa postmodernistycznego

Wang Zhihe*, Fan Meijun**, and John Ikerd***

*Center for Constructive Postmodern Studies, Harbin Institute of Technology, Harbin,
150001, China, E-mail: ZWang@claremontLincoln.org

**College of Humanities and Social Science, Harbin Institute of Technology, Harbin,
150001, China; E-mail: meijun@ctr4process.org

*** Professor Emeritus of Agricultural Economics, University of Missouri, Columbia,
MO 65211, USA, E-mail: johnikerd@me.com

Abstract

The accomplishments in Chinese agriculture have been impressive during the past 30 years of growth in the Chinese economy. But the costs have been extremely high as well, including: excessive pollution, topsoil erosion, a loss of fertility, unhealthy food, an increasing gap between the rich and the poor, a destruction of local communities and a loss of vitality in rural life. Who should be responsible for these problems? Should China's agriculture return to the past or should it continue on the current path toward modernization? Is there any alternative to the current form of modern agriculture? Specifically, is there a *third way* for China to pursue agricultural development? Our thesis is that China should explore a Constructive Postmodern Agriculture as a means of resolving its current dilemma. Constructive Postmodern Agriculture is a creative integration of Western thinking and Chinese wisdom. It is constructive in that it seeks to work with nature rather than against it. It is postmodern in the sense that it takes the best of modern farming practices and combines them with the best of traditional practices as well as contemporary sustainable agriculture. A Constructive Postmodern Agriculture could provide healthy food for current and future generations by preserving the fertility of the soil and the well-being of nature to ensure economic sustainability. It also could provide economic support and cultural meaning for farmers and their local communities. Chinese interest in Constructive Postmodern Agriculture has been increasing recently and some recent experiments in postmodern agriculture in China have shown that the Constructive Postmodern Agriculture is feasible as well as promising. Future agricultural development of China will affect food markets throughout the world. Thus, the choice between modern and constructive postmodern agriculture should be a matter of global concern.

Key Words: Constructive Postmodern Agriculture, Chinese Agriculture, Modern Agriculture, Sustainable Agriculture, Ecological Agriculture

Streszczenie

Osiągnięcia chińskiego rolnictwa w ciągu ostatnich 30 lat wzrostu ekonomicznego są imponujące. Równie ważne są jednak także ich konsekwencje, obejmujące: znaczącą degradację środowiska, erozję gleb, utratę żywności, skażenie żywności, zwiększanie się przepaści pomiędzy bogatymi a biednymi i rozpad lokalnych społeczności. Jak powinno się te problemy rozwiązać? Czy rolnictwo w Chinach powinno powrócić do dawnych form, czy też nadal rozwijać się w kierunku modernizacji? Czy istnieje jakaś inna alternatywna *trzecia droga* rozwoju rolnictwa? Zdaniem autorów tej pracy, aby rozwiązać zarysowane problemy, Chiny powinny podążać drogą konstruktywnego postmodernistycznego rolnictwa, opartego na połączeniu zachodniego sposobu myślenia z mądrością Wschodu. Jest ono konstruktywne, ponieważ celem jest współpraca, a nie walka, z przyrodą. Jest

postmodernistyczne w tym sensie, że najlepsze praktyki współczesnego rolnictwa łączy ze sprawdzonymi praktykami tradycyjnego, a także, coraz obszerniej dyskutowanego, zrównoważonego rolnictwa. Tak rozumiane rolnictwo powinno gwarantować dostarczanie zdrowej żywności dla obecnego i przyszłych pokoleń, dbając jednocześnie o żyzność gleby i ogólny dobry stan przyrody i zapewniając ekonomiczną zrównoważoność. Ponadto nie można zapomnieć o wsparciu ekonomicznym i kulturowym dla rolników i tworzonych przez nich lokalnych społeczności. Zainteresowanie konstruktywnym rolnictwem postmodernistycznym w Chinach rośnie. Przeprowadzane eksperymenty wykazują, że takie rolnictwo jest bardzo obiecujące i możliwe do wdrożenia. Jednocześnie nie należy zapominać że rozwój rolnictwa w Chinach nie pozostaje bez wpływu na światowy rynek żywności. Dlatego wybór pomiędzy dotychczasowym a konstruktywnym rolnictwem postmodernistycznym jest zagadnieniem o wymiarze globalnym.

Słowa kluczowe: Konstruktywne rolnictwo postmodernistyczne, rolnictwo w Chinach, współczesne rolnictwo, Rolnictwo zrównoważone, rolnictwo ekologiczne

Introduction

Sustainable development is not only *the most important idea of our present time*, as Artur Pawłowski points out, but also has become a worldwide trend, to which China is no exception (Pawłowski, 2010). However, to achieve sustainable development, we need to *integrate the different dimensions of human activity on the basis of a moral reflection as to human responsibility for nature* (Pawłowski, 2006). Sustainable agriculture is an integral aspect of sustainable development because agriculture is the foundation of human civilization and thus is the foundation for all social and economic development. The sustainability of agriculture is current a *problem of sustainable development* because today's modern agriculture, and the global food system that has been built upon it, is not sustainable. One of the fundamental problems of modern agriculture is its lack of moral reflection on human responsibility for nature or even for the future of humanity. Agricultural development in China has been deeply influenced by the modern paradigm of agriculture that currently dominates the United States, Europe, and much of the so-called *developed world*. Therefore, it is critical to sustainable development that the Chinese people, and the people of other *developing* nations, choose a *constructive postmodern* path for development that leads to agricultural sustainability in particular and the sustainability of global society and the planet in general.

Some people may view the future development of agriculture in China as an internal matter that is of little concern to Americans, Europeans, or anyone other than the Chinese people. However, China represents about 20% of the total global population. and the size of its economy is second only to the United States. As the Chinese economy continues to grow and the Chinese people have more money to spend for food, China will become a major, if not dominant, factor in the global food markets. Some agricultural economists already attribute a significant portion of the rise in global food prices in recent years to the growing economies of China

and India. In addition, a failure of China to provide for the basic food needs of its people in the future is almost certain to lead to domestic political instability with global social and economic consequences. Many of those who understand the global consequences of China's agricultural choices are committed to the modern paradigm of industrial agriculture: specialization and standardization to achieve the economic efficiencies of large scale production. They believe that China should follow the path of development taken by the United States and Europe, which led to significant increases *per capita* food consumption without increasing land in cultivation and with far fewer farmers. Few people in positions of political or economic influence seem willing to question whether this path of development is appropriate, or is even possible, for China at this time in history. The basic purpose of this paper is to address this question directly and earnestly. The answer to this question and the resulting choices and consequences will be important not only to China but also to the future well-being of Americans, Europeans, and other people throughout the world.

The predicament facing Chinese agriculture today

The accomplishments in Chinese agriculture have been impressive over the past 30 years as China has been experiencing *a rapid economic growth with GDP increasing from 364.5 billion RMB in 1978 to 40120.2 billion in 2010* (Shan and Bi, 2012).

In 1995, Lester R. Brown, founder of the Worldwatch Institute, in his book, *Who Will Feed China?*, sympathetically expressed his concern over the ability of China as the world's most populous country to feed its people due to a massive grain deficit (Brown, 1995). Ten years later in 2005, China no longer needed grain assistance from the UN World Food Programme and, in fact, became the world's third-largest grain donor, according to China Central Television (CCTV, 2012). Other significant achievements include: *grain yield reached 525 million tons in 2008, nearly 5 times the level of*

1949; Farmers' annual net income, just 60 yuan in 1949, reached 4,760 yuan in 2008; the amount of people living below the poverty line has been reduced from 60% of the population 60 years ago to just 1.1% today (CCTV, 2012).

Given that China only has 7% of the world's arable land and feeds 21% of the world's population, these achievements seem quite remarkable. Lennart Bage, president of the International Fund for Agricultural Development, called it *a miracle* (Marchetti and Aiguo, 2011). He said to a Xinhua reporter, *I'm very impressed by China's development since 1978. Poverty reduction in the last three decades has been the fastest in Chinese history. Concretely put, China's poverty rate has gone down from about 30 percent to less than two percent today. The country has reached the first UN millennium poverty goal well ahead of time* (Marchetti and Aiguo, 2011).

However, it is widely recognized that the costs have also been extremely high. So far, much of the emphasis of public concern has been placed primarily on environmental issues such as excessive pollution, topsoil erosion, unhealthy food, and loss of soil fertility.

Indeed, the environmental issue is a very serious one. According to Ye Xingqing, director General, Rural Economy Research Department, Research Office of the State Council, the rapid development of China's agriculture has *heavily relied on the massive consumption of material resource, especially chemical fertilizer* (Ye, 2006). It has been shown that *Chinese farmers are using double the amount of chemicals of their peers in most developed countries, and they are using 100 times more fertilizer compared to 60 years ago (...). The use of fertilizer per hectare should be kept under 225 kilograms according to the international standard, but Chinese farmers on average use 434.3 kilograms per hectare* (Watts, 2010). Modern agriculture, meaning a chemically-dependent industrial agriculture, is inherently *dependent on fossil energy and other finite natural resources* (Ikerd, 2010). *Chinese farms cause more pollution than factories*, says one official survey (Watts, 2010). The first Chinese census on pollution has shown that fertilizers and pesticides, not smokestacks, are the country's biggest sources of water pollution. According to the survey, agriculture is responsible for 43.7% of the nation's chemical oxygen demand (the main measure of organic compounds in water), 67% of phosphorus, and 57% of nitrogen discharges (The First National Pollution Census, 2010).

As a result, *the use of chemicals is threatening food safety and polluting the soil and underground water*, said Jiang Gaoming, chief researcher at the Chinese Academy of Sciences' Institute of Botany. According to Jiang, more than 10 million hectares of farmland or nearly 10 percent of the country's

total farmland had been polluted. Because of excess use of various chemicals and hormones for chicken and duck production, *the poisonous substances in the farm chemicals will eventually be absorbed by human bodies via food chains*, he said to reporter (Jiang, 2011).

In addition, *white pollution*, namely plastic pollution, has become another nightmare for China's countryside. Although it is a new member of pollution family, it is growing fast. Plastic has two main uses in farming – to construct plastic greenhouses for growing crops out of season, and to cover the ground to increase the value of crops. This method of farming may be considered a new scientific advancement, but little consideration has been given to whether the Chinese environment can cope with the plastic waste that results. Currently, about half a million tons of the plastic are left in the soil every year, almost 40% of the total plastic used. This forms a layer in the earth which is less permeable to water and air, making it harder to carry out farming practices. Thus, *white pollution* is seen by Chinese environment activists as *a disaster for rural area* (Wang, 2008).

While destruction of the environment deserves high attention it has been given, another important negative consequence caused by China's rapid agricultural development deserves similar consideration: The destruction of rural communities and rural family life. As a great number of farmers have migrated to urban areas for non-agricultural work, only children, women, and the elderly are left in many villages, creating a new phenomenon called *hollow villages*. The *hollow village* displays itself in the spatial shape of the village and in the massive outflows of the young adult labor force. This *causes the draining of human resources in the countryside, which is disadvantageous to the development of rural economies* (Li and Ni, 2009). In an interview, Zhu Qizhen, a noted professor at the China Agricultural University and the author of the book, *Why Farmers Left their Land?* (2011), told the *China Village Report* that *farmers are not willing to farm and that has become the most pressing problem facing China*. Some old farmers reported, *our children don't want to come back to farm. We may be the last generation of farmers. They worry: Who will farm in the future* (Zhu, 2011)?

The *hollow village* phenomenon also has negative impacts on the happiness of rural families. Studies show that there are some 50 million women left alone in the rural areas of China. These women have suffered emotionally and psychologically due to the separation from their husbands who have gone to the cities to work. Marriages have suffered, one study shows that *50% of divorce cases are due to separation* (Zhang, 2006). In addition, 58 million children are left alone in rural areas while their parents seek work elsewhere.

The *hollow villages* clearly reflect an abnormal disruption of family life in rural areas. *The intimacy, joys and warmth of families have been increasingly decreased* (Guan, 2009). In short, the countryside's vitality is being lost, as a variety of surveys have shown rural people's contentment with life is declining. What is happening in China today is reminiscent of what others have observed in America. Fred Kirschenmann wrote: *The popular perception in America is that rural communities are places of failure* (Kirschenmann, 2010). For a young person, *if you can't escape the rural community in which you are unfortunate enough to grow up, then by definition, you are a failure* (Kirschenmann, 2010).

Marxist Theory of Cost suggests that any development must have its cost, and therefore *paying [a] price is inevitable* (Qu, 2011). In the case of China, the happiness of millions of farmers and the health of the land appears to be a very high price to pay. Various studies indicate, it is not a price Chinese farmers willingly pay. As David Schwerin points out, *it is not wrong to pursue wealth, but wealth would be valueless if it comes at the cost of our personal health or the vitality of the planet* (Schwerin, 2008). To constructive postmodern thinkers like John Cobb, *the health of the community in which we participate is crucial to our own well-being, we are persons-in-community rather than isolated individuals unaffected by our relations to others* (Cobb, 1994, p. 33). John Ikerd points out that *our lives have important physical, mental, and spiritual needs that must be met to achieve a desirable quality of life. Our common sense tells us that we need balance and harmony among these dimensions of our lives* (Ikerd, 2007, p. 90). Chinese farmers' lives apparently have become *unbalanced* as a result of the modern agriculture model. This model has been deemed to be unsustainable because *sustainable agriculture* requires creating farming systems in which *environmental stewardship and social-community support are given moral standing with economic principles so that so that economics must be balanced with environmental and social considerations* (James, 2006).

The causes of the current dilemma of Chinese agriculture

This paper focuses on four significant and closely-related factors which share responsibility for the problems mentioned above.

1) Imitation of modern agriculture. During the period of rapid economic development, China has regarded modern agriculture as the only goal Chinese agriculture. The modernization of agriculture has been viewed *not only as a long-cherished wish of communist party members for a few generations, but also as the common good of nine hundred mil-*

lion Chinese farmers (Nan, 2012). In the process of accentuating the advantages of modern agriculture, such as high yields and laborsaving technologies, the negative aspects of modern (or industrial) agriculture such as its *environment-unfriendly* nature (Federico, 2005, p. 1), has been almost totally ignored. Industrial agriculture is widely known to be a major source of pollution. As Ikerd points out, *industrial agriculture pollutes the air, water, and soil with toxic agrochemicals and livestock manure. It is a major source of pollution, accounting for more than twenty-percent of total greenhouse gas emissions – even more than transportation. In fact, agriculture has become the number one nonpoint source of pollution in the U.S., creating huge 'dead zones' in the Chesapeake Bay and Gulf of Mexico. An industrial agriculture is not ecologically sustainable* (Ikerd, 2010). This connection between so-called modern agriculture and its destructive environmental consequences is clear in China today.

2) Overemphasis on economic growth or Gross Domestic Product (GDP). In the past 30 years, following Deng's mantra, *Development is the absolute principle*, many insist that China must view economic development, industrialization, and modernization as top priorities. They are convinced that China's ecological problems can be solved only after industrialization and modernization have been realized. For them, a rapid-growth economy is the intrinsic requirement for China's social development. When growth in the GDP becomes the only goal, and economic well-being becomes the only standard of value, the value of relationships in human life becomes insignificant. Accordingly, the values and the happiness of people are not given adequate consideration. This materials-based rather than values-based development also causes other social problem such as the *crisis of faith*.

3) The nihilistic attitude toward tradition. The nihilistic attitude toward tradition is an important feature of China's first enlightenment, which occurred in 1919 and was deeply influenced by the European Enlightenment of the 17th and 18th centuries. One of the main slogans of the Chinese enlightenment is *Down with Confucianism* in particular and Chinese tradition in general. The enlightened modern Chinese intellectuals have treated ancient farming theory and practice as an important part of Chinese tradition that should be totally abandoned. Therefore, in China, the words *farmer* and *countryside* have long been synonymous with *old-fashioned*. The family-farm way of production has been regarded as decadent and outdated. A small-scale farmers' *petty-farmer* consciousness permeates modern China. The well-known saying by Mao, a son of China's first enlightenment, that *the serious problem is the education of the peasantry* (Mao, 1991, p. 1477) still deeply influences the communist party in particular and Chinese people

in general. Farmers have been discriminated against by modern civilized people. Even today, *wipe out peasants* remains a favored slogan (Gu, 2012). The discrimination against peasants in China is not only entrenched in many people's minds, but also is embodied in language. *A true peasant!* is sarcasm uttered by some of today's city young people. Here *peasant* turns out to be an adjective which is synonymous with *silly* or *stupid* (Xiao, 2009).

4) An imperialistic attitude toward nature. Stemming from an anthropocentric perspective, this disrespectful attitude treats nature as an object to be manipulated, dominated, and exploited. In the words of Adorno and Horkheimer (the authors of *Dialectic of Enlightenment*): *what men want to learn from nature is how to use it in order wholly to dominate it and other men* (Adorno and Horkheimer, 1997, p. 4). This imperialistic attitude toward Nature has been to treat it as a slave. It is closely related to the disrespect for farmers and peasants who are closely connected with nature, especially the land. Within in this context, it is not difficult to understand the phenomena of excessive pollution and other related ecological problems.

The prescription to these problems offered by some economists is urbanization. As Stephen Green, chief China economist for Standard Chartered Bank, clearly states, the solution is: *getting farmers out of countryside to work for high paid jobs in cities* (Green, 2006). Many Chinese, economists and citizens alike, embrace this proposal. Some claim, *that more people but less land is China's basic reality. Hence, the fundamental solution to China's development is to liberate farmers from farms. This solution is regarded as 'the only way' for China to solve this difficult problem* (Chen, 2007).

Although such a solution may have worked in the US or other western developed countries, the current situation in China is quite different from that of the US or other western countries during the last century. As David Freudenberger, director of science and major projects at Greening Australia, one of Australia's leading ecologists, questioned: *Does China truly aspire to develop 'modern' agriculture similar to Australia and the USA? If so, fully 'modern' agriculture in China would require only about 13 million farmers (1% of China's population). A fully 'modern' Chinese agricultural industry would require nearly 800 million people to continue their vast migration to crowded cities. This migration of people would require China to build another 80 cities with at least 10 million people in each one. This is feasible as seen in the USA, much of Europe, and in Australia which is the most urbanized continent in the world. But are 80 more mega-cities in China desirable?* (Freudenberger and Freudenberger, 2008).

It is estimated that there are 2.7 hundred million manufacturing jobs in the world. So far China has already taken 1.5 million of them. Even if China takes all the manufacturing jobs in the world, there will still be some 1.2 million farmers unemployed. Therefore, *it is not feasible for China to copy America's modern Agriculture* (Nan, 2012). Some Chinese agriculturalists argue that an urbanization policy that will turn millions of farmers into the urban poor is *not a way out*, but *a trap* (He et al., 2011). If this way will not work, where should we go? It is clear that China's agriculture is at a critical crossroad.

On the one hand, nobody wants to go back. Understandably, Chinese farmers do not want to go back to the past or to be stuck in the same place, watching from afar as some urban Chinese enjoy standards of living that far exceed their own. People by nature want to move forward. But, the earth simply does not have enough natural resources for every Chinese farmer to lead a typical modern American life. Fortunately, more and more people have reached a deep-seated recognition that the present mode of industrial agriculture simply cannot work much longer, and that it is up to China to change the paradigm. *The future development of China must avoid the mistakes the West has already made* (Chen, 2012). As some Chinese scholars argue, the fact that different countries in the world took their own roads toward modernization of agriculture shows that there is not only one single way to modernization. A nation's modernization of agriculture can be successful only if it recognizes and accepts the reality of its finite natural resource and current social and economic conditions; Based what is currently know about China's natural resources and current social and economic conditions, imitating Western agriculture would seem to be a dead end. Prof. He Xuefeng, a noted Chinese agriculturalist, believes that so far there have been no successful experiences in other countries from which we can learn to deal with the challenges of modern agriculture. We must profoundly reject the western development model in order to *find a new way* for China as well as the world (He, 2007, p. 1).

As a matter of fact, some American economists have already realized this problem. For them, since the situation of every nation is quite different, *it is wrong to regard the technology and institutions of the western world in 1950 as exogenous elements which could be introduced to the economies in the developing countries* (Kjeldsen-Kragh, 2007, p. 393). For example, *as American agriculture has become more industrial, it has become increasingly dependent on fossil energy and other finite natural resources. The total food system currently claims about twenty percent of all fossil energy used in the US, with farming accounting for about one-third of the total percentage. In fact, our industrial food*

system requires about ten calories of fossil energy for every calorie of food energy produced (Ikerd, 2010). This certainly would not seem to be a good model for China to follow in an era of declining availability of fossil energy.

As Pan Yue, a leading figure in China's ecological movement and Vice Minister for the Ministry of Environmental Protection in China, pointed out, *if China continues to walk the old road of Western industrialization, it will be a dead end* (Pan, 2010). Our limited earth can no longer afford such industrialization. This is the dilemma. Our thesis is that China should consider a Constructive Postmodern Agriculture in order to move past its current dilemma.

Toward a Chinese Constructive Postmodern Agriculture

In the West the term *postmodern* is often used to categorize philosophical approaches to life that deconstruct habitual and ideological ways of thinking and, at the same time, stress cultural pluralism. This is not what we mean by postmodernism in this discussion. We mean instead something more constructive and something that is linked with the physical world and with the needs of the human body for nourishment. It is not simply about pluralistic ways of thinking and writing.

Constructive Postmodern Agriculture is a creative integration of Western and Chinese wisdom, modern and tradition. In this sense it is constructive.

It is postmodern, in that it draws insights from the pre-modern Chinese past and the modernizing West of the present and the contemporary sustainable agriculture movement born in the mid-1980s in the West (Ikerd, 2010). These insights are integrated into a new and creative whole based on China's extremely complex reality. It does not reject the achievements of industrial life. Nor is it obsessively modern achievements. One feature of modernity is that it too often rejects all that is traditional in the name of progress.

In opposition to the modern nihilistic attitude toward tradition, postmodern agriculture steps into the future with a deep respect for traditional wisdom and spirituality. It deeply appreciates the practical value and wisdom of traditional farming and tries to integrate them into a new model. It recognizes that traditional peasant agriculture has served China well in many respects. For example, peasant agriculture has proved remarkably sustainable and has, until recently, provided sufficient food for most of China's large population during most times. For thousands of years peasants fed themselves and their urban neighbors (Zhang, 2004). For instance, *the Fishpond with Mulberry* created by Chinese farmers of the Zhujiang River Delta in their long production practice not only displays a positive

ecosystem, but also embodies the ecological wisdom of ancient Chinese farmers: *the leaves of mulberry are eaten by silkworms, the silkworm excrement is eaten by the fish, the pond mud is paved onto mulberry land* (Zhong, 1982). In his well-known book, *Farmers of Forty Centuries*, Franklin Hiram King also spoke highly of ancient farming practices in China, Japan, and Korea, such as: multi-cropping, crop rotation, reservoir systems, and soil fertility management through composting. For King, it is apparent that China in some sense has already *struck the keynote of permanent agriculture* (King, 1927, p. 241) which would benefit other nations. He believes that if we can combine this kind of old wisdom with modern agricultural technology, we can solve the problems of world food supply. According to Wen Tiejun's analysis, it is the fact of resource shortage, huge population, and limited cultivated land that has shaped China's traditional model of farming, as well as Chinese farmers' many virtues such as frugality, restraining desire, and bearing hardship without complaint, which are extremely valuable to us today (Wen, 2011, p. 2).

It is worth emphasizing that the aim of progressively moving agricultural systems off the chemical and fossil energy treadmill and towards lower-input, labor-centered intensification and more biodiversity is not, as Tony Weis states, *about going backwards to more 'primitive' approaches and rejecting modern science. On the contrary, to significantly increase the scale of organic and near organic practices will require much more scientific research and training geared towards better understanding how agro-ecosystems operate and how key dynamics can be selectively enhanced. For instance, scientific research into the functional complementarities of various species can inform biological pest and disease control techniques* (Weis, 2007, p. 170).

That means that postmodern farming is not anti-modern. Instead it absorbs the wisdom from modern Western science, particularly from innovative farming groups that are experimenting with alternatives to high-input modern agriculture. Jiang Gaoming's Hongyi eco-Farm, for example, successfully solves the problems of pests by fully applying principles of modern ecology and physical and biological methods, such as *insect light traps*, on their organic farm.

In addition, constructive postmodern agriculture contains the strength of the free market which can help solve the problem of *laziness*. Today in China, as a matter of fact, *farmers have grown lazy*. Some scholars like Jiang Gaoming think that the laziness is due to *the increased use of chemical fertilizers, pesticides, herbicides and plastic films* (Lu, 2010). This may be one reason. Another reason may be the lack of enthusiasm, since food prices are currently very low in China and, if farmers input too much

energy and money in farming, they will realize a loss on their investments. As Jin Wei pointed out, *since farming takes high risk but low income, farmers who used to regard land as their lives now treat land as something of little value or interest* (Jin, 2011).

However, the modern economic theory, usually attributed to Adam Smith emphasizes *self-interest*. According to which, as Harvey James put it, *it is self-interest that ultimately drives economic activity* (James, 2006). Such a theory not only encourages competition, but also, in John Ikerd's words, *allows a reasonable level of profits to be attained* (Ikerd, 2007, p. 119) It doubtless can stimulate farmers' enthusiasm for organic farming by paying attention to their self-interest profit seeking. In doing so, *the objective of sustainable agriculture* might be more effectively achieved (James, 2006).

Constructive postmodern agriculture originates from the reality of Chinese agriculture and is deeply consistent with traditional Chinese ways of thinking particularly its organic vision of the world. According to this worldview, the universe itself is a universe of values as well as of facts, values are not reducible to human contrivance or power, and that all cultures contain values worthy of appreciation. This suggests that rural people have value in their own right and they can best develop when they are encouraged to recognize, not dismiss, the wisdom of their own cultural traditions. In this sense, constructive postmodern agriculture is values based (McDaniel and Ryan, 2008). It respects farmers and their inner feelings, their families and their communities rather than only concentrating on profit.

There are no blueprints for constructive postmodern agriculture, but some basic principles are emerging:

1) *An environment-friendly agriculture*. Chinese Postmodern Agriculture is an environment-friendly agriculture as opposed to an environment-hostile agriculture. The aim of an environment-friendly agriculture is to preserve soil, water, biodiversity, and surrounding environment by using organic fertilizers and natural minerals rather than chemical fertilizers, pesticides and livestock feed additives and antibiotics. The environment-friendly agriculture has its root in a Chinese tradition emphasizes harmony between humankind and nature. As influenced by Daoism, Chinese Process Philosophy emphasizes harmony with nature. This philosophy resonates with Wendell Berry, a pioneer in organic farming in the US, who uses marriage as a metaphor for the relationship between farmer and farm; that is, as a life-long commitment of mutual nurturing and love. Wang Yangming (1472-1529), a leading philosopher in Neo-Confucianism, used *yiti* (one body) to describe *the intimate relationship between humankind and nature* (Wang, 1997). To Chinese farmers, land not only feeds people materi-

ally, but also spiritually. It is *the soul of agriculture culture* (Lv et al., 2011).

An environment-friendly agriculture can help farmers recover a sense of harmony with nature. It recognizes that other living beings and the natural world have value quite apart from their usefulness to humans, and recognizes that humans can work with nature for the sake of human well-being and the well-being of nature.

2) *A sustainable agriculture*. Postmodern agriculture must be sustainable, so that *the needs of the present are met without compromising the ability of future generations to meet their own needs* (WCED, 1987). To realize agricultural sustainability, agriculture must be regenerative. David and C. Dean Freudenberger use the term *regenerative* in the sense that a post-modern agriculture must renew itself, rather than being reliant on external inputs of fossil fuel and agrochemicals. It has the following four rules; the capability of the land must be recognized and respected, bare soil is a crime against the Earth, biologically and solar intensive farming systems must prevail, and diversity of eco-system services must be maximized and conserved (Freudenberger and Freudenberger, 2008).

To understand the more specific methods postmodern sustainable agriculture advocates, it is helpful to look at the work of Wes Jackson, an agricultural researcher working in prairie lands. Jackson believes that *the agricultural human's pull historically has been toward the monoculture of annuals. Nature's pull is toward a polyculture of perennials* (Berry, 1990, p. 71). To briefly define these terms: monoculture is the exclusive cultivation of one crop; polyculture is the cultivation of multiple crops in the same area; annuals must be planted and harvested each year because they live for only one season; perennials do not need to be replanted every year, because they live for multiple seasons. Specifically, a postmodern sustainable farm needs (1) to be smaller, plant mixed crops, maintain a healthy soil, minimize waste, and supply a local community as much as practically possible; and (2) to move away from monocultures of annual plants, which tend to wear harder on the soil, and move closer towards polycultures of perennial plants, which conserve the topsoil more frugally. These are not recommendations of totality, but of scale. It is not feasible to forgo all annual plants, like wheat, corn or soy beans, but it is possible to intercrop and/or mix them with perennials, such as berry bushes.

3) *A farmer-respected agriculture*. Chinese Postmodern Agriculture treasures farmers; unlike modernity, which treats farming as a synonym for backward. Constructive postmodern thinkers remind us that we should not forget that *it is farmers who have been feeding China in the most basic and the most important sense* (New Weekly, 2009).

Constructive postmodern thinkers deeply appreciate what Jefferson said about farmers: *cultivators of the earth are the most valuable citizens. They are the most vigorous, the most independent, the most virtuous, and they are tied to their country and wedded to its liberty and interests by the most lasting bands* (Jefferson, 1950, p. 426).

The challenge is that more and more people are flocking to ever-growing cities in China today because people desire better education and health services for their children, which have failed to be delivered to rural areas. As discussed previously, many farming families and agricultural workers in China are extremely poor, suffering from inadequate health care, poor education, lack of water resources, and farming infertile land. Their children are among the 130 million workers who migrate to the cities to work in factories or restaurants, earning money to send home. A postmodern agriculture must face this challenge by providing *very sophisticated educational and health services to all men, women and children in all rural areas* (Freudenberger and Freudenberger, 2008). As suggested previously, respect of farmers is an instrumental component of constructive postmodern agriculture. The farmers deserve the same respect as professors, doctors, and government officials, because their inherent values are the same. In Freudenberger's words, *postmodern agriculture requires a transformation of attitudes as well as basic human services. (...) Post-modern agriculture should be based on many millions of farmers rich in education, health, diversity of occupations, and multiple recreational opportunities including access to the arts* (Freudenberger and Freudenberger, 2008). Farmers will lead a *satisfying and creative life, with opportunities for recreation, healthy relations with friends and family, and the enjoyment of life* (McDaniel and Ryan, 2008).

Respecting farmers can also help solve the pressing problem: *Who will farm in the future?* A postmodern agriculture needs not only farmers, but well-educated farmers of high quality. *Sustainable agriculture will require more thinking, caring farmers* (Ikerd, 2010). Fortunately, the Chinese government has already realized the urgency and importance of educating new farmers. According to Wei Chaoan, vice minister of Agriculture Department of China, *educating a new kind of farmer is the key to new countryside construction*. He believes that *thousands upon thousands of new farmers with high quality will help transform huge population pressure into advantage of human resource* (Wei, 2007). As a follow up, the government has launched a project titled the *Sunshine Project*, which has so far trained 5.3 million farmers by investing 1.65 billion Yuan. *In Shandong Province, the local government has planned to train 100,000 rural information assistants in order to help one*

million farmer families access the Internet (Shen, 2006).

4) *A community flourishing agriculture*. From a constructive postmodern viewpoint, one of the biggest failures of modern agriculture is the destruction of rural communities. A rural community is a living social community consisting of persons who have close familial and social relationships. As opposed to modernity which devalues these relationships and treats them as *manacles*, constructive postmodern agriculture, which is based on Process or relational philosophy, values these relationships because it regards human beings as social: *persons are internally related to one another (i.e., their relationships define their identities as persons) so that any view of people that treats them as self-contained individuals falsifies the real situation* (Daly and Cobb, 1989, p. 169).

Following this train of thought, constructive postmodern agriculture emphasizes that farmers are persons-in-community and that the communities to which they belong include the biotic communities of the land but also human communities: villages and towns. Constructive postmodern thinkers agree with Wendell Berry¹ when he says, *a nation is a community of communities, and if the local communities do not flourish, the nation cannot flourish* (McDaniel and Ryan, 2008). It is these local communities that make life meaningful and help the nation flourish. Thus, constructive postmodern agriculture advocates local communities, especially small organic farms owned by a family or community of dedicated people. Here *small* is not a negative word, but rather a positive word for constructive postmodern thinkers because *it suggests careful attention to local communities, individual households, ordinary people, and particular bioregions, allowing them to be one's fundamental frame of reference* (McDaniel and Ryan, 2008).

This has special meaning for China because it is a country with a huge population but limited arable land. There are 3.6 million villages and 200 million farmer families in China, while 80% of Chinese lands are non-plain area, mountain areas, and forest region. More specifically, China has only has 1.83 billion mu (1 US Acre = 6.07 MU) of arable land and each farmer family has 18.3 mu; average arable land per Chinese household is 7.2 mu. It is obvious that *big farms and mechanization of agriculture will not work in China* (Zhou, 2004). In fact, the main reason why China could have achieved the great advances in agriculture in the past 30 years, according to Wen Tiejun, does not lie in large scale modern farming, but in small farms which have

¹ Wendell Berry never describes himself as postmodern, instead he would say that he is very traditional. But his way of thinking is indeed postmodern in the sense of critiquing aspects of modern, industrial life.

benefited from agricultural reform since 1978. *With the active input of Chinese farmers, it is the small farms economy characteristic of contract responsibility system, which has created this miracle* (Wen, 2011). Accordingly, if China desires to develop a constructive postmodern agriculture, developing small organic farms should be given priority. This does not mean totally going back to the traditional farming with its disadvantages such as vulnerability to natural disasters and economic risks because small farms today are more scattered and diversified.

Hence, emphasizing various kinds of cooperation between farms, farmer families, even farmers and city citizens would be an important component of constructive postmodern agriculture. As a matter of fact, a new kind of agricultural cooperation has been springing up silently in China's countryside. It is a kind of voluntary cooperation from below, which includes *various kinds of farmers cooperatives, land joint-stock cooperation, rural community share-holding cooperation, and professional economic cooperation, etc.* (Han, 2006). These kinds of cooperation have been to some extent confirmed by the government. Han Kang, Vice president of China National School of Administration calls it *a new extremely important exploration* (Han, 2006). More importantly, a postmodern agriculture should place stress on improving the quality of these rural communities and making them creative, compassionate, equitable, and interesting. Farmers need to have markets for their food in cities that are relatively close by, thus relieving the need for expensive transport. In addition, constructively postmodern farming can only emerge within the larger context of a creative and harmonious countryside, where there are excellent schools, enjoyable forms of recreation, quality health care, and vital local businesses.

This is what is meant by an organic, harmonious community. This is also consistent with the goal of the *New Countryside Construction* proposed recently by the Chinese government. According to the interpretation of Du Zhixiong, a renowned agriculturalist and head of the Rural Development Institute, Chinese Academy of Social Sciences, Beijing: *improving production condition, life condition, and ecological environment, increasing the index of happiness in order to make farmers enjoy a good and prosperous life is the goal* (Du, 2006).

It is apparent that *enjoying a good and prosperous life* will become an empty promise without flourishing communities. If rural communities flourish, significant numbers of Chinese farmers would stay in the countryside, not because they must do so, but because they want to do so. The countryside will have become a desirable place to live, with a sense of belonging, the meaning of life. There will no

longer be artificial separation between husbands and wives, children and their parents.

5) *An aesthetic appreciative agriculture.* Although modern agriculture has produced huge material wealth, that wealth has also accelerated the destruction of beauty in the countryside and in nature. In China, people can no longer enjoy the beauty of the countryside in many rural areas due to various forms of pollution. Deeply influenced by the concept of profit maximization based on a dogmatic free market economy that neglects the sustainability of the human civilization (Udo and Pawłowski, 2010), a beautiful countryside is conceived of as a resource pool to be exploited. *The [economic] value of a forest merely consists in the price on the market as dead woods.* The ecological value and aesthetic value *have been totally ignored* (Sun, 2005). The influence of the radical utilitarian thinking is so strong that a great many Chinese farmers still believe that *beauty cannot play food, (...) planting trees cannot make quick dollar* (Xu, 2007). This radical utilitarianism is a cause of the spiritual poorness or sense of emptiness of many farmers even while some are materially very rich. Their spiritual poorness is, to a large extent, due to the loss of aesthetic ability, an ability to feel the beauty of nature, which is a priceless treasure for human beings (Fan, 2006, p. 11). In Marcia Muelder Eaton's words, *aesthetic values play an important role in human experiences of landscapes* (Eaton, 2008, p. 339). A beautiful countryside can not only free us from various kinds of anxiety, but also stir our passion for life, reverence for earth, and sense of responsibility. Hence, a constructive postmodern agriculture must consider *beauty* as an important principle for its countryside construction. Another damage modern agriculture has inflicted upon the beauty of the Chinese countryside results from its obsession with homogenization and its suppression of the beauty of diversity. Today, this kind of homogenization thinking has influenced a good number of Chinese including government officials. For example, a government official visited Mazhuang Village, Zuhou, Jiangsu Province and he ordered the farmers to pull the loofah off their walls, to cut off the wild flowers in their gardens because they are not of the most desirable of plants. Instead, he asked the farmers to buy paint to paint their walls in order to preserve uniformity. But his order was rejected by the farmers. *We like loofah, we enjoy wild flowers,* responded the farmers (Zheng and Sun, 2006).

These farmers understand that beauty consists of diversity, not sameness. The central government has begun to realize the importance of beauty in agriculture. It has proposed *creating an Ecological Civilization Society with beautiful mountains, rivers, charming natural sights.* Many local governments have proposed *beautifying countryside* and

hope rural areas become *both rich and beautiful*. All of these indicate that all of society has increasingly recognized that a prosperous rural community should include beauty; accordingly, a happy rural life should include the aesthetic life.

An aesthetically appreciative countryside will not only enhance the sense of pride and quality of life of farmers, thus allowing them to live and work in peace and contentment, but can also encourage more and more city people to move to the countryside. In doing so, the great wall of misunderstanding that has separated city and countryside, that has divided China for so many years, will fall down. While not an easy task, this should be an indispensable part of Chinese constructive postmodern agriculture.

Such a unique approach has been attracting the interest of more and more Chinese scholars. In an article titled *Development Trend of World Agriculture and China's Postmodern Agriculture Development: A Suggestion*, Wang Lingxiang and Sun Jinfu wrote: China should *push on the sustainable development of agriculture and rural-urban integration by developing postmodern agriculture* (Wang and Sun, 2011).

Some Chinese agronomists argue that modernization is not the only way for farmers to eat well, have books to read, afford medical care... A postmodern ecological agriculture will be a better choice (Tang et al., 2010).

Although some scholars criticize postmodern agriculture, saying it does not provide perfect solutions to the drawbacks of modern agriculture (Tan and Du, 2010), others argue that postmodern agriculture indicates *the new direction of modern agriculture* (Zhu, 2011). For some Marxist scholars, *Postmodern agriculture is a new train of thought for building a socialist New Countryside* (Li and Li, 2009). Professor Zhou Shu is even convinced that *for China, postmodern agriculture is the only way out of the predicament caused by imitating the western agriculture model* (Zhou, 2004). The Taigu Conference on postmodern agriculture held in 2008, in Taigu, China, showed that many participating scholars and government officials were convinced that *postmodern agriculture is possible* (Dong, 2008). Since that time, three conferences themed *Constructive postmodern agriculture* have been held and more and more Chinese people have shown interest in this unique approach and have tried to put this idea into practice. In a recent article published in the Journal of the Party School of the Central Committee of the C.P.C, the Party's top venue for training senior Party and government officials such as governors and ministers, the author claims that *Chinese agriculture must make shift and to walk a postmodern agriculture road with Chinese characters* (Zhuang, 2012).

Several experiments in postmodern agriculture in China

The question remains of whether it is possible to develop a Chinese constructive postmodern agriculture, ecologically sustainable, and socially harmonious, which will allow farmers to live happily in China?

Admittedly, constructive postmodern agriculture has not yet become mainstream and may take a long time to realize its goals. However, some believe that *China has the strong motivation and background condition to take the lead to launch a postmodern agriculture* (Zhou, 2004). In addition, *China's traditional natural farming wisdom and its matured technology lay a solid foundation for developing a postmodern agriculture* (Zhou, 2004). In fact, there have been some sincere endeavors in this direction. At the government level, in 2006, the Chinese government launched the *New socialist countryside construction*. The aim of this program is to boost ecological agriculture, develop new relationships between industry and agriculture, cities and countryside, and increase rural affluence. This initiative includes investing trillions of yuan into rural education, medical services, and infrastructure construction. In 2007, at the 17th National Congress of the Communist Party of China, the government called for creating an ecological civilization to promote harmonious relationship between citizens and nature. Its primary goal is to form *an energy- and resource-efficient and environment-friendly structure of industries, patterns of growth and modes of consumption* (Hu, 2007). This political turn toward ecological civilization, not only provides constructive postmodern agriculture with political support, but also allows for some experiments in ecological agriculture. So far, some 100 ecological counties in China have been established. At the individual level, some activists have been dedicated to constructive postmodern agriculture, even though some of them may not use the term. Wen Tiejun, Sheri Liao, and Jiang Gaoming can be regarded as the representatives.

Wen Tiejun, an agricultural economist, is the prime mover of the New Rural Reconstruction Movement in China. The aim of this program is *to promote innovation and evolution for rebuilding a positive social and economic structure for rural sustainability* (Wen et al., 2012). The participants of the movement include villagers, city citizens, intellectuals and a great many volunteers. The philosophy of the movement is captured in the three Ps (or three Peoples' Principles): *people's livelihood, people's solidarity, and people's cultural diversity* (Wen et al., 2012). As a very influential NGO movement, it has helped advance ecological civilization as a people's endeavor to promote village cooperatives, organic farming, and eco-architecture.

In addition, it also promotes fair trade and consumer participation in urban areas, drawing on the integrated efforts of rural villagers and urban citizens, including women and the aged, as well as input from intellectuals and urban youth (Wen et al., 2012).

Sheri (Xiaoyi) Liao, a leading figure in the environmental movement in China, a winner of Cobb Common Good Award, and her Beijing Global Village, a leading NGO in China, has put constructive postmodern thinking into practice by developing the Lehe Home Project in the Sichuan earthquake area. The Lehe Home Project (Lehe, 乐和, in Chinese means happiness and harmony), which supports 94 families and over 200 villagers, implements the concept of *a system with conservation culture* in six aspects:

Residence – to build environmental-friendly residences;

Economy – to redirect the development mode to a synthetic ecological economy composed of environmental-friendly agriculture, tourism and handicraft industry;

Ethics – to revive the traditional Chinese morality and civil consciousness by building schools and libraries to further education;

Social Groups – to organize local green groups participating in the reconstruction process and cooperating with the government;

Health – to form a western-Chinese new style of health promoting solutions including building qualified clinics and popularizing a set of Taiji-like exercises;

Environment – to encourage locals to be more involved with soil, water and air protection in Daping Village.

After her success in Daping village, Liao went to Wuxi County and is working on making Wuxi a Lehe County.

Jiang Gaoming is chief researcher at the Chinese Academy of Sciences' Institute of Botany. He is convinced that *The key to solve problems like inflation, unemployment, energy shortages and pollution is to develop ecological towns suited to the needs of China and a sustainable rural economy* (Tang et al., 2008). In 2007, he and his research team started experimenting in a field in Jiangjiazhuang, in Shandong's Pingyi county. This was the worst land in the village, leased to us for only 110 yuan (US \$17) per *mu* – a plot of the same size on good land near the village would have cost 300 yuan (US \$46). The ground was rocky, and the soil only 20-centimetres deep. Thirty years ago, the community had used this piece of land as a threshing ground, since not much could be grown on it. It was this kind of land on which his team of scientists started testing organic methods, *strictly avoiding the use of man-made fertilizer, pesticide, herbicide, additives (manures from pig and chicken farms are polluted with*

additives), agricultural membranes and GM technology (Jiang, 2012).

Five years later, production has clearly increased. Even the locals find it hard to believe this *organic miracle*. Zhou Jinglin, secretary of the local Communist Party branch, told a reporter from Shandong's television network about the changes in detail. And, since having seen the trial for themselves, nearby farmers have become more enthusiastic about eco-farming. The methods used by Jiang's team from the Chinese Academy of Sciences included: taking straw normally burnt off by farmers and processing it into fodder for cows, saving 1,500 yuan to 2,000 yuan (US \$232 to US \$309) per head of cattle; using some of the cow manure to make methane, to be used as an energy source, and to use as quality organic fertilizer for the fields; and tackling pests with *physical and biological* methods – using insect light traps year round and keeping chickens in the field to feed on the insects. Weeds were hoed up and used as organic fodder for geese, fish and locust farming; and appropriate levels of irrigation used to maintain soil moisture. These methods allowed ecological restoration of unproductive land that had been polluted with fertilizer, pesticide and herbicide and allowed production levels to increase. Jiang believes that *in future, it should be simple to make eco-farming profitable* (Jiang, 2012).

China's road to constructive postmodern agriculture is deemed to be a long and hard one given its extremely complex situation. But if Hongyi Farm could succeed, others should be able to succeed also if the government gives its full support to the postmodern paradigm of farming.

As Lu Xun, one of the greatest writers of the 20th Century in China has written: *hope is like a path in the countryside: originally there was no path – yet, as people are walking all the time in the same spot, a way appears* (Lu, 1921). It is critical to the future of global society that the Chinese people are allowed and encouraged to tread a constructive postmodern path into the future, a path that leads to agricultural sustainability, which undoubtedly should constitute a fundamental component of a Sustainable Development Revolution (Pawłowski, 2009).

References

1. ADORNO T., HORKHEIMER M., *Dialectic of Enlightenment*, Continuum, New York 1997.
2. BERY W., *What Are People For?* North Point, New York 1990.
3. BROWN L., *Who will feed China?*, W. W. Norton & Company Inc., New York 1995.
4. CCTV, 2012, *China's Agricultural Achievements*, <http://english.cctv.com/program/bizchina/20090928/101382.shtml> (12.01.2012).

5. CHEN M.X., 2007, Preventing the Trend of Hollow Villages in New Countryside Construction, in: *Farmers Advisors*, no 9, pp. 1-2.
6. CHEN P., 2012, *A Debate on China Model and An Exploration on China Road*, http://www.chinareform.org.cn/explore/perspectives/201202/t20120209_133725.htm (7.03.2012).
7. COBB J., *Sustaining the Common Good*, Pilgrim Press, Ohio 1994.
8. DALY H., COBB J., *For the Common Good: Redirecting the Economy Toward Community, the Environment, and a Sustainable Future*, Beacon Press, Boston 1989.
9. Du Z.X., 2006, Carrying Out the central government's Suggestions on 'Eleventh Five-Year Plan', Building a Socialist New Countryside, in: *Party and Government Cadres Abstracts*, vol. 73, no 1, p. 5-6.
10. EATON M., The Beauty That Requires Health, in: *Placing Nature: Culture and Landscape Ecology*, ed. Nassauer J, Island Press, Washington, D.C 1997, p. 86-106.
11. FAN M.J., *Contemporary Interpretation of Traditional Chinese Aesthetics*, Peking University Press, Beijing 2006.
12. FEDERICO G., *Feeding the World: An Economic History of Agriculture, 1800-2000*, Princeton University Press, Princeton and London 2005.
13. *The First National Pollution Census 2010*, http://www.gov.cn/jrzg/2010-02/10/content_1532174.htm (12.01.2012).
14. FREUDENBERGER D., FREUDENBERGER C. D., 2008, Toward a Postmodern Agriculture, in: *Marxism and Reality*, vol. 96 no 5, p. 106-113.
15. GREEN S., 2006, *China's "New Socialist Countryside"*, http://www.businessweek.com/globalbiz/content/mar2006/gb20060309_834667.htm (17.12.2011).
16. GU Y.K., 2012, *Some Thoughts on "New Shandong in integration of City and Countryside"*, http://www.curb.com.cn/pageshow.asp?id_forum=009798 (7.01.2012).
17. GUAN A.H., 2009, The Transition of Peasants in Creating Ecological Civilization in Countryside, in: *Marxism and Reality*, vol. 98, no 1, p. 152-154.
18. HAN K., 2006, Some Thoughts in New kind of Agricultural Cooperation, in: *Contemporary China History Studies*, vol. 76, no 5, p. 25-29.
19. HE Y.P., BAI N.S., HE X.F., 2011, Urbanization: A Way out or Trap, in: *Guangzhou Daily* 30.08.2011.
20. HU J.T., 2007, *Report at 17th Party Congress*, http://www.china.com.cn/17da/2007-10/24/content_9119449_4.htm (7.03.2012).
21. IKERD J.E., 2010, New Thinking and New Idea: The Challenge of Sustainable Agriculture, in: *Jiangxi Social Sciences*, vol. 12, p. 251-256.
22. IKERD J.E., *A Return to Common Sense*. R.T. Edwards, Inc., Philadelphia 2007.
23. JAMES H.S., 2006, Sustainable agriculture and free market economics: Finding Common Ground, in: *Agriculture and Human Values*, vol. 23, no 4, p. 427-438.
24. JIN W., 2011, Who Will Farm in Future, in: *Shandong Science and Technology Daily* 20.07.2011
25. JIANG G.M., 2012, Six Frees, in: *Xinjing Daily* 21.01.2012.
26. JIANG G.M., 2011, China is using 100 times more fertilizer compared to 60 years ago, in: *Legal Daily* 27.05.2011.
27. KING F.H., *Farmers of forty centuries; or, Permanent agriculture in China, Korea and Japan*, Brace & Company, New York 1927.
28. KIRSCHENMANN F., *Cultivating an Ecological Conscience: Essays from a Farmer Philosopher*, University Press of Kentucky, Kentucky 2010.
29. KJELDTSEN-KRAGH S., *The Role of Agriculture: The Lessons of History*, Copenhagen Business School Press, Copenhagen 2007.
30. LI J. M., NI H. Y., 2009, Problems and Countermeasures of Hollow Village, in: *Journal of Anhui Agricultural Sciences*, vol. 37, no. 11, p. 5182-5185.
31. LI M.Y., LI L., 2009, Postmodern Agriculture – Ecological Agriculture in the View of Scientific Concept of Development, in: *Journal of Wenzhou Vocational and Technological College*, vol. 9, no 4, p. 49-52.
32. LU R.C., 2010, Food Security Seeks Salvation in Eco-Farming – An Interview with Jiang Gaoming, in: *China Today*, vol. 59, no 1, p. 21-23.
33. LU X., 1921, Hometown, in: *New Youth*, vol. 9, no. 1.
34. LV X., XUE L. J., PENG Y. M., 2011, Postmodern Agriculture and Ecological Agriculture, in: *Modern Agricultural Science and Technology*, no 20, p. 374-374.
35. MAO T.T., On The People's Democratic Dictatorship, in: *Selected Works of Mao Tse-tung*, vol. 4, People's Publishing House, Beijing 1991.
36. MARCHETTI S., AIGUO Y., 2011, *China makes great achievements in 30 years of agricultural reform*, http://news.xinhuanet.com/english/2008-12/22/content_10539563.htm (22.12.2011).
37. *Ministry of Environmental Protection of the People's Republic of China*, 2010, http://www.gov.cn/jrzg/2010-02/10/content_1532174.htm (1.03.2012).

38. MC DANIEL J., NORMAN R., 2008, Constructive Postmodern Agriculture – Values-Based Rural Development and Chinese Process Philosophy, in: *Journal Of Shanxi Agricultural University* (Social Science Edition), no 5, p. 452-462.
39. NAN Y.F., 2012, *What is China's Modern Agriculture?*, <http://www.maoflag.net/?action-viewthread-tid-1567499> (1.03.2012).
40. We Are All Peasants: The Entanglement of City and Peasants in the Past 30 Years, *New Weekly*, 2009, vol. 294, no 22.
41. PAN Y., Finding a way to Civilization with Wisdom of the East, in: *Environmental Remedies: Sheri Liao's Talks with Eastern & Western Thinkers*, ed. Liao X.Y, Sanchen Press, Beijing 2010, p.1-12.
42. PAWŁOWSKI A., 2006, Wielowymiarowość rozwoju zrównoważonego, in: *Problemy Ekorozwoju/Problems of Sustainable Development*, vol. 1, no. 1, p. 23-32.
43. PAWŁOWSKI A., 2009, The Sustainable Development Revolution, in: *Problemy Ekorozwoju/Problems of Sustainable Development*, vol. 4, no. 1, p. 65-76.
44. PAWŁOWSKI A., 2010, The Role of Environmental Engineering in Introducing Sustainable Development, in: *Ecological Chemistry and Engineering S*, vol. 17, no 3, p. 263-278.
45. QIU G.T., 2011, The Relationship between Development and Price and its epistemological and practical Meaning, in: *Social Sciences Front*, vol. 187, no 1, p. 22-25.
46. SCHWERIN D. A., 2008, Turbulence to Tranquility: Building an Economy to Believe In, in: *Culture Communication*, vol. 36, no 6.
47. SHAN S.D., BI X.H., 2012, Low Carbon Development of China's Yangtze River Delta Region, in: *Problemy Ekorozwoju/Problems of Sustainable Development*, vol. 7, no 2, p. 33-41.
48. SHEN H., 2006, Shandong informatization in New Countryside Construction, in: *Da zhong Daily* 19.04.2006.
49. SUNJ.J., 2005, Reaching the Harmony with Nature in Following Nature – A Reflection on Agriculture, in: *Science and Technology Text Crafts*, vol. 204, no 10, p. 40-43.
50. TAN X. W., DU Z. X., 2010, Viewing Post-modern Agriculture from the Angle of Sustainable Food Supply Chains, in: *Journal of China Agricultural University*, vol. 27, no 1, p. 156-165.
51. TANGA M., JIANG J. G., DOU G. Y., 2008, *New thinking on 'new villages'*, <http://www.chinadialogue.net/article/show/single/en/1854-New-thinking-on-new-villages-> (27.12.2012).
52. TANGY, .DOU Y., 2010, Farming System Innovation in the World and the Development of Post-Modern Agriculture, in: *World Agriculture*, vol. 375, no 7, p. 25-28.
53. UDO V., PAWŁOWSKI A., 2010, Human Progress Towards Equitable Sustainable Development: A Philosophical Exploration, in: *Problemy Ekorozwoju/Problems of Sustainable Development*, vol. 5. no. 1, p. 23-44.
54. WANG L.X., SUN J. F., 2011, The Development Trend of World Agriculture and Developing China's Postmodern Agriculture, in: *Modern Agriculture*, no 7, p. 369-370.
55. WANG X.K., 2008, Ecological Civilization and China's Practice of Ecological Agriculture", in: *Chinese Communist Party News*, <http://theory.people.com.cn/GB/49154/49369/7767133.html> (2.02.2012).
56. WANG Z.H., 2010, Creating a Postmodern New Countryside, in: *Jiangxi Social Sciences*, no 3, p. 247-254.
57. WATTS J., 2010, *Chinese farms cause more pollution than factories*, <http://www.guardian.co.uk/environment/2010/feb/09/china-farms-pollution> (09.02.2012).
58. WEI C.A., 2007, Training New Kind of Farmers is the top priority for New Countryside Construction, in: *Economy Daily* 15.03.2007.
59. WEIS T., *The Global Food Economy*, Zed Books, London and New York 2007.
60. WEN T. J., Understanding Chinese Small-scale farmers, in: *Chinese Translation of Farmers of Forty Centuries*, Oriental Press, Beijing, 2011.
61. WEN T.J., 2011, The Significance of Small Farm Economy to China, in: *China Countryside Discovery*, http://www.zgxcfx.com/Article_Show.asp?ArticleID=33475 (27.02.2012).
62. WEN T.J., LAU K.C., CHENG C.W., HE H.L., QIU J.S., 2012, Ecological Civilization, Indigenous Culture, and Rural Reconstruction in China, in: *Monthly Review*, vol. 63, no 9, p. 29-35.
63. WCED (World Commission on Environment Development), 1987, *Our Common Future*, Oxford University Press, New York 1987, p. 43.
64. XIAO F., 2009, Farmers, Our Brothers We Owe for 30 Years, in: *Literature story reported* 15.03.2009.
65. XU G.Y., 2007, Let New Countryside become Beautiful, in: *China Environment News*, <http://www.zgny.com.cn/ConsHtml/6/1/1/117123.html> (27.01.2012).
66. YE X.Q., 2006: Modern Agriculture aiming at three goals, in: *China Comment* 24.01.2006.
67. ZHANG J.C., ZHANG Q., 2006, An Investigation on Abnormal Lives of 50 Millions Women left in Rural Area, in: *China Economic Weekly*, vol. 373, no 40, p. 14-19.

68. ZHANG L., 2004, The Contemporary Significance of Chinese Traditional Agricultural Culture, in: *Journal of Northwest SCI-TECH University of Agriculture and Forestry(social science edition)*, no 6, p. 111-115.
69. ZHENG Y., Sun X., 2006, Only Understanding Farmers Makes us Respect Them, in: *Xinhua Daily* 09.10.2006.
70. ZHONGG.F., 1982, The mulberry dike-fish pond complex: A Chinese ecosystem of land-water interaction on the Pearl River Delta, in: *Human Ecology*, vol.10, no 2, p. 191-202.
71. ZHU Q.Z., 2011, Clarifying Some Misunderstandings of Modern Agriculture, in: *Farmers Daily* 15.10.2011.
72. ZHOU S.J., 2004, The Transformation of Agriculture Development Strategy and Post Modern Agriculture, in: *Research on Financial and Economic Issues*, vol. 252, no 11, p. 74-76.
73. ZHUANG R.S., 2012, A Study on Transforming Chinese Agriculture into Postmodern Agriculture, in: *Journal of the Party School of the Central Committee of the C.P.C*, vol. 73, no 1, p. 89-92.