

## **TOWARDS A SUSTAINBLE CIVILIZATION AND SOCIETY:A SOCIO-CULTURAL ECOLOGICAL PERSPECTIVE FROM JAPAN**

**Koyu Furusawa**

*Dept of Socio-Economic (Ecological) Networking, Faculty of Economics at Kokugakuin University, Tokyo, Japan*

**Keywords:** agriculture, biological diversity, bio-region, citizen, civilization, co-evolution, competition, cultural diversity, eco-friendly lifestyle, ecological agriculture, ecological movement, environmental destruction, environmental ethics, gap, globalization, Japan, Japanese experience, modernization, mono-cultural system, NGO, NPO, organic agriculture, paradigm, partnership, resource management, rice straw cultural ecology, socio-economic sector, sustainability, sustainable agriculture, sustainable consumption, sustainable development, sustainable society, symbiosis

### **Contents**

1. Introduction
  2. What is sustainability?
    - 2.1. The Awakening of a Symbiotic and Harmonious Society
    - 2.2. Characteristics of 20th Century Civilization
    - 2.3. A Critique of the Previous Development Pattern
    - 2.4. Two Approaches Toward Sustainability
  3. A historical perspective on Japanese agriculture and resource management
    - 3.1. Sustainable Agriculture and Civilization
    - 3.2. Socio-cultural Evolution - Ecological Life in the Rice Plant
    - 3.3. Violence of Modern Agriculture Blending with the Green Revolution
    - 3.4. Organic Agricultural Movement and Alternative Direct Marketing
    - 3.5. Alternative Activities - Changing the Consumption Pattern
  4. Transformation of Modern Development
    - 4.1. Critique and Turning Point in the Modern Japanese System
    - 4.2. Questions About the Modern Production System
    - 4.3. The Need for More Comprehensive Perspectives for a Sustainable Society
    - 4.4. Socio-economic Sector and Sustainable Society
  5. Conclusion - making a new global strategy
- Glossary  
Bibliography  
Biographical Sketch

### **Summary**

With the advance of modern economic globalization, many serious problems are being created: environmental destruction, depletion of biological and cultural diversity, poverty, unemployment and an expanding gap between rich and poor. There are two major problems that disturb the sustainability in this modern system. The first is the absolute limitation and misuse of a quantity of resources, which will cause an environmental catastrophe. The second is the socio-structural and qualitative problem, which will cause a

social catastrophe. This chapter, based on Japanese experiences, is mostly an analysis and proposes sustainable use of resources and management of environment, with only a partial mention about socio-economic and political aspects.

The modern development pattern is characterized as a linear mono-cultural type of system that is measured by a simple evaluation, such as quantity of production, economic profit and benefit. In other words, it is a partial optimum system from a narrow economic aspect for only human beings, not for natural ecosystems or other living beings. It is necessary to convert the mono-cultural system to a more diverse, multi-cultural system. In order to reform our production-consumption and waste system, there are various kinds of trials necessary for the conversion toward sustainability.

From a historical point of view, a kind of sustainable management was achieved in the middle age of Japan. And now, Japan has changed from the agricultural society into a post-industrial society. All these changes have occurred during the last 20th century. It can be said that Japan is a kind of showcase or laboratory for the study of the modernization and post-industrialization. This chapter uses a case study from the Japanese organic agricultural movement, which has worked to create an eco-friendly lifestyle related to ecological agriculture, food safety and changing the wasteful urbanized way of living and consumption patterns. These kinds of phenomena are observed in various fields such as the reduction of waste and recycling activities, the green consumer movement, bio-regional activities, and other environmental movements that create an eco-circulation society.

The world socio-economic paradigm has begun to change. The mixed and interdependent development among the three socio-economic sectors will be superseded. These three are the private-corporate sector, the public-government sector and the communal-community sector. A communal and cooperative society based on participation and self-governance is essential to achieve a sustainable society. There are limits to resolving many problems through top-down regulation and to practicing business based on market economy. Only through the active involvement of citizens based on partnership, and through active involvement of people in voluntary and cooperative actions in many areas of the world, can we resolve many difficult problems smoothly and effectively.

## 1. Introduction

*Weak person though I am, with the aid of this unverifiable belief, I would like to "suffer dually all the wrongs" accumulated throughout the twentieth century as a result of the monstrous development of technology and transport. As one with a peripheral, marginal, and off-center existence in the world I would like to seek how - with what I hope is a modest, decent, and humanist contribution - I can be of some use in a cure and reconciliation of mankind. (Kenzaburo Oe, "Japan, The Ambiguous, and Myself", Nobel Lecture, Dec.7 1994)*

This remark is a message of a kind of "civilization conversion" from the 20th to the 21st century by a modern Japanese celebrity. Is it possible for us to have a new perspective such as Kenzaburo Oe wishes to have? Can we really anticipate such a relief of social cultural change? In fact, the current world looks like a dark and problematic one. Several civil wars and racial confrontations persist and continue to grow in many areas in the world. It seems

that these problems are liable to reverse our historical course. In this world there are a few people who are prosperous and enjoy a luxurious life, while there are many more who are malnourished and starving. With the advance of globalization, it seems that many more serious problems are being created: environmental destruction, depletion of biological and cultural diversity, poverty, unemployment and expanding big gap between rich and poor. Even though there is huge prosperity for some, there is still desperate poverty for most.

A wave of economic efficiency principles and commercialization is spreading all over the world. We must critically analyze this situation, and reconsider socio-cultural and natural relationships, for example the relationship between "nature and person", and "person and person". This is to say, we need to stand on the concept of symbiosis and cooperation rather than competition. This way of thinking will help to lead us toward a change in the paradigm of our basic concept of development.

## **2. What is Sustainability?**

### **2.1. The Awakening of a Symbiotic and Harmonious Society**

The word "symbiosis", which contains various denotative contents, is becoming more popular. Originally, it was a biological term referring to the co-existence and friendly relations between living things, such as "a flower and a bee", where there is mutual dependence of one on upon the other. Behind the reason why symbiosis is now a wider concept, there are increasingly serious environmental problems and social contradictions. Concretely speaking, there is the situation that the global environment is being destroyed and large numbers of species are being exterminated; on the other hand, human beings have prospered. Among the human beings, there is a big gap not only at the global level but also at the domestic one. There are still many kinds of racial, religious, and cultural divisions.

Even in Japan, there are a number of problems and instabilities, such as violence, stress in the society, various types of discriminations, and abandonment. This situation seems to be strongly connected with social competitiveness, exclusiveness, and egoistic attitudes in our society. But the high stress and discriminative situation is not sustainable and it will not continue for a long time. On the contrary, a future society will be more based on symbiosis and cooperation rather than competitiveness. In other words, the competitive principle and exclusiveness in this world will have to be changed.

Similarly, in the theory of evolution in the field of natural science, the same situation occurs. As an example, in the co-evolutional theory and idea; the symbiotic way of thinking is becoming more popular than Darwin's; natural selection and competition theory of evolution. The co-evolution idea stresses the importance of cooperative relations where living things give mutual support more than engage in competitiveness. A recent attractive idea, the Gaia hypothesis, is a very good example (Lovelock, 1995). It states that the earth as a whole looks like a living body; every component works together harmoniously and keeps its metabolism. The cellular symbiosis theory is also a closely related idea of co-evolutional theory, where living things fuse and combine to be a new creature, a new mode of life system (Margulis, 1998). Basically, the living ecosystem on this earth is deeply rooted in a symbiotic way of living.

Not only in natural science but also in social science, an important idea is gaining prominence. This is "sustainable development". This concept was strongly introduced in the book of "Our Common Future" in 1987 and it was distinctly recognized as a basic idea in the United Nations conference on the environment and development, "the earth summit" in 1992 (Brundtland, 1987). It clearly appealed to the world that the development of humankind should be based on the concept of equity and sustainability. That is to say, development has to fill a want of the current generation with no hurt to the needs of future generations. A wave of economic efficiency principles and commercialization is spreading all over the world, which is called 'globalization' or 'global competitive society'. We have to reconsider and look critically upon this situation, and reconstruct our socio-cultural relationships.

## **2.2. Characteristics of 20th Century Civilization**

To seek a new perspective and vision of alternative civilization, it is necessary to begin analyzing the characteristics of the modern civilization. In the beginning, let's analyze the characteristics of the past development pattern. Macroscopically speaking, there are two general characteristics of the 20th century's development pattern, which are based on quantities and qualities. These are the following:

At first, the development pattern had a tendency of logistical rapid growth and enlargement; 2 times, 4 times, 8times expansion. We can see this tendency in many cases, such as population growth, energy usage, information exchange, vehicles' speed, and so on. For instance our population increased from nearly 1.5 billion at the beginning of the 20th century, 2.5 billion in 1950 and finally 6 billion in 2000. Our economic activities are also increasing in a similar pattern. This rapid exponential growth in the limited world would often introduce a kind of instability or catastrophic situation. According to the expansion of human activities, environmental destruction also spread, such as pollution problems, forest depletion, CO<sub>2</sub> emission and extinction of species and reduction in biodiversity. Regarding energy consumption, we have consumed much more energy within the last half of the 20th century than the total amount of energy that human beings consumed from the beginning of human history until the mid-20th century. The total fossil fuel consumption after 1950 is more than three-fourths of it during the 20th century. The total industrial production is also four-fifths in the same comparison. If the tendency continues further within the 21st century, catastrophe will be inevitable. (Brundtland, 1987)

The other characteristics are more qualitative than quantitative. Our development has been creating a big gap within human beings; the growth of expansion was unequal and enlarged the big gap as being unevenly distributed. That is shown on the data chart of misdistribution of wealth in the Human Development Report, 1999. Some key findings in the Report were:

- A fifth of the world's people living in the highest income countries has 86 percent of the world's Gross Domestic Product (GDP), 82 per cent of world export markets, 68 per cent of foreign direct investments and 74 per cent of world telephone lines: the bottom fifth, in the poorest countries, has about one percent in each sector;

- The income gap between the richest fifth of the world's people and the poorest fifth, measured by average national income per head, increased from 30 to one in 1960 to 74 to one in 1997;
- The 200 richest people in the world more than doubled their net worth in the four years to 1998, to \$1 trillion. (HUMAN DEVELOPMENT REPORT, 1999)

### **2.3. A Critique of the Previous Development Pattern**

Let's try to think of the present state of energy consumption, which suggests both characteristics of quantity and quality. People living in the United States who share 4.5 percent of worldwide population release one fourth of worldwide CO<sub>2</sub> emissions. About 20 percent of the population in the world (OECD countries, including the former USSR, Eastern Europe) releases nearly 70 percent of CO<sub>2</sub> worldwide discharges (late 1990's). After all, it is an economic prosperity gap related to energy consumption in the global scale. It is clearly shown that the difference of CO<sub>2</sub> emissions per capita of each country's straightly connected with the state of class society of this world.

However, it is impossible to spread this consumption behavior for all over the world. Consequently, the industrialized countries that consume huge resources and also produce a large quantity of waste, must reduce their consumption of material and energy resources. In fact, an international agreement on the reduction of CO<sub>2</sub> emission in COP3, the 1997 Kyoto Protocol, clearly suggested that our future's society should be slimmer in production and consumption levels (Kyoto Protocol, 1997; Johannesburg Summit, 2002). Furthermore, as a result of serious other environmental situations, we will not be able to maintain our exploding production- consumption system in future. This means our civilization will be confronted with a historical turning point—, which will be a conversion to a sustainable society.(cf. Note (1))

From a theoretical point of view, rapid growth must be changed to a slow one and finally it will be stable and create a balance of a sustainable system. It is a very well known principle in biology, and it was applied to our world by the research report of The Club of Rome in 1973, "Limits to Growth", and also "Beyond the Limits",1992(Meadows, 1972,1992). Sustainable Development has also been brought up as a new concept against the former infinite development pattern. The reason why this concept was greatly accepted in this world was strongly related to our unsustainable way of life in modern civilization. But there have been many arguments and studies about the details of sustainability all over the world. It is still not so clear to certify a common universal goal and practice it.

There are two major problems that disturb the sustainability in our modern system as a whole. The first is the absolute limitation and misuse of quantity of resources, which will cause an environmental catastrophe. The second is the socio-structural and qualitative problem, which will cause a social catastrophe.

### **2.4. Two Approaches Toward Sustainability**

In general, there are two approaches about sustainability. One is researching sustainable use of resources and management of environment based on natural sciences. The other

is applying a concept of equity in a broad sense based on socio-economic, political, and ethical justice. The first approach tries to identify a material quantity for sustainable use. Basically, there are two fundamental conditions. One is that most resources are recycled easily, so that there must be renewable resources that have to be used within a renewable time. Consequently consumption of non-renewable exhaustible resources, such as fossil fuels, has to be reduced to a minimum level, and to substitute or alternate with renewable resources. The second is that environmental pollution and unsafe materials have to be minimized, and strictly controlled within harmless level of absorption by the environment over its natural cycle (Harris, 2003).

Recently, there have been various trials to make sustainability clear. However there are some difficulties in studying it related to the data sources and calculation. In fact there are many different kinds of evaluations, methods and technological uncertainty. On the one hand, there is a great deal of concrete research on the topic base, climate change, bio-diversity, deforestation, desertification, and so on. On the other hand, there are some important studies to clarify the sustainability at a general level, such as carrying capacity, environmental space, ecological footprints and ecological rucksack (Rees et al., 1995. Carley, et al., 1998. Sachs, et al. 1998). ( cf. Note (2))

The social and equity approach has been developed mainly related with Brundtland Report "Our Common Future" (Brundtland, 1987). In fact, after the Earth Summit 1992, many big conferences have been held (such as World Summit for Social Development; Copenhagen 1995, Millennium Summit 2000 and WSSD; Johannesburg Summit 2002). Through those conferences, many have recognized a global neighborhood and citizenship and also have developed the idea of global civic ethic and governance. The growing gap between developed and developing countries results in huge amounts of debt and environmental degradation, especially in the third world countries. With this framework there have been many arguments and proposals to create a more equitable development in this global society related to international aid, trade system, organizational reform such as United Nations, World Bank, International Monetary Fund, World Trade Organization, etc.

In contrast, there are some reflections against "human-centric dogma" of sustainable development on environmental equity point of view, such as in the approach of Deep Ecology. It is becoming popular for us to recognize the equity and co-existence principle, not only among human beings but also all living things. This idea has been developed as an environmental ethics and philosophy. For example, according to Carolyn Merchant, Professor of Society and Environment at UC-Berkeley, there are three types of ethics in our society: Egocentric ethics (maximization of individual self interest and happiness), Homocentric ethics (human development and socio-cultural welfare) and Eco-centric ethics (partnership idea; balance of nature and ecological harmonious community and society) (Merchant, 1992).

Concretely and simply speaking, the concept of equity is resolved into a kind of regulation problem on an equal share or distribution to make balance as a whole. Accordingly, there is a resolution on how to regulate global sharing equally in three dimensions. That is to say, the first dimension is how to make a balance between human beings and other natural creatures, the second is another balance among existing

human generations (Intra-generational equity or such as north-south issue), and third one is the other balance between generations (Inter-generational equity between that of the present and future).

### **3. A historical Perspective on Japanese Agriculture and Resource Management**

#### **3.1. Sustainable Agriculture and Civilization**

According to Alvin Toffler, in *The Third Wave*, there have been three big transitions and changes in the history of humankind. The First Wave of change—agricultural revolution—happened around 10,000 years ago and led to the transition from hunting and gathering societies to the farming societies. The Second Wave of change—promoted by the Industrial revolution in the 18th century—led to industrial factory societies which were characterized centralized civilization. It is still spreading in some parts of the world. The Third Wave— Information Society or Post-industrial society—recently started and seems to be leading us toward social, cultural and political change (Toffler, 1991). This vision is somewhat stereotypical and a kind of linear development perspective. From environmental point of view, it is important to think about the relationships between human beings and nature. Post-industrial society will be remaking the intimate relationship which was destroyed in the Industrial society.

We human beings can not live independently. It goes without saying that there are intimate relationships between the environment and humanity through such forms as air, water, soil, forest and agricultural land. One of the important factors to support us is food that is mostly produced by agricultural ecosystems. There are food-chain relations around us, such as farm crops, livestock and fish, and those are dependent on the natural environment, such as rivers, hills, forests and so on. Not only agriculture but also fisheries depend on forests and mountains; this will be mentioned later. All of nature has its various components coexisting with one another. Probably we can say that a sustainable society would be realized in a sense whenever there could be created a good balance in the human-nature ecosystem. Agriculture is the most basic relationship among various interactions between human beings and nature. We can easily understand and recognize the contradictions of the human-nature interactions through agriculture.

As concerns about a model of human-nature relationship, it is very useful for us to analyze the agricultural systems to understand sustainability and a harmonious development. Agriculture itself can be formed as a harmonious balanced system in some areas of the world, even though at times it can be a kind of human intervention to the natural system which can sometimes destroy environmental harmony. From a historical point of view, a kind of sustainable development pattern has been achieved. For instance you can see an interesting case in the middle age of Japan. During this time, there was an example of ecological resource management system related with agriculture and people's life style in Japan. It is well known that the ancient agricultural civilizations, such as Mesopotamia and Egypt, caused environmental destruction and desertification. On the other hand, agriculture can be cultivated continuously and sustainability for thousands years; for example, the methods which were introduced in the book "Farmers of Forty Centuries; Permanent agriculture in China, Korea and

Japan" written by F.H. King 1911, republished by Rodale Press in 1973. As a case study, the author would like to review a traditional Japanese agricultural system from the cultural-ecological aspect.

Generally speaking, in an agricultural society in the Middle Ages, many human societies had been standing on a regional resource circulation system for a long time. Especially in Japan, in the Edo era, 1600-1868, the Japanese feudal government had a national isolation policy, almost no trading outside the country, which meant a self-sufficient and recycled resource management system, was introduced inside the country. In addition, it had practiced unique disarmament policy which was abandonment of firearms, after the adoption in 1543. After the adoption of new weapon, the gun, the Japanese tried to improve gun technology very quickly, and by the year 1600, they owned more and better guns than any other country in the world and abandoned them (Noel, 1979). In the Edo era they were able to enjoy a peaceful society and developed ecologically sound technologies, arts and culture.

-  
-  
-

TO ACCESS ALL THE 24 PAGES OF THIS CHAPTER,  
Visit: <http://www.eolss.net/Eolss-sampleAllChapter.aspx>

### Bibliography

Brown Lester R., Hal Kane, 1994, Full House: Reassessing the Earth's Population Carrying Capacity, W.W.NORTON & COMPANY, New York.

Brown, et al., State of the World 1999: (7) Feeding Nine Billion), W.W.NORTON & COMPANY, New York.

Brundtland, et al., 1987, Our Common Future: The World Commission on Environment and Development, Oxford University Press.

Carley Michael, Spapens Philippe, 1998, Sharing the World; Sustainable Living and Global Equity in the 21st Century, Earthscan Publications Limited, UK.

Furusawa Koyu, 1989, Life Rooted in the Rice Plant, Resurgence No.137 : 20-23. 1992, Co-operative Alternatives in Japan, gA Future for the Land h, Green Books, UK : 139-150. 1994, Tei-kei: partnership between farmers and consumers, ILEIA Newsletter, Vol.10 No.1, Netherlands : 10-11.

Harris Jonathan M., 2003, Sustainability and Sustainable Development, ECOLOGICAL ECONOMICS ENCYCLOPAEDIA, the Online Encyclopedia of Ecological Economics (OEEE).

<http://www.ecologicaleconomics.org/publica/encyc.htm#Harris>

Henderson Elizabeth, 1999, Sharing the Harvest: A Guide to Community-Supported Agriculture, Chelsea Green Publishing, USA.

Japanese Environmental White Paper 2000 (in Japanese). Here is related English information on the website, Quality of the Environment in Japan 1998. : <http://www.env.go.jp/en/w-paper/1998/ch1-1.html>

Lovelock James, 1995, The Ages of Gaia: A Biography of Our Living Earth, W. W. Norton, 1995 D

Margulis Lynn, 1998, The symbiotic planet: a new look at evolution Weidenfield & Nicolson, The Orion



Publishing Group Ltd., London

Merchant Carolyn, 1992, *Radical Ecology: The Search for a Livable World*, Routledge, New York.

Meadows, Donella H., Meadows, Dennis L. et al., 1972, *The limits to growth: a report for The Club of Rome's project on the predicament of mankind*, Universe Books, New York.

Meadows, Donella H., Meadows, Dennis L. & Randers, J., 1992, *Beyond the limits : confronting global collapse, envisioning a sustainable future*, McClelland & Stewart, Toronto.

Noel Perrin, 1979, *Giving up the Gun: Japan's Reversion to the Sword, 1543-1879*, David R. Godine, Boston.

Oe Kenzaburo, 1994, " Japan, The Ambiguous, and Myself ", 1994 Nobel Literary Prize, Nobel Lecture, Dec.7 1994

<http://www.nobel.se/literature/laureates/1994/oe-lecture.html>

Rees Williams E., Phil Testemale, Wackernagel Mathis, 1995, *Our Ecological Footprint: Reducing Human Impact on the Earth*, New Society Publishers, Canada.

Sachs Wolfgang, Loske Reinhard, Linz Manfred, 1998, *Greening the North: A Post-Industrial Blueprint for Ecology and Equity*, Zed Books, UK.

Salamon Lester M., et al., 1999, *Global Civil Society: Dimensions of the Nonprofit Sector*, Johns Hopkins Center for Civil Society Studies.

Shiva Vandana, 1992, *The Violence of the Green Revolution: Third World Agriculture, Ecology and Politics*, Zed Books. 1993, *Monocultures of the Mind: Perspectives on Biodiversity and Biotechnology*, Zed Books.

Toffler Alvin, 1991, *The Third Wave*, Mass Market Paperback.

UNDP, 1999, *HUMAN DEVELOPMENT REPORT 1999, The Facts of Global Life*, Press Release, UNDP: <http://hdr.undp.org/reports/global/1999/en/>

### **Biographical Sketch**

**Dr. Koyu Furusawa** is professor of ecological economics at Kokugakuin University in Japan. He received his master's degree and Ph.D. in Agronomics at Kyoto University in Japan.

He is greatly concerned about the global environmental issues, especially about the sustainable development from community level to the global level, and takes part in some NGO activities.

He is studying interdisciplinary field in wide perspective, such as "ecological space project (a joint study on global equity, equal access to resources and environment)", trade and environment issues, international cooperation on sustainable development (related with Official Development Assistance) and social studies on ecology movements and socio-cultural paradigm and so on.

He attended the NGO forum in Rio de Janeiro Brazil, Earth Summit in 1992 and Johannesburg Summit in 2002. He is a director "JACSES: Japan Center for Sustainable Environment and Society", an environmental NGO (JACSES; <http://www.jacsces.org/en/index.html>) and also a board member of "JANIC: Japanese NGO center for International Cooperation.