

## No. 16 Construction of the Recycling-Based Society - 1

The energy circulation of human body is mainly operated through the blood circulation, or arteries and veins. Simply saying, there is an exquisite harmony between the arteries that carry oxygen and energy to the whole body and the veins that discharge carbon acid gas and wastes, which makes possible for human beings to maintain their lives. In addition, human body's organs function with well balanced to keeps human body healthy, such as digestive organs that process organic matters (energy sources) so that a human body can use them, lungs that exchange oxygen and carbon acid gas, and livers and kidneys that detoxifies and treats wastes.

The earth is a closed ecosystem; therefore, its basic system should be the same as that of the human body. However, human beings have constructed only the artery industry, or increased productivity, with which they have established the economic system. Therefore, it is obvious that the earth will get ill if only the artery industry is developed but not the vein industry.

Nowadays, due to a population explosion, human beings face with the trilemma (a three-way deadlock), the complicated relationships where "economic development," "resources," and "global environment" are mutually regulated. The difficulty of global warming problem is that we have to cope with the structures of trilemma as soon as possible, which are tightly bound with the casual relationships (Takamitsu Sawa).

As a general index to consider the influence of human activities toward the global environment, the following formula is used:

$I = PA (\pm T)$ , where I is impact, P is population, A is affluence, and T is technology.

This sees the impact of the global environment as the function of population, levels of consumption (economic development), and the scientific technology.

When population and material life affluence increase, the impact increases. Technology can function for both ways, either increase or decrease. From this concept, it is easily estimated that more than six billions population's activities, such as a mass production, consumption, and disposal, will exceed the limit of global circulation systems and make it impossible for the earth to recycle materials. This causes not only mass consumption of fossil fuels and pollution by chemical compounds, but also the decrease of food production and the variety of organisms. Therefore, it is obvious, as many researchers have reported, that the situation will be more serious in the future.

Recently the main point is shifting from the resources to the environmental tolerance regarding the interpretation of the formula,  $I = P \cdot A (\pm T)$ . As the factor of T, people become aware of the importance of the vein industries, such as disposal of waste materials and recycling managements. This implies the possibility of the construction the recycling-based society only after the completion of the vein industries.

*Beyond the Limits* (Rome Club, 1991), a masterpiece that pointed out the recycling-based society at the first time, summarizes the conditions of sustainability (use of resources) as follows;

1. The use of recyclable resources should not exceed the recycling speed.
2. The use of resources which cannot be recycled should not exceed the degree of an alternative use of recyclable resources in a sustainable pace
3. The sustainable emission speed of polluted factory waste should not exceed the speed that the environment can circulate, absorb, and detoxify those wastes.

The population (in developing countries) and the economic level (in advanced countries) have already reached the limit to fulfill these conditions, while maintaining the scientific technology and social systems as they are now. To come through this crisis, we need to establish the vein industry and its system as soon as possible and, at the same time, promote a “turning back from going too far” policy. It is, of course, difficult to stop or slow down the smooth growth of population and economy. If we decide to turn back, we may have to be prepared for the conflicts with other countries.

The same book, *Beyond the Limits*, gives the following four items as necessary conditions for the earth to exist.

1. The standard scientific and economic theories on the global system
2. Accurate statistical data on resources and environment
3. Computer models to help the integrated information
4. A view of the world, a paradigm, and basic (mental) viewpoints

Of those four items, the most important one is the forth item, changing a view of the world. It is necessary to bring about the environmental revolution to construct the recycling-based society, followed by the agricultural revolution and the industrial revolution. To promote this revolution, it is important for human beings to ferment a sense of crisis to their future. This “sense of crisis” may be fermented depending on

how much we visualize the seriousness of the worst situation, or catastrophe. It is important for us to have lively imagination so that we can know by intuition the possibly coming catastrophe and draw the robust scenario for coping with the worst situation. Crisis management is originally drafted by imagination on estimating the worst situation.

During World War II, the sense of crisis to Fascism fermented the energy of a huge number of people in the world, which brought the victory of democracy. Therefore, if our generations seriously become aware of the fact that “the signs of environmental disruption cause the crisis for subsequent generations to survive,” we will be able to accomplish the environmental revolution. However, the goal of this revolution should be the pursuit of sustainability, which is quite different from the goal that human beings have set, the material affluence.

The scenario of “sustainable society: recycling-based society” that *Beyond the Limits* proposed is “the society with high technology and, at the same time, with (mental and material) simplicities” (words in the parentheses are added by the author).

The high development of technology puts many expectations in the contribution to the technologies to solve environmental issues. The survival of the global ecosystem depends on whether we can establish the techniques of the vein industry or not. Therefore, it is important to construct the vein industry for the future technological innovation. However, on the other hand, only the development of technology itself does not guarantee the human beings’ survival in the 21<sup>st</sup> century. This is because human beings’ economic activities (not the activities for the survival) have already reached to the tolerance level of the earth.

To construct the vein industry, it is necessary to establish the economic theory on the global system (the first item that *Beyond the Limits* introduced) and human activities from the scientific approaches. Current economics is based on the economic theory proposed by Keynes and Marx in the time when there were no concerns about the maximum tolerance level of the earth. Moreover, the market economy system that dominates the current world market is incompatible and opposed to the global recycling system.

If I use a half-baked expression, the perfect recycling-based society is the ideal society that human beings have never achieved. This society is, so to speak, the

Utopia that sages have pursued from the ancient times. Human beings cannot hand the stable environment over their future generations unless they construct this society in a global level. In other words, to overcome the current global environment crisis, there is no way for human beings but to create the Utopia – the recycling-based society – with all their forces. They may be provided opportunities to choose this method. It is obvious to go to catastrophe if the current situations continue. If there is only a choice between two things, it is valuable enough to choose the construction of the recycling-based society.

“The outstanding point of Yozan Uesugi throughout his industrial reform is that he put the importance on the education of his vassals to be a virtuous person. A view of hedonistic happiness was opposed to his opinion.

Making a fortune is to be a person who knows manners, as ancient sages had said, ‘Well-fed, well-bred.’....”

“There is ‘a stake business’ in Yonezawa. By the roadside, there are goods with price tags, such as pairs of zori and straw sandals, and fruits. No one knows who is the owner of those goods. People left the money as written in the price tag and take goods away. No one ever thinks that robbery would happen in this market place...”

- Kanzo Uchinura, *a Typical Japanese* (translated by Norihisa Suzuki, the Iwanami Library, 1999)

Note:

The original work was written in English in 1907 to introduce Japanese to the world. Later, this book was translated in Danish and German. Kanzo Uchimura described the life of five historical figures (Takamori Saigo, Yozan Uesugi, Sontoku Ninomiya, Toju Nakae, and Priest Nichiren). He meant to introduce the sophisticated culture of the Japanese character which was different from the cultures of European and America.

Here is a funny story. J.F. Kennedy, ex-president of the United States (the late President Kennedy), was once asked by Japanese press corps who was the most admirable Japanese. Since he had read *a Typical Japanese*, he answered “Yozan Uesugi.” But no one in the press corps knew his name.

Yozan Uesugi was adopted by Echigo-Uesugi han from Kyushu-Shugetsu han (clan) when he was 17 years old. At the time, Uesugi han possessed 150 thousands koku (1 koku = 5.12 U.S bushels). However, because of the forced transfer of fief

ordered by the Tokugawa shogunate and failures of ruling the fief, the financial affairs of Uesugi ha became exhausted, the debt reached up to several millions koku, and the fief was filled with poverty and social unrest. Yozan, who became a feudal lord when he was only 17 years old, started administrative and industrial reform and improved the Uesugi han to a wealthy land in 40 years, overcoming various difficulties. Yozan set objectives of the reform to improve the nature of humanity, or courtesy. According to him, material richness was a sufficient condition of having a virtuosity and he did not set material richness itself to a goal of industrial reforms (There is a book, *Yozan Uesugi*, Toji Domon. The Jinbutsu Library),v

- Statistical Data -

Hidden mass wastes in the consuming power United States (Annual data) (World Watch, vol.12, no.6)

Amount of trash that more than 100,000 volunteers collected.....	1,665 tons
Amount of industrial wastes (disposed without sufficient treatment)..	200 millions tons
Amount of mined gold minerals.....	7.27 billions tons
% of refined gold.....	0.00033 %
% of disused minerals (most of them are toxic wastes).....	99.99976 %
Amount of mined lead minerals.....	10.77 billions tons
% of refined lead.....	2.5 %
% of disused minerals (most of them are toxic wastes).....	97.5 %
Standard size of beef stakes in fine restaurants .....	300 g
Amount of excrements of domestic animals to produce 300 g of meats.....	16 kg
Estimated amount of excrements	
Human beings.....	67 millions tons
Domestic animals.....	1,370 millions tons

\* Data were obtained in 1997 except the beef stakes and excrements

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