

# **A research on the environmental relationship between oceans, rivers and forests – a preparatory sustainable socio-life science.**

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## Summary

I surveyed the very long ecological chains of the history of life and have summarized my results below. Our economic and social system has destroyed the three ecological chains that were in the same stream of our life recycling system. Japanese Professor K. Matsunaga in Hokkaido University presented a hypothesis, not yet being admitted universally, in his book titled 'If the forest disappears, the ocean dies' that the forest supplies many important nutrients including 'Fe' which life in the sea needs. His experiments research conclusion leads to the same conviction that I have got from social and economic research, so I will present a hypothesis—a sustainable socio-life system instead of the well-known sustainable growth agenda.

## Prologue

On the 16<sup>th</sup> of August in the summer of 2003, Japanese broadcasts spoke of very hot days in France. On the contrary, we have long cool days in Japan, the opposite of France. We know that our planet has become increasingly warm, and will inevitably reach a critical condition because of the consumption of vast amounts of fossil fuel.

We may be standing at a crossroads in the long history of our planet. We have constructed a machine-based civilization and most people live in cities. However, can humankind continue to live on the surface of this tiny planet for the coming centuries ahead?

No one can answer this question, but there can be a reasonable possibility that we can survive if we live appropriately, according to a natural life style and through natural courses of our social system— 'an invisible hand of God'. This is the key point of this inquiry.

In order to understand the environment, we first have to know the basic relationship between the economy and the environment, as well as consider whether

they are compatible or not. Generally speaking, the answer is that they are compatible.

Whether or not seems to be unclear, because nature can easily be damaged and can never be restored, once damaged. If we construct factories by clearing off the woods, they will never be restored. If we stop the development projects, the forest will be maintained.

In this way 'sustainable development' is incompatible with a natural environment. So long as growth means business success, we need to brake economic growth. Even if we construct buildings by cutting the woods but reserving green zone around them, they are never restored. In order to avoid this inconsistency, we need to prepare another logic. After surveying the long history of life, I will refer to this new sustainable viewpoint.

## Birth And Death

In relation to the above question whether humankind can live on the earth, the French novel-prize winner, Christian de Duve says in his book titled 'VITAL DUST' that 'life will continue as long as there is a niche on Earth capable of supporting it'. He continues, 'But with us or without us?' The average longevity for most species is between one million and eleven million years, and for mammals it is two million years. One may, however, wonder whether Gott's methodology—which has not gone unchallenged—can be applied to the unique case of a species that covers the whole surface of the planet and has amassed a vast, powerful, and commonly shared cultural heritage stored in virtually imperishable form. However, there is no foreseeing what can happen over very large length of time—about 40,000 generations per million years—once a degeneration process, perhaps triggered by a major holocaust, has set in. Entire populations have been wiped out in our times. Why not the whole world population sometime in the future.'

I think that his 'maybe or may not be' is unclear. If we replace his premise 'triggered by a major holocaust' instead 'triggered by decisive environmental changes in relation to the greenhouse effect', we will have another question. But there may be a high level of possibility that we may not live on the earth any more. That our children will be able to overcome this emergency depends on our own efforts.

'A species that covers the whole surface of the planet and has amassed a vast,

powerful, and commonly shared cultural heritage stored in virtually imperishable form' also means 'a species that stands on the top of the food chains of life, using his own splendid and vast social system'. Therefore we will have a theme for social sciences that we must struggle sincerely with.

## Ocean

About 13.7 billion years ago, our universe was born by a big bang from a very tiny quantum world and galaxies spread over the dark space. And sunlight showered from the mother sun all over her planets. About 9 billion years later, or 4.6 billion years ago, our planet was born in the third orbital position from our sun. Meanwhile our tiny original life was born in the very hot ocean by numerous trials.

The first life lived long enough until the next new type of life burst into the ocean and supplied oxygen into the sea and the atmosphere. Our planet surface became such a comfortable place for life that it was able to use the mechanism of producing energy by using light, water and oxygen (photosynthesis).

A certain kind of fish that had a spine-like skeleton through the centerline of its body, appeared in the sea. This indirect ancestor of ours developed into fish-like animals by successive mutations according to the principle of Darwinian natural selection.

## River

Among them, there was a species that dared to wander around into the river in order to escape from its terrible enemies. By having a kidney, they were able to swim in the river very well and also by having a backbone, they were able to supply calcium necessary for their survival.

The scenery under the surface of the river may have resembled a cinema production of the struggle for existence. After a long natural selection, there appeared a tough guy who had strong hands, feet and lungs. Preparation for climbing to the land was accomplished and this salamander-like amphibian could live by eating food under the fern forest.

## Forest

First, the forest which consisted of ferns but later other plants that could live by flowering and which had seeds appeared. Animals or insects could eat fruit and convey pollen to distant flowers. A kind of coexistence between flowers and animals enabled them to flourish rapidly on the surface of this planet. On the contrary, dinosaurs could not eat fruit but ate conifer leaves, which meant they were outside the ecological circle.

One time, a huge meteorite crashed into the earth and dinosaurs became extinct. Our ancestor mammals were able to survive the cold that resulted after the collision, and became monkeys who lived on the top of trees. About 5million years ago, huge mountains appeared in central Africa, and the west side of them remained as tropical rain forests and the east side became savanna. Monkeys living in the tropical rain trees remain there today but ones in the savanna could not resist climbing down from the trees and walking on the grassy land to search for food.

## Civilization

They caught animals, fish and birds, moving on to new land that could supply the food. Finally, they began agriculture, first by growing wheat. Cultivation enabled them to live in the same place and build villages by constructing houses for their families. They built towns and organized nation states.

About 200 years ago, Industrial Revolution broke out in England and this industrial impulse spread all over the world toward the end of the 20th century. Now, almost no area of the earth exists which is not under the influence of the market mechanism. The market mechanism means the decisive separation of production and consumption by transportation.

Mass production and mass consumption needs a huge and highly concentrated energy system. Fossil fuels are used in order to tower the production system and big cities, which emit carbon dioxide into the air, leading to an accumulated, critical greenhouse effect which is also accompanied by the destruction of the tropical rain forests. Temperate zone forests were also cut down for industrial purposes. The seacoast was used for the same purpose by changing it to land. Nature created human beings, and in turn nature was demolished by them. Birds and animals disappeared

from the urban areas.

## Ecology Of Ocean, River And Forest

I surveyed the very long ecological chains of the history of life above. Now, our economic and social system destroyed the three chains of ecology that were in the same stream of our life recycling system. Professor K. Matsunaga in Hokkaido University in Japan presented a hypothesis in his book titled 'If the forest disappears, the ocean dies' that the forest supplies many important nutrients which life living in the sea needs.

His experiments and research came to the conclusion and the same conviction that I reached after my social and economic research. He introduces a hypothesis which supports a sustainable socio-system not sustainable growth (SG). SG is illusory, because one is incompatible to the other. If forests are destroyed to construct highways, forests will never be revived, and if highway projects are withdrawn, the forests will survive. GNP means environmental deterioration, and ecology means natural sanity.

Forests grow by their photosynthesis mechanism that can create a huge accumulation of abundant soil under them and supply diversity of nutrients including Fe- for the plankton or plant in the sea. They also rapidly grow by photosynthesis, absorbing carbon dioxide and then emitting oxygen. This eases the greenhouse effect.

By cutting and planting trees in the forest, we can use sustainable energy and goods especially for construction materials. In Finland, forests are used for industrial purposes, but in return cutting down trees and selling them in the market results in the replanting of the forests which absorb carbon dioxide.

Forest and forest industries enable Finland to reduce the effects of the coming crisis of the greenhouse effect. I do not know which of the broadleaf trees or the conifer trees are effective to produce good soil and supply diversity of nutrients.

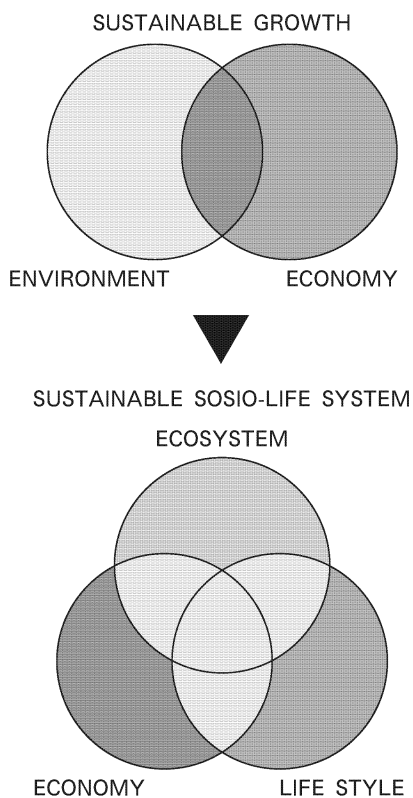
We have another forest in the sea that can be used for many industrial purposes and be available for sustaining life. As for the forest, we always look at mountains, but we need to consider how important the invisible merits of undersea plankton and forest are. They use photosynthesis!

We will be able to construct small and low density towns that have a recycling energy system instead of fossil energy, if we effectively use wood from our forestry cluster.

## Forest Industry

Forests provide many materials for us, including constructing wood containing carbon dioxide that is emitted from using fossil fuel. If wood material is used in such a way that we reduce the amount of usage of fossil fuel, and proper Silviculture is done in both the industrial countries and the under-developed countries, we will have good environmental conditions in the near future.

If it is not proper from the environmental point of view to export or import huge amount of wood on vessels, we should produce wood products near the consumption areas. In Finland, production and consumption of wood is interconnected by ventures called 'Contractors'. The area of wood-harvesting is so limited that it can be transported, corresponding to the needs of the client. They also harvest wood and transport it to the client, for the benefit of forest owners who are organized under the 'Forest Owner's Association', and therefore, they are the necessary components of a forestry cluster. 'Money is a great traveler in the world' means here 'money is a great traveler in the forestry cluster'.



In reality, cost and benefit performance of Silvi Culture is not good in countries where forest industries do not produce considerable return. So why not create competitive forest industries, using a natural eco-system? And, at the same time, why not create a new way of life that is consistent with our eco-system? The possibility of human survival depends on our ability to develop a larger dimension in new production methods and life style.

### Epilogue—Kombu (sea tangle)<sup>1</sup>

Last autumn, September (2003), I traveled on the southeast seashore in Hokkaido, Japan in order to research the condition of the Kombu (sea tangle). Many rivers run through forests down from the high mountains into the sea and there were many people catching Kombu. As Kombu needs nutrients including Fe from the river, the condition of the mountains is decisively important. Fortunately the forest is owned by Hokkaido province and may be used by sustainable Silvi Culture.

According to the native inhabitants, fishermen gain 10 million yen (about 100 thousand dollars) by harvesting Kombu in the sea and 5 million yen, picking up Kombu on the sand, total revenue being 15 million yen per year. But young men leave for the big city from their hometown and never come back again, because of their comfortable lives in the city far from their native home towns.

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<sup>1</sup> Japanese Kombu means sea tangle.