Crises of Humanity

As seen from the stratosphere

By Kouken Okadome

Crises of Humanity do not exist in the shortage of energy but in the inflating residual pollution by mass consumption

1980, growth beyond the limits of the Earth

Further growth will degrade the biosphere becoming a residual contamination. Species is depleted, and the Earth's ice began to melt

—The Gap between the rich and the poor causes all the evil—

Introduction of this book

An Airline Captain's messages for the Earth's environment issues that he had witnessed from the stratosphere since 1960s. These are the sincere prayer for happiness to the succeeding generations.

After 1980s, excessive mass consumption that has surpassed the Earth's capacity could not be purified and accumulated as residual pollution.

Global warming is one of the phenomena of residual pollution caused by carbon dioxide. As a result, the Earth's ice began to melt tangibly and then the sea level rising. At around same time, a number of living species started to disappear.

Compared with 100 thousand years' transformation of the Earth's history, such tangible change of the Earth as the ice melting in the past several decades denotes an instantaneous explosive transformation of the Earth.

These phenomena of melting ice and decreasing living species are evidences that prove the Earth has limitation. (See Chapter 5, Ecological footprint)

Nowadays, according to conservation ecologist, more than 100 species are disappearing every day, and the biosphere is dashing toward extinction. The biosphere is indeed in an emergency.

The more economy grows, the more residual pollution increases and the

costs to manage the pollution increase exponentially.

Thus the world economy and social structures are approaching collapse. Even with the 3% of economic growth, human consumption would double in 23 years.

If you might be in doubt about the contents of this book, please refer to the website, "1992 World Scientists' Warning to Humanity".

The gap between the rich and the poor is the root of all evil. The society allowing freedom of human greed has induced the destruction of the Earth's environment and the world conflicts. These 3 points are interlocked as contemporary social issues.

Hope is in the change to hyper-progressive tax system to resolve the gap society that could be realized by young generation taking advantage of the system of democracy, in which each person has one vote. Upraise working poor!

Author's basic view:(Circulation & Solidarity in life)

—Nature is a form of circulation. Our happiness lies in circulation of water, the greens and all living creatures. Anything good for life looks beautiful.

—Why do people climb the high mountains? Solidarity in life might be the answer. There is an instinct in life forms to try to expand the biosphere in solidarity from the bottom of the sea to the highest mountain.

May humanity will never forget that all forms of life started from the first single life thriving in mutual solidarity. (See Chapter 11)

Mrs. Sadako Ogata, the former High Commissioner for Refugees at the United Nations recommends this book as worth reading warning to the public.

Prologue

I have already written a book entitled “Days; Departure for a long journey,” in which I expressed my thoughts on the life of the generations who will come after me. I was thinking that I should devote the days left to me to putting the finishing touches on my life spent together with my wife.

The book, in which I sketched my days with my wife in a rural village, was selected as suggested reading by the Japan Library Association. It made me feel so grateful for my book to be selected in this way before I depart. I was very happy imaging how my thoughts would touch the hearts of many readers.

But, the other fact that made me even more excited was; my wife who is suffering from Alzheimer’s disease is reading the book almost every minute when she has time. I originally thought that she was reading only the easier-to-understand parts, but in reality she was following every single word in the sections referring to the gap between the rich and the poor, and environmental issues.

I wondered what attracted her. She answered my query by saying that she was very happy when she was reading the book, although the contents disappeared from her memory soon after.

Wherever she goes, even in our home, she brings the book. I thought I had no more regrets and could simply let the days pass by before the departure for a long journey.

Having said so, I had a concern that had been sticking in the back of my mind. My concern was the fact that I had not proactively written about the things which I had wanted to appeal to others about most; i.e.(that is to say). my sense of danger about the biosphere on the Earth that I had viewed from the stratosphere as a pilot, and the immense gap between the rich and the poor I had witnessed in the countries to which I flew.

The reason why I hesitated to mention these issues was a fatalistic feeling I had regarding the future that I had possessed since 1992, when I had high expectations that ended in disappointment over the 1992 Earth Environment Summit held in Rio de Janeiro, Brazil.

“No more than one or a few decades remain before the chance to avert the threats we now confront will be lost and the prospects for humanity immeasurably diminished.”

This is an excerpt from the “1992 World Scientists' Warning to Humanity” signed by more than 1,600 of the world’s leading scientists, including almost all of the Nobel

laureates in natural sciences, who felt a sense of crisis at the outcome of the Rio Summit.

If the Nobel Prize has any academic authority, the contents of this warning, submitted only a few months after the Rio Summit, must contain grave scientific evidence. However, this warning was virtually ignored.

No valid actions were taken thereafter and more than 2 decades passed, but all of sudden in 2013, an astonishing announcement was delivered by one of the global warming prevention conferences, the Intergovernmental Panel on Climate Change (here after refer to as the IPCC), stating that the air temperature would rise almost 5℃ by the end of the century.

In the Earth's history, this temperature is identical to that of 35 million years ago, when there was no ice on the Earth, carbon dioxide density was as high as approx. 450ppm and the sea level was higher than the current level by more than 70 meters.

I personally dislike exaggerated expressions with regard to risk both in my vocation of maneuvering jetliners and mountain climbing, however a catastrophic future, which I had had a vague anxiety about, finally became glaringly real through concrete figures.

However, global warming is one of the phenomena of the deteriorating living environment, which human beings are currently facing. The rising sea level is not the only crisis facing the biosphere, including us.

The ultimate cause of the crisis is the fact that human beings' mass consumption exceeded the threshold of the Earth's sustainable subsistence capacity around 1980, according to literature.

As though attesting this fact, the number of living species started becoming annihilated at an abnormal pace from around 1980. While the biosphere has experienced the verge of total extinction 5 times, once every 100 million years, the current astonishingly high rate of reduction is several hundred times as fast as the last 5 times. If this pace continues, all living creatures would disappear in approximately 3 centuries.

Reflecting back, the density of carbon dioxide in the atmosphere had exceeded 340ppm at around 1980, and mountainous glaciers had already started melting. In the Earth's history, there was no ice in the northern hemisphere when the density of carbon dioxide was above approx. 340ppm. At the moment, the ice on the northern

hemisphere is dashing toward annihilation, and not only mountainous glaciers, but also the ice on the North Pole, Greenland and even Antarctica is beginning to melt.

It was not a coincidence that 3 events; mass consumption limit, drastic reduction in the number of living species and start of ice thawing in the northern hemisphere, started at almost the same time. This is evidence that proves the Earth has limitations.

After 1980, the portion of the consumption that had exceeded the Earth's limitations has been deteriorating the biosphere as residual pollution. The more the economy grows, the more residual pollution and costs to manage that pollution increase, at an exponential pace. Those costs curtail other really necessary budgets, and the world economy and social structures are approaching collapse.

Global warming is also a phenomenon mainly caused by the residual carbon dioxide pollution that has been emitted, exceeding the Earth's purification capacity.

Should human beings keep aspiring to the current level of economic growth, the consumption would double after 23 years, however the one-and-only Earth cannot physically support this consumption. Considering this fact, it is expected that the human society would be thrown into confusion within 2 decades at the most.

The crisis of the collapse of human society does not exist in the shortage of energy, but in the inflating residual pollution. What's worse is the fact that conflicts among nations never cease. In case those conflicts escalate, the collapse of the economic social structure gets closer at an accelerated pace.

While I was waiting for my departure day, since I heard the figure of approx. 5℃ announced at the IPCC, my heart has become knotted by that fact and my thoughts became my prayers for the generations of life following after us who would be left in the deteriorated environment.

Having said so, the days left for my wife and myself are extremely limited. I hesitantly inquired to her about my thoughts on a new book, and she replied that she would be glad if my thoughts could remain in a book. Thus, I made up my mind to write this manuscript.

Then, as I was in the midst of writing my manuscript toward the end of 2015, it was announced that the Conference of the Parties to the United Nations Framework Convention on Climate Change (hereafter known as COP21), comprised of many countries around the world, had come to a consensus and entered into an agreement to cooperate to take action on global warming.

Looking back now, I recall that 40 years ago, then U.N. Secretary General U. Thant recognized the threat that was fast approaching the living environment based on information from various sources, and warned that if the countries of the world do not unite in cooperation to take action within 10 years, it will become impossible to control the danger to the living environment.

The content of the "Paris Agreement" formed at COP21 will take action in response to that warning, but in effect what this means is that it took regrettably a precious 40 more years for human beings to just form a cooperative framework. I hope that our actions will be in time.

I have been viewing the Earth from the stratosphere for a long time. While gazing at the stars during night flights, I worried about the future lives which are destined to dwell on the polluted Earth. The things I have been continuously thinking about over time have accumulated in my notebooks and as lees in my heart.

Since I encountered "Silent Spring," a book that alerts human beings, I have read a number of books on life and the environment. However, the majority of scientific research and scientists' pet theories are based on uncertified elements in the Earth's history, and contain too many different hypotheses, figures, ages and interpretations.

I was obliged to maintain great patience and endurance to peruse those books, as I needed to sift valid theories from the mixture of valid or baseless theories, including derisive antitheses. Only a person who is extremely interested in the subject could have completed this process without tossing it aside.

The people to whom I want to convey my thoughts are those who, although interested in environmental issues, spend days with a vague anxiety. Thus, I wrote this book not as a scientific abstract, but a sort of essay on my thoughts that I want them to use as their daily guidance. My intention was not to be too fussy and avoid overly referring to scientific literature.

I repeated and repeated what I thought was important, consciously. This is from my thought that readers can memorize my thoughts without flipping pages.

In order for us, non-professionals in the domain, to comprehend the crisis of the living environment conceptually, I tried to show important outlines and approximated figures so that readers can roughly grasp the flow of the facts. Regardless of my efforts, if you find parts that are not easy to read, you could skip those parts, but I encourage you to read through to the end.

I have repetitively re-read and re-written this book, as I want as many people as possible to comprehend the contents, praying for the happiness of the lives of the succeeding generations. I hope readers could refer to this book, whenever they encounter environmental issues on TV and in other media.

The gist consists of 3 points; i.e. (that is to say) the future of global warming, a prophecy that the human society would collapse under the global environment that would metamorphose into totally different ones unless human beings, in solidarity, suppress mass consumption to within the Earth's limitations, and the fact that the biosphere has already entered the stage of annihilation.

In the background of these 3 points, there exists a situation where 3 issues are interlocked; i.e. environmental issues, gap between the rich and the poor and the world peace. The gap between the rich and the poor, in particular, has become the Pandora's box in human society, breeding religious/international conflicts, terrorism, refugees and domestic issues, through generating envy and hostility in peoples' minds.

Countermeasures were postponed, and, now, it's too late for us to take any measures that could work in a fully valid manner. We are now at a stage where we must determine whether or not we can pass on even a little bit less deteriorated biosphere to life in the succeeding generations.

I added a chapter, in which I stated my basic thoughts as I confront the universe, nature and life. This chapter is based on my previous book "Days; Departure for a long journey," to which I added my thoughts developed thereafter. If you read both books and become my soul mate, I would be extremely grateful.

Now I am writing this book, and my wife is reading the "Days; Departure for a long journey" beside me. My wife and I have spent many difficult days endeavoring to have heart-to-heart communication. In other words, we are good friends that cannot be parted, but our hearts had long been strangers.

However, now she is talking to me while I am writing; "Sorry for the past 50 years. I will make your heart happier by staying beside you." This is a change in her heart status that could be regarded as a conversion. She is talking about her happiness spending her last days with me in the place we moved to from a metropolis - a country village still surrounded by beautiful nature.

She says; "I've never experienced such happiness before." Regardless of her memory-related disease, her heart seems to me the healthiest it's ever been now.

Although she is in a state saying; “What’s that?” gazing at the moon, her heart is still, even in this condition, evolving.

Her previously unused brain cells have no doubt reacted to the days in a country village blessed with abundant pure water and greenery.

We encourage each other, endeavoring to become the very best couple in the world before the time when she becomes incapable of recognizing me. Yet, her posture as she strives to take a walk with difficulty is a heartbreaking sight.

I will leave this book for my children, my grandchild and those people who are important to me, as well as entrust it with all my prayers to the lives that will come in the following generations. I will stand by my wife and return to the days where I’ll be waiting for the departure for a long journey.

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May the beautiful Earth with water and green,
and full of life be handed over
to the generations to come.

Chapter-1

Blue Planet viewed from stratosphere and its biological environment

From Japan's surrender to the entrance of the material world

In 1945 Japan surrendered, and the Allied Occupation forces landed in. We had been taught that they were devils who would massacre us, if Japan loses. But in fact, the soldiers were simply ordinary people. Both soldiers and officers were lighthearted and clean with a healthy good smell.

During World War II, I was spending days with hunger and any living creatures looked edible to me. Thus, young soldiers' abundance and friskiness astonished me, at 11 years old, and I had an impression that they came from a totally different world.

Both kids and adults adored their country's free, rich and convenient lifestyle. I reflect that it was a turning point of our mindset from the only just survived Japanese ancient culture, in which people was cohabiting the flow of nature to a greedy freedom.

When I joined a commercial airline, there were no washing machines and hot water supply system in the company's dorm. However, the world has surely entered into the oil civilization and the era of high-growth.

I did not have any strong will, but wanted to join the airline industry from a vague adoration to the sky. Luckily, the commercial airline accepted me thanks to my mentor's recommendation. Several years passed since then, and aircrafts evolved onto jetliners, which opened the entrance door to the world of mega-transportation.

Earth viewed from the sky that I adored

That was in 1960's, I realized my dream and started flying in the sky. I was shocked with the fact that metropolises viewed from the sky was covered with smog. Although I joined the company as a ground staff, but the company changed my status to a pilot trainee, which was an unprecedented interdepartmental treatment.

I took off for an exciting training flight under the blue sky, but about 1,000 meters high, I noticed a layer of air when I kept ascending. The real blue sky existed above the layer, and the metropolis beneath me was enveloped by a dome-shaped light brown air.

When I landed into the air dome to complete my training flight, although I wanted to keep flying, I smelled. People's sense might get accustomed to the smell, as we are in a toilet, and tend to regard the status normal.

Reflecting from now, this experience coincided with the timing, when several pollution lawsuits, such as asthma caused by smoke and soot emitted from industrial complexes and diseases caused by mercury released into the sea by chemical companies, emerged as a serious political issue. Such man-made calamities are continuously occurring allover the world even now. I witnessed polluted rivers with white bubbles and dead fishes, the ocean where grease balls were floating.

Some years later, as a regular crew, I was descending to an overseas city that boasted its world-renowned upscale residential area, I noticed that the city was settled down in the bottom of light brown air mass. However, at that time, air pollution was noticeable only over big cities. I could clearly see far beyond horizon through the transparent air, when I was cruising over the ocean.

Next issue drawn my attention, when I was cruising on air route, was tropical forests. Countries used to be covered by abundant green forests, which I had witnessed before, drastically changed its impression; green forests were taken over by vast grassland or agricultural landscape after a while.

A book I encountered, when I started worrying about those environmental changes, was Rachel Carson's "Silent Spring." In this book, Carson alerted the world; Dispersion of poisonous chemical substances would result in spring, when no birdies can sing.

I believe that birds connected me with this book, because I am a bird lover since my childhood. As I was read through the book, I was stumped to realize the fact that it was politically so difficult to have business enterprises suspend the production of causative substances.

When I first flew, the Earth seemed to me infinitely big, and, contrarily, I felt that human being was a tiny existence. However, the worldwide population then had exceeded 3 billion and kept mounting 70 to 80 million p.a (per annum).

Around 1970, approx. a decade later, U Thant, Secretary General of U.N. issued a warning; "Unless all the countries around the world work together to tackle the counter strategy against the blue planet's environmental deterioration within 10 years, it would get beyond the point of no return."

U Thant's warning was echoed by the Club of Rome's "Limits of Growth" that alerted– "Consumption of human being can never exceed the Earth's capacity."

Having read the "Silent Spring" and the "Limits to Growth," I started telling people

about the environmental deterioration witnessed by my own eyes from stratosphere. However, their typical reaction was; “Human beings are not idiot, we can manage through innovation of science technologies.” I also approached legislators, but they did not finish my explanation, simply turn off the recorder and left.

To the eyes of the people on the ground, four seasons were beautifully passing around, as if nothing had changed. The entire world entered in to the era of rapid economic growth, in which peoples’ consumption was doubling every several decades. That was the era when “consumption was virtue.”

Oil shocks had occurred, which could have been God-given opportunities to review the control of mass consumption, but the world did not turn the steering to the direction to slow down the economic growth, but instead, simply sought after new crude oil wells. Then the world entered 1980’s, the future U Thant had warned. Within the two decades, population of human being had increased by 1.5 billion and reached 4.5 billion.

As a consequence, in 1980’s, consumption of human beings exceeded the Earth’s alimentation capacity. (For details, please refer to Chapter 5 “Ecological footprint.”)

The fact was; ice on the Earth, including mountain glaciers and the Arctic sea ice, started melting tangibly, and many live species were annihilated during the period. A tangible change to human being denotes an instantaneous explosive shift, considering the pace of the Earth’s evolution with the unit of thousands or even millions of years.

After 1980’s, consumption that has surpassed the Earth’s capacity could not be purified and accumulated as residue. In proportion with the lack of counter measures, the residue was inherited to the future generations as more deteriorated environment for living creatures.

The crisis for human being does not exist in the inadequate energy resources but in the increase in the residual pollution. A typical example of this notion is the Global Warming caused by the residual carbon dioxide pollution.

By 1980’s, the jet stream blowing around the Earth started unprecedentedly heavy snaking. Cold air mass exists on the north side of the jet stream, and warm air mass on the south side.

When the jet stream snakes downward to the south, cold air mass comes down to the south along with the jet stream and may cause unseasonal heavy snow in the southern states in U.S. On the other hand, warm air mass goes up to the north, and Alaska might

be hit by an unprecedented heat wave.

As air temperature rises, moisture in the air increases. Enormous volume of latent heat energy is released, when the increased moisture becomes rain, which has created more and more volatile weather, such as gigantic hurricanes and cataracts of rain/snow. A typical example is a super typhoon generated by the warmer ocean temperature.

While aircraft's landing accidents had frequently happened caused by the strong downburst generated by cumulonimbus, we, airline pilots tackled trainings to escape from the downburst.

Around the same time, I had opportunities to climbed 3 mountains, between 5,500 – 5,800 meters high, in the vicinity of Mexico City. The glaciers and abundant snow I had witnessed at that time virtually disappeared, when I flew over 10 years later.

At the Everest which I tried to climb following my instinct, a highly experienced Sherpa pointed out a declination of glaciers.

Light brown air that existed only over mega cities, when I started flying, has invaded up to the altitude of 10,000 meter, when I retired. The clear horizon used to be viewed over the Pacific Ocean has become hazed.

Due to the polluted brown air mass in between, even Arctic ice seen from stratosphere didn't look pure white. The Ice on Greenland was like a snow melting ski resort during spring time.

Even after completion of my assignment in Italy, which had been extremely enjoyable, I went to Europe to trek around the Alps almost every year.

Feeling nostalgic about the scenery of those snow mountains, my wife and I visited there after a decade after my retirement and found the mountains with very scarce snow which gave me a totally different impression. The glacier that had reached my foot retracted to far away.

COPs (Conferences of Parties of United Nations Framework Convention on Climate Change) have been convened many times, however, those COPs' main objective is not to reduce overall consumption in order to revert back to the sustainable Earth environment, but only to reduce consumption of fossil fuel.

An international treaty, the Kyoto Protocol was managed to be agreed upon at the COP3 held in 1997. However, the protocol itself has been struggling to work effectively, as major countries that consume fossil energy most have defected from the protocol and/or refused to accept their quota. Number of conferences have been held

since then, but really effective counter strategies are being shunted aside.

The foundation that supported the mass consumption in the 20th century was cheap resources/labor in poor countries and mega transportation capacity thanks to cheap crude oil. This structure has not changed even now, and the gap between the rich and the poor is currently rampant among youngsters in rich countries.

The gap between the rich and the poor is, together with the global warming, is a major factor of the deterioration in environments surrounding living creatures, and simultaneously the Pandora's box, a source of evils all over the world.

What I had witnessed from stratosphere was the figure of the Earth where dirt generated through the human beings' consumption of various resources accumulated in the environment beyond its self-defecation capacity.

Science technologies that should have release human beings from constraints, actually connected with the freedom of greedy. The existence of human beings has become gigantic, while the Earth has been diminished due to heat wastage and off scouring generated through the mega consumption.

If viewed from the moon, human beings are riding on the vehicle without speed limiter and accelerating all in a fog, even though they realize that a wall surely exists in front of them. We can consume only up until we crush into the wall.

From my instinct, I am breathlessly watching whether or not we can screech to a halt in front of the wall. However, people seem to act as though they think; without boosting new energy resources, the engine would stall, put on the break only after an inspection of the speed meter or create an even faster vehicle, but how to stop the vehicle is none of their business.

Human beings really do not stop up until we hit the wall suddenly emerged from the dense fog.

Chapter-2

Outline of the Crises the Earth is facing

Crisis: Global Warming

Global Warming is being caused by an adverse domino effect: as human beings' consumption has exceeded the Earth's purification capacity, residual pollution from carbon dioxide has accumulated. Due to the greenhouse effects brought on by this increased carbon dioxide, the air temperature worldwide has risen and the Ice on the Earth has melted while oceans have swelled. As a result, the sea level has risen and the biosphere is now on the verge of a catastrophic debacle.

In the Earth's history, approx. 35 million years ago, the density of carbon dioxide was as high as 450ppm, and the air temperature at the time was 5℃ higher than now, due to the greenhouse effect. It suggests that there was virtually no Ice on the Earth, and the sea level was approximately 70 meters higher than the current level.

In 2013, the Intergovernmental Panel on Climate Change (IPCC) astonished the world by predicting that the temperature might rise by 2.6 - 4.8℃ by the end of this century. This statement is a virtual declaration of a state of emergency in the biosphere.

According to this temperature prediction, the biosphere is approaching the status of 35 million years ago, when there was no ice on the Earth and the sea level was approximately 70 meters higher than now.

The Earth's climate had started cooling down about 50 million years ago, and the Ice started to pile up first in Antarctica 15 million years later; i.e.(that is to say) 35 million years ago. The cooling down trend continued and the Ice started to build up in the northern hemisphere 3 million years ago, when the temperature had further dropped. The climate reached the current mild status suitable for living creatures, and human beings were hatched 200 thousand years ago.

Human beings have been reversing this cooling down process - 5℃ over 35 million years - within only 2 to 3 centuries after the Industrial Revolution, the latter 100 years in particular. In other words, we are turning the clock back to the age when there was no Ice on the Earth and the sea level was more than 70 meters higher.

Crisis: Extermination of Living Species

Living creatures have experienced near extermination 5 times every 100 million

years wing and a prayer survived each crisis to hand over hope to the present.

However, the number of living species suddenly started declining from about 1980; i.e. 100 to 200 species are being exterminated day by day.

This speed of extermination is extraordinary, said to be several hundred or even a thousand times faster than the last 5 crises. This fact might mean that the 6th peril of extermination has already begun.

The main cause of the extermination is human beings' mega consumption. Sudden and drastic climate changes in the bio-environment, such as global warming, could bring the extinction of living creatures that are not capable of adapting to the changes.

Human beings' influence over the Earth is gigantic. Living creatures' reproductive functions have been eroded by poisonous chemical substances and nuclear residue. Tropical rainforests have been logged away. We selfishly control all water, although it is the springhead of all life. Simultaneously, human beings have damaged the ecosystem by geographically importing alien species.

In the oceans, as 1/3 of carbon dioxide is absorbed by the sea, acidification of seawater is progressing at a dramatic rate. The acidification is causing a decrease in phytoplankton, the main resource to nourish sea lives, and reducing the sea population through deterioration of the oceanic ecosystem.

Whilst human beings cannot survive without gifts from other living creatures, if the current speed of extermination continues, all species would disappear within 3 centuries. Having said so, if human beings disappear first, the scenario would be totally different.

Crisis: Earth's Purification Capacity and Residual Pollution--Energy Shortage is not a Crisis

The Earth has various limitations, such as natural resources energy supply and the limited capacity to purify residual pollution. At around 1980, human beings' mass consumption exceeded the Earth's purification capacity.

The further increase in consumption after that caused the vessel, the Earth's purification capacity, to overflow, and remain unpurified as residual pollution. If consumption were to increase at the same rate as the current 3% economic growth rate, which doubles about every 23 years, residual pollution would double at the same speed.

For human beings, the future crisis does not exist in energy shortage, but in the increase of residual pollution generated by over-consumption of energy and other resources in line with economic growth. Global warming is one of the phenomena caused by the residual carbon dioxide pollution.

Dilemmas associated with all kinds of residual pollution including greenhouse gases, poisonous chemical substances and nuclear waste are becoming amplified year by year, which will be passed on to the next generation. It seems that we would face a huge wall within 2 decades from now.

The more belatedly we take countermeasures against the residual pollution issue, the greater the volume of accumulated residual pollution will become. The longer we put off undertaking those measures, the more the costs incurred by those measures would increase, at an exponential rate.

Those costs, in turn, would bankrupt the social maintenance/welfare budget, and we would face serious deterioration in the economic structure and living environment. A collapse of the economic structure would presage the drastic deterioration in the living environment.

If human beings do not take countermeasures to decrease their consumption to the level of the Earth's purification capacity by themselves, the Earth's environment would metamorphose into one that is too harsh for living creatures' very survival, and that status would continue for thousands of years.

When will we face the real crisis? Global Warming Conferences' Actions and Numerical Predictions

For ordinary people who are not specialists in environmental issues, it might be beneficial to have an understanding of the background behind the data announced by the global warming conferences. The common issue that is a root cause of the crises stated in this chapter is the fact that human beings' mass consumption surpassed the Earth's capacity in around 1980.

Among the 3 crises, the first 2 crises; i.e. rise in the sea level caused by global warming and extermination of living species, are progressing at a speed measured in hundreds or thousands of years.

Based on this notion, I thought in the standpoint of both scientists, who advise conferences on global warming, etc. regarding future predictions, and governments.

Government officials, whose terms are normally only a couple of years, tend to be more interested in whether or not the data predicted by scientists will adversely affect the actual economy and/or certain enterprises rather than the issue of degradation of the living environment 100 to 200 years from now.

On the other hand, scientists are expected to answer the tough questions, as if posed by a prosecutor, on the long-term forecast of the Earth's future, which naturally are far more difficult than a weather forecast.

Science progresses in line with the existence of an antithesis. Therefore, all kinds of scientific theories are destined to face scientists who advocate the antitheses. Under such circumstances, environmental scientists who are accountable for their explanations based only on yet unproven sets of data, are expected at conferences to bear the burden of defending their arguments against governments and scientists with antitheses

Consequently, environmental scientists can provide only very modest predictions; i.e. datasets introduced at conferences on global warming are very likely underestimated figures.

Those datasets do not contain a safety margin. Considering that even jetliners are designed with a big safety margin/redundancies, it is ludicrous not to build in a safety margin for the risk to our biosphere that should be given the maximum safety margin.

In this way, precious time is passing vainly on, but as the research progresses and governments change, the figures are revised to bigger ones at an accelerated pace. This trend becomes plain as day when one reads the reports from the global warming conferences over the past several decades.

Considering the global warming crisis predictions, in order to make long-term predictions of the inherent opaqueness of the rise in the sea level, I believe that it would be more reasonable for scientists to empirically infer their long-term predictions from actual macro examples; i.e. the long history of the Earth, rather than struggle to make up a cover story based on established micro theories.

Good references for predicting the speed and height of the sea level increase can be found in evidence left behind in geological Ice formations that trace back to sometime 130 thousand years ago, relatively recent history in terms of the Earth's lifespan. This evidence exhibits the fact that the sea level increased by 5 meters per 1℃ increase in air temperature at a pace of 5 meters per century. I believe such an approach when

formulating predictions is scientifically more reasonable.

From this evidence, we can predict that the sea level will rise by approximately 4 meters before the end of this century. In my opinion, the level currently predicted at global warming conferences is completely off the track of the earth's history.

Furthermore, considering the current status, in which 100 to 200 species are becoming extinct every day, we have no doubt already entered the period of annihilation of all life. Taking a micro-approach of protective measures for each endangered living species would not solve the problem.

The root causes of the crises are the issues associated with human beings' mass-consumption and residual pollution. At the current speed of extinction, all living creatures would disappear within 3 centuries.

This is not just somebody else's problem. This means the extinction of human beings. Thus, it is critical for us, human beings, to have a counter-strategy to control mass consumption, the root cause of extinction of living species.

I predict that the first direct crisis to hit human society would be the collapse of the economic structure due to the accumulated residual pollution. The collapse would occur through a vicious cycle; exponential increase in costs to treat "external diseconomy," such as residual pollution, overflowing levees, etc., which would hinder governments' ability to maintain other budget items.

If human beings unreasonably continue to pursue the current economic growth of 3%, both our consumption and residual pollution theoretically would double within less than 25 years, but that is physically impossible with only 1 Earth. We will face our fate, an instant economic peril someday within less than 20 years; considering the nature of money that circulates the globe instantly.

Chapter-3

Global Warming and the Survival of the Ice

Global warming and sea level increase from the perspective of the density of carbon dioxide and air temperature

This chapter outlines the current global warming situation based on premises that the density of carbon dioxide, air temperature and sea level are all interlocked, with a time lag.

The Earth's climate has been warming up mainly due to carbon dioxide emitted by human beings, and the Ice on the Earth starting to melt. White snow and ice are acting as the Earth's mirrors to reflect the solar heat. As the areas covered by the snow or Ice shrink, the amount of the solar heat reflected back to space decreases. The air temperature rises due to this effect and the reduced volume of the Ice.

As a result, the sea level rises due to the melted ice above the sea level plus the bloat of the seawater itself.

Reflecting back to ancient times, the Earth, which had been void of Ice for some time, had started to cool around 50 million years ago, and the Ice piled up first on Antarctica approximately 35 million years ago. The density of carbon dioxide was approx. 450ppm, the air temperature was plus 4 to 5℃ vs. today, and the sea level was higher than the current level by approx. 70 meters.

The Earth has continued to cool down since then and the Ice started to build up in the northern hemisphere around 3 million years ago. The estimated density of carbon dioxide was 340ppm, the air temperature was plus 2 to 3℃ vs. now, and the sea level at that point was higher by 25 meters.

The air temperature kept declining through the cycles of cold/warm periods, which thickened the Ice on the northern hemisphere.

About 8,000 years ago, both the density of carbon dioxide and the air temperature reached and stabilized at the current level, the same as the sea level.

The academic definition of a glacial age is the status in which large ice masses, called ice sheets, exist. Thus, we are now in a glacial age. Within a Glacial age, there are 2 stages; i.e. 1) glacial stage that lasts approx. 100 thousand years and 2) interglacial stage that is relatively mild but has Ice, normally lasting 10 thousand years. We are now in the late phase of an interglacial stage. Interglacial stages come between

glacial stages every 100 thousand years.

Thanks to the advancements in scientific research technologies, the fluctuation data on the air temperature/density of carbon dioxide/sea level since approx. 400 thousand years ago up until now can be obtained with a high degree of accuracy.

Homo sapiens were born about 200 thousand years ago, during the 2 previous interglacial stages, and have survived 2 lengthy glacial stages. Though there are temperature fluctuations during interglacial stages, the highest temperature was about plus 1℃ vs. now.

Although the air temperature during an interglacial stage 130 thousand years ago was plus 1℃ vs. now, the sea level was 5 meters higher than the current level. This evidence tells us how high the sea level would rise, if the air temperature were to rise 1℃ from the current level, and the result would be quite accurate thanks to the advancements in research data accuracy.

During the glacial stages, the air temperature drops by approx. 5℃ vs. now, and the density of carbon dioxide declines to a level of about 170ppm. As a matter of fact, during the glacial stage 20 thousand years ago, the Earth was frozen, and the sea level was more than 100 meters lower than now. Evidence also indicates that virtually the entire territory that is now Canada was covered with the Ice, 2 to 3 thousand meters thick.

It takes a time span of thousands or even tens of thousands of years for the Ice to get thicker, as the Ice freezes through cycles of snow accumulation. Contrarily, at the end of glacial stages, when the air temperature rose, the Ice rapidly melted, and the sea level rose 4 to 5 meters every 100 years.

Inferring from this history, even if the predicted sea level rise reported at the recent IPCC global warming conferences is as little as less than 1 meter toward the end of 21st century, the Ice will keep melting at an accelerated speed, and the sea level would rise drastically. This ominous prediction is attested to by the fact that the predicted air temperature and rise in the sea level has been getting higher with every global warming conferences declaration.

The threshold of the existence of the Ice will be surpassed in 25 years – Targeted figures of global warming conferences

Reflecting back on the history of the Earth's atmosphere through a time span of 35

million years, roughly speaking; a 1℃ increase in the air temperature vs. now would ultimately lead to 5 meters rise in the sea level, a 2 to 3℃ increase would melt down all the Ice in the northern hemisphere and the sea level would rise by 25 meters. If the temperature rises more than 4 to 5℃, the Ice in the Antarctica would melt away and all the Ice on the Earth would disappear; then the sea level would rise by approx.70 meters. This was the saga of the Ice on the Earth.

And in the modern age, the density of carbon dioxide was 340ppm in 1980. With this level of the carbon dioxide density, the air temperature gradually rises up to 2 to 3℃, which is the threshold for the survival of the Ice in the northern hemisphere.

Since those days around 1980, mountainous glaciers started melting down tangibly and, as a matter of fact, the Ice in the northern hemisphere is approaching the verge of extinction. At the moment, the Ice on the North Pole has approximately halved, and the Ice in Antarctica and Greenland has started melting. If all the Ice in the northern hemisphere disappears, the sea level would rise by 25 meters.

According to literature, around 1980, the pollution generated by human beings' mass consumption had exceeded the Earth's purification capacity, which can be proven by the fact that living species started to be extinguished rapidly.

I say again that the synchronicity of the emergence of 3 thresholds; i.e. mass consumption, rapid extinction of species of organisms and endurance of the Ice in the northern hemisphere was not a product of chance, but evidence that the Earth had reached a threshold of its capacity.

In 2015, the density of carbon dioxide has surpassed 400ppm and keeps increasing 2ppm p.a., which will reach 450ppm by 2040 - only 25 years to go.

With regard to the perils of global warming, the first threshold we had faced, which human beings should not have exceeded, was the carbon dioxide density of 340ppm we encountered at around 1980. As a result, the Ice in the northern hemisphere started melting down.

The next peril waiting for us comes when the density of carbon dioxide surpasses 450ppm, at around 2040. The abyss we will face is the Earth with a sea level approx. 70 meters higher than now with no Ice in sight.

At the IPCC, environmental scientists issue future predictions, which is generally regarded as considerably modest, however, that could underestimate the real status, since the contents of the reports are established based on intergovernmental

consensus and tend to reflect enterprises' intentions. This inference can be proven by the fact that reported figures are increasing each time.

The same IPCC reported the prediction of 2.6 to 4.8℃ increase in temperature by the end of 21st century. This fact suggests that the biosphere has entered an emergency situation.

According to the IPCC's prediction, the sea level will rise less than 1 meter by the end of the century. Having said so, as the reported figures have been increasing each time, more than a 1-meter rise could be a more realistic prediction. The reports do not even refer to the situation in the 22nd century and thereafter.

As I briefly touched on earlier, the history of the Ice since 400 thousand years ago is quite clear, I strongly urge all stakeholders to take counter-strategies based on history, not stick to their own interests/speculations and postpone those actions that are only justified by self-serving logic/theories.

Among those environmental counter-strategies, the most crucial one is to suppress the density of carbon dioxide with a target of maximum 340 ppm. Even with that target, the air temperature would rise by 2 to 3℃ and the sea level would rise approximately more than 20 meters, and the Ice in the northern hemisphere would virtually disappear.

Since the first IPCC, a quarter century has already passed, while valid counter-strategies are still being postponed, and we will be facing an Earth with a carbon dioxide level of 450ppm within another quarter-century. Still, the world does not seem to have any intention of stopping economic growth.

In physics phenomena, thresholds exist which denote the points of no return; i.e. once a phenomenon exceeds a certain point, the phenomenon has become irreversible, which is also applicable to the Earth's limitations.

If 450ppm is the threshold for the Earth's capacity, once carbon dioxide has exceeded that density, it would continue to rise, synchronized with the air temperature, until the circulation of carbon stabilizes, even though the emission of carbon dioxide is halted at the threshold. This is like screeching to halt just a second before crash.

How are the world's leaders trying to react against such a situation? According to the outcome of the 2015 COP21 they has set a target of plus 1.5 to 2℃ vs. the period prior to the industrial revolution as the limit of the air temperature, and 450ppm as the density of carbon dioxide, the latter of which was not clearly declared though.

Comparing these targets with the Earth's history, plus 2℃ is equivalent to the age

of 3 million years ago, when the Ice in the northern hemisphere had just started building up and the sea level was approximately 25 meters higher than the current level.

Far worse, 450ppm is the density of carbon dioxide which is equivalent to the degree in the period 35 million years ago, when there was no Ice on the Earth and the sea level was 70 meters higher than the current level.

From the viewpoint of the Earth's history, these targets seem to be incoherent. Are they products of political compromise? We can see through to the future the world leaders actually predict; i.e. giving up on the survival of the Ice in the northern hemisphere, and accept the rise in the sea level by higher than 10 meters.

Dr. James Hansen, a harbinger scientist who delivered a stark warning on the crisis in the domain of climate change, initially had proposed a target of carbon dioxide at 450ppm, but reduced it to 350ppm later, and is currently warning that even a 2℃ increase is dangerous.

Density of Carbon Dioxide, Air Temperature, Sea Level and the history of The Ice

Chronological examinations might help us to comprehend the situation, and, thus, I will roughly sketch the history of the Earth and the activities of human beings. Due to space constraints, I have started the history after the extinction of dinosaurs and the time frames contain a margin of error.

The most impressive event in the history outlined below, which I came across while I was preparing the chronological chart, was the birth of us, human beings. At the very last stretch, human beings were born as extremely feeble creatures. That very species, human being, has come to drastically alter the environment surrounding living creatures.

65 million years ago – An asteroid of 10km diameter crashed onto the Yucatan Peninsula.

Dinosaurs that had flourished for about 150 million years, together with almost all other living creatures became extinct. The Ice did not exist on the Earth.

Starting at 200 million years ago, the Gondwana continent had started cleaving and its divided sections were drifting, and the drift of the existing continents continued during this age. Frictional heat caused by the continental drifts is associated with

global warming.

50 million years ago – The density of carbon dioxide was approx. 1,400ppm. The air temperature was 10℃+ higher than now. The Ice did not exist on the Earth.

The air temperature at this time was one of the highest. Alligators were said to be living in what is now Alaska. In other words, the Arctic region was as hot as the tropical regions are today. But, this was the turning point, and the Earth started cooling down as it headed toward the modern age.

There are various hypotheses for the reason why the air temperature was idiosyncratically high. One dominant hypothesis attributes the cause to the interaction during the following process: the Indian subcontinent that had split off from the African continent drifted at high speed and crashed into current Eurasia. The drifting speed of the Indian subcontinent was exceptionally high, and the frictional heat caused by the drift melted down the methane that had been frozen on the undersea continental shelf. As a consequence, a massive amount of methane, which is known for its powerful greenhouse effect, was released in to the air. This methane is said to have increased the air temperature at an unprecedented rapid pace.

When the aftermath of the crash of the Indian subcontinent had died down, the density of methane and carbon dioxide gradually reduced. As a result, the air temperature had rapidly dropped by 35 million years ago, and, thereafter it continued to decline toward the current mild climate.

35million years ago – Air temperature plus 5℃ and carbon dioxide density approx. 450ppm.

After a long absence on the Earth, the Ice started building up in Antarctica, but no the Ice existed in the northern hemisphere. In this way, the Ice began its existence on the Earth after the turning point of 35 million years ago.

With a carbon dioxide density of higher than 450ppm, no Ice can exist on this Earth.

3 million years ago – Air temperature dropped to as low as plus 2℃ vs. now. Estimated carbon dioxide density was 340ppm, and the Ice started piling up in the northern hemisphere. Sea level was higher than the current level by 25meters.

The Earth kept gradually cooling down. The Ice piled up in the mountainous areas

and the sea level dropped. Both Greenland and the Arctic sea were covered by ice. The majority of publications define the Earth's entry into the glacial age at around this period.

The glacial age can be divided into glacial stages that last almost 100 thousand years and the interglacial stage, in which the Ice exists but the climate is a little bit warmer than the glacial stage. The interglacial stages last about 10 thousand years.

(At the moment, we are in the latter part of an interglacial stage, and are supposed to enter the next glacial stage. However, the climate is heading in the opposite way; i.e. global warming due to human beings' activities.)

Even within interglacial stages, there exist temperature fluctuations. As a matter of fact, there were some periods when the temperature was warmer than now; i.e. the temperature was plus 1℃ vs. now, and the sea level fluctuated between levels 2 to 5 meters higher than now.

The density of carbon dioxide fluctuated between 280ppm in interglacial stages and 170ppm in glacial stages. At least within the last 400 thousand years, the density has never exceeded 300ppm up until 20th century. In glacial stages, the air temperature plunged to minus 5℃ vs. now.

There is a cycle of about 100 thousand years between an interglacial stage and the next interglacial stage. This cycle is said to be caused by the fact that the Earth's orbit is not a perfect circle due to the axial tilt of the Earth and the influences of other Earths' gravity, mainly that of Jupiter.

200 thousand years ago (the 2nd previous interglacial stage) – Homo sapiens were born. Homo neanderthalensis had been born slightly earlier.

130 thousand years ago (the previous interglacial stage) – Human beings probably started using fire around this time.

The air temperature was plus 1℃ vs. now, and the sea level was 5 meters higher than now. Evidence indicates that the sea level had risen by 2 to 3 meters in 50 years, which suggests where the current temperature increase is going to end up.

70 thousand years ago – It is said that human beings already started to use languages. During the era, the Toba Volcano on Sumatra had erupted and the air temperature

plunged due to the dust cloud that shaded the sunlight. A dark, cold climate lasted, incredibly, for more than 5 thousand years, and human beings were virtually annihilated. Only a few thousand human beings were said to have survived this era in the entire world.

All the existing 7 billion human beings are the descendants of those few survivors. Another Homo, Neanderthalensis, another species under Homo, also had survived the period, but was annihilated several tens of thousands of years later.

The scale of Toba's eruption was said to be 3,000 times larger than the 1980 Mt. Saint Helena's eruption in the U.S.

Note: I personally experienced the magnitude of the Saint Helena eruption, as I was at a place only 150 km east-northeast away from the volcano right after the eruption. The summit was blown off and the altitude of the mountain has lowered by almost 500 meters. The scale of Mt. Toba's eruption, 3,000 times larger than the Saint Helena is beyond my imagination.

20 thousand years ago – This period was in a glacial stage, and the temperature dropped to minus 5℃ vs. now. The thickness of the Ice that covered what is currently Canadian territory was between 2 to 3 thousand meters, and the sea level was more than 100 meter lower than the current level. Even a 5℃ air temperature difference could change the Earth's environment so drastically. Canada's current rich water resources derive from the Ice that accumulated deep underground.

At the end of this glacial stage, the temperature had started rising as the Earth moved toward the interglacial period. When the sea level was getting higher due to the melting Ice, Mongoloids passed through the Siberian tundra, and crossed over the Bering Strait, then continued on by land, on account of the lower sea level, to the American continent. At the moment, the depth of the Bering Sea is approximately 50 meters.

Reflecting back today, human beings have survived twice through long and harsh glacial periods.

10 thousand years ago – World population was only a couple of million.

Human beings discovered agriculture, an avenue for life different from other living creatures.

8,000 years ago – The sea level stopped rising, and it has remained at a stable level for 8,000 years, up until the modern age. As a matter of fact, such a lengthy stability in the sea level was historically extremely rare. Settlements had developed near seashores, and the stable sea level was a prerequisite for their existence. Large-scale agriculture had become feasible and the population started to become concentrated. Surplus and/or predation had enabled settlements to grow into cities, and their population further increased. Human beings entered into recorded history tangibly shown in the antiquities exhibited in the British Museum.

At around the advent of A.D. – Human population: 100 to 200 million. Forests started diminishing due to usage of wood fuel and slash-and-burn farming.

A.D. 1,800 – Human population 1 billion. Density of carbon dioxide was 280ppm. As population increased to the extent European forests could afford, the forest dependent culture was taken over by the industrial revolution with its coal dependent civilization. Both the steam engine and the electric light were invented in that era.

A.D. 1,900 – Human population 1.5 billion. (reached 2 billion in 1927 A.D.)Advent of the aircraft.

A.D. 1950 – Human population 2.5 billion. Advent of oil dependent civilization and the era of mass consumption. (Japan surrendered in 1945) First commercial nuclear reactor started operations.

A.D. 1960 – Human population 3 billion. Advent of the jetliner. Mass transportation of goods by gigantic oil tankers commenced. Chemical substances, smoke and soot, pollution in rivers and oceans started drawing people's attention. A red signal came on against the economic growth.

A.D. 1970 – Human population 3.7 billion. Oil shock.
Controversy about global environmental issues spread.

A.D. 1980 – Human population 4.5 billion. The year when human beings' activities surpassed the threshold that the Earth could afford.

Living species started decreasing rapidly. The Ice in the northern hemisphere started melting. The density of carbon dioxide was 340ppm, which is the upper limit for the existence of the Ice in the northern hemisphere.

Around this time, the U.S. government drastically loosened up its progressive taxation scheme (under the Reagan administration). The gap between the rich and poor significantly widened.

A.D. 2000 – Human population 6 billion. Carbon dioxide density 370ppm.

The Gore vs. Bush incident at the time of the U.S. presidential election became a noteworthy trial in thinking about the future of the global environment.

The Kyoto Treaty that stipulated the rules on the reduction of greenhouse gases came into force in 2004. However, the treaty could not work as expected due to the defection of the U.S., under the Bush administration, and China for the reason of disadvantageous impact on their economies, along with other countries' refusal to comply with the carbon dioxide reduction quota.

A.D. 2013 – 7.15 billion human beings.

IPCC announced its prediction for the temperature increase by the end of 21st century; 2.6 to 4.8℃ vs. 2000. Conservation ecologists announced that approximately 200 species of organisms are annihilated every day. According to them, this rate is hundreds, or according to some scientists even a thousand times, faster that the last 5 extinction events. Without countermeasures, all species of organisms would be extinct within a couple of centuries. Having said so, in case human beings are annihilated before that, the situation might be different. Human beings are dependent on the lives of other living creatures in every aspect, including foodstuffs and drugs, etc.

A.D. 2015 – Human population 7.3 billion.

The density of carbon dioxide has exceeded 400ppm, and is still rising by 2ppm per year. This can be considered an emergency situation; it may surpass 450ppm in 2040, 25 years from now.

Once the density of carbon dioxide exceeds 450ppm, the air temperature would, in sync, increase by 5℃ vs. now. The sea level would also keep rising and ultimately reach approx. 70 meters higher than the current level.

Super-greenhouse gas Methane

The major cause of global warming is the usage of fossil fuels, and the main agenda of global warming conferences is the reduction of carbon dioxide.

However, on top of carbon dioxide, we should focus on methane gas that is said to have a strong greenhouse effect 30 times more powerful than carbon dioxide. The majority of the methane existing on Earth, a quite gigantic volume, is still dormant and frozen under the continental shelves and/or in tundra.

I am not very familiar with chemistry, but let me attempt an explanation. When the carcasses of living creatures deposited on the continental shelves and under the ground degrade, in case there is oxygen, carbon dioxide is generated. On the other hand, without oxygen, methane is generated. Methane frozen under the seabed or tundra is called methane hydrate.

Therefore, once the temperature of the ocean and soil surrounding the methane hydrate rises, the methane evaporates into the atmosphere and becomes oxidized, which produces an intense greenhouse effect.

Geothermal heat in the tundra area, permafrost soil, has risen, and the frozen methane starts evaporating. Warming of 1℃ at the equator denotes 3℃ temperature rise in the (ant) arctic regions. Thus, it is easier for both the Ice and the methane in those areas to melt/evaporate.

Even though the Earth has a self-regulation function to maintain the density of carbon dioxide at a certain level, this function would become dysfunctional if the global warming progresses too fast due to human beings' overwhelming influence. Once the density of carbon dioxide exceeds a certain threshold, the air temperature would become uncontrollable, whatever counter-actions human beings might take.

A big problem now is the fact that human beings are trying to develop this methane hydrate dormant under the deep-sea beds as their new energy resource.

Considering the difficulty in preventing underground leakage into water supply systems, it may be impossible to prevent leakage of methane from the methane hydrate rigs. The effect of the leakage of methane is equivalent to carbon dioxide emission of

30 times as much, which would accelerate the global warming in a burst of speed.

Even though human beings face energy shortages for economic growth, consuming coal and dangerous Methane that generate far more pollution to fulfill the shortage is absolutely absurd, considering the welfare of the forthcoming generations.

As I introduced previously, the global environmental issue is not related to energy shortage, but has to do with the issue of residual pollution.

Instead of shifting to coal, a combination of taxation scheme reformation, which deters consumption, and utilization of existing oil and associated facilities would be a more efficient way, in terms of both pollution management and cost, to recover a rich circulatory environment. I believe that is the shortest avenue to establishing a sustainable society.

Earth's environment is drastically changing – Tangible change denotes 10 thousand times fast-forward film from past history

We have a sense that an individual human being is a feeble existence and does not possess the power to influence Mother Nature. Having said so, human beings as a whole now possess a huge influence over the Earth through science and technologies; e.g.(for example) expansion of largescale machines, diffusion of industrial chemical substances after the industrial revolution, birth of mega enterprises and mass production.

Its population has quadrupled since the advent of the 20th century, which has amplified the power of human beings by a factor of more than 10 thousand. Furthermore, we started utilizing nuclear power that is associated with the birth of stars.

In particular, in the latter part of the century, when human beings entered the civilization of mass transportation utilizing oil, their influence over the Earth has become enormous. Within only half a century, human beings have significantly altered the shape of the atmosphere, oceans, mountains and rivers, aiding the annihilation of species of organisms.

I feel that, amongst human beings, an unconscious moral tone is prevailing that infers that, even though we conquer nature and problems arise, we can solve those problems using our science and technology.

This moral tone, combined with the freedom to be greedy, drove us to mass

consumption. As a result, the Earth that used to be believed to possess infinite capacity has started transforming visibly, caused by human beings' influence.

What kinds of transformations has the Earth experienced? Reflecting back on its life, one significant transformation was the drift of continents. There used to be only one supercontinent on the Earth prior to 200 million years ago, which then split and drifted to become the existing continents.

The existing continents are said to have drifted and then gathered to form a supercontinent within a period of several hundred million years. Continents repetitively drift due to circulation of the Earth's mantle. What a magnificent, romantic saga!

Although the continents' drift is only a couple of centimeters per year, this cannot be observed by short-lived human beings. This is truly a gigantic transformation of the Earth. It takes a time span of tens of thousands or even hundreds of millions of years for the Earth to transform.

This saga denotes that the recent visible transformations of the Earth that have occurred in the last 100 to 200 years caused by human beings' mass consumption were cataclysmic changes in its life. Even though those changes endanger living environments, to the eyes of short-lived human beings, they look like only languid changes. Therefore, those changes do not trigger any sense of crisis, and days are passing by idyllically.

Even though the changes look very slow, if those changes were visible, the changes would be explosive phenomena considering the life span of the Earth.

The Ice meltdown in last couple of decades is indeed an explosive change and the biosphere is now in an emergency situation. This is another piece of evidence that tells us that human beings' mass consumption has exceeded the Earth's capacity.

What human beings are doing is turning back the history of the Earth; the air temperature that had cooled down by 4 to 5℃ over 35 million years, is returning to its original level within only a couple of centuries through global warming!

In terms of the density of carbon dioxide in the air, human beings have caused it to change 2ppm per year, which Mother Nature had been changing at a pace of 2ppm per 10 thousand years. Human beings' influence over the Earth is tens of thousands of times bigger than that of Mother Nature. How gigantic it is. This looks to me like a 10,000 times fast forwarding film on the Earth's life.

I clearly recall an article in which a "great" enterpriser said in the era of rapid growth fifty years ago; "If Japan needs more land, why don't we scrape against mountains to use the soil for reclamation. Young people should have these kinds of big, dynamic ideas."

Intelligence, greed, science and technologies that do not respect life, have now turned into lethal weapons, and are threatening not only human beings, but also the entire biosphere.

The Ice thaw – current status

Based on the history of the Ice's rise and fall, it used to be believed that it took thousands of years for alpine Ice and/or ice sheets covering the (ant) arctic to melt down due to climate change. If that is the case, we can take our time to think about countermeasures.

However, considering the recent situation, scientists have started thinking that the slow pace of the Ice's fall is rather attributable to the fact that the natural temperature itself had been changing at a slow pace. The Ice responds sensitively to the air temperature and melts down fast.

Due to rapid rise in the air temperature since the advent of the 20th century, not only the Ice on high mountains, the Arctic and Greenland, but also Antarctic ice sheets actually started melting at a visible pace.

The Arctic Ice has halved and the Ice on Greenland and the Antarctic started melting. Antarctic ice shelves that protrude onto the ocean started rapidly collapsing at around the year 2000. We can easily access visual images that show the alpine meltdown and the retreating Ice.

Puddles of water started appearing on the Ice in Greenland. Photos show the water flowing and creating holes in the ice sheets, and then vertically draining away into the holes. What's happening beneath the holes?

Greenland's actual landscape is quite different from the white wedge shape shown on maps. Cartographs of the Arctic Ocean Floor attached to Aeronautical maps show a shape that resembles a human's left ear. About 30% of the lower left side of the white ice sheet consists of a big cove, where the bottom of the ice sheet attaches to the ocean. As ice is sensitive to the sea temperature, it starts melting from the bottom part when the sea temperature rises.

One of the significant points of the 2013 IPCC is its forecast that the air temperature would rise by between 2.6 and 4.8℃ and the sea level would rise less than 1 meter by the end of this century, however the report does not refer to the following centuries.

If the temperature rises by approx. 5℃, even if some of the Ice would survive until the end of the century, virtually all of the Ice on the Earth would disappear. The meltdown of all of the Ice ultimately means 70 meters rise in the sea level. This is nothing other than a cataclysmic event as far as the Earth's phenomena are concerned.

Reflecting back on the saga of the Ice on the Earth, that is highly likely to occur. Whilst ice melts down very quickly, it takes several thousands or even tens of thousands of years for the Ice to regain its original thickness through the cycle of snowfall and meltdown.

Damages caused by Global Warming

If the changes are not visible, human beings don't care and take no action. However, countermeasures taken only after the change has become visible, are too late. Conceptually, the various circulations of the Earth synchronize every 20 to 30 years, which denotes that pollution would become visible only after spreading widely across the environment through the circulations.

We can realize that the color of the water in a swimming pool has changed, only after a large amount of ink has been poured into it.

Earth's history suggests that 1℃ global warming denotes 5 meters rise in the sea level. Only 1 to 2 meters rise in the sea level would swallow islands and the megalopolises that developed on plains near the mouths of rivers or on seashores. Global maps that mark the predicted sea level rise by the unit of 1 meter would be a good reference for us as we work to establish future countermeasures. The reclaimed lands would sooner or later face their destinies; swallowed up by the sea.

You can imagine the situation: a very slow Tsunami hits and stays. Hundreds of millions or even billions of people who cannot live on islands and/or plains/fields would become global warming refugees. They will cross borders and may cause riots. At the point such a situation occurs, the global economic/social systems may have already collapsed.

I personally saw a picture showing houses caved in and roads interrupted due to the

Tundra melting. If a significant volume of methane contained under the Tundra were released into the air, global warming would accelerate even more.

Once the air temperature rises due to global warming, theoretically, water vapor in the air drastically increases. Increased vapor in the air would lead to increase in the volume of rainfall. When saturated vapor metamorphoses into clouds and rainfall, an enormous amount of latent energy is generated, which intensifies wind velocity, both vertical updrafts and downbursts. Cumulonimbus clouds become gigantic and cause phenomena such as the recent torrential rainfalls and/or heavy snow. Record-breaking meteorological events are increasing.

As a matter of fact, typhoons are getting stronger and tornados, something that had rarely been observed in Japan, have increased. Associated with those phenomena, mudslides and floods break out that destroy houses and causes complex sets of calamities, such as inundations and breeches of levees.

Theoretically, the wind pressure increases at wind velocity squared and, roughly speaking, damage caused by a windstorm would increase by 40%, when the wind velocity increases by 20%.

Damage caused by weather anomalies is getting more and more disastrous, which could be proved by the amount of casualty insurance claims. In this aspect, I count on big business to tackle environmental issues in a more sincere manner. Even less than a 1℃ temperature rise is causing this devastating situation.

As global warming advances, snowfall would no longer accumulate in the mountains. That leads directly to droughts in the summer. Even though changes in global meteorological patterns deteriorate living climates, people cannot move easily. What would happen if a homeowner has a 30-year mortgage? Entrance barriers for the countries with relatively good dwelling environments would become even higher.

Mega projects that take a couple of decades to undertake would likely face the collapse of the global economic structure before completion. Even if they are lucky enough to reach completion, maintenance thereafter would be unaffordable. What will be the fate of the processes and costs of nuclear reactor decommissioning that is said to take more than 40 years?

At the risk of sounding importunate, the biggest damage to the mankind and the biosphere caused by global warming shown by the saga of the Earth would be the scenario where a 5℃ increase in the air temperature reverts the Earth back to the past,

35 million years ago. The Ice disappears from the Earth, the sea level rises by approx. 70 meters, and the situation would last tens of thousands of years.

Living creatures that are not capable of adapting to a temperature rise of less than 1℃, as the warming pace is too quick, are heading toward annihilation.

At COP21 held in 2015, finally after 21 efforts, a consensus has been reached. But I regret about the fact that human beings had already consumed several decades for nothing. An implicit understanding - if my country/ethnicity can survive, that would be fine - seems to have been fostered among the great world powers.

Global warming and the drift of continents – Saga of Earth and human beings' influence

165 million years ago, it was 100 million years older than the annihilation of dinosaurs, there was a supercontinent floating on the Earth's ocean. The supercontinent broke out and each part started drifting. It was like a disassembling jigsaw puzzle; the Americas broke off from the African/ Eurasian continents. Hundreds of millions of years later, those continents coalesced again to form a supercontinent. What a saga of Earth!

All substances in cosmos repetitively circulate and metamorphose along with the flow of an infinite number of elemental particles. This saga of drifting continents, as a matter of fact, is related to global warming.

During the drama of the continental breakup, the Indian subcontinent split from Africa and drifted north at a pace of 20 cm per year, which was 10 times faster than the other continents' drifting speed. The reason for this high-speed shift was the relative thinness of its landmass.

During the drift, Indian subcontinent produced an enormous volume of greenhouse gasses; i.e. methane and carbon dioxide, frozen on the seabed, melted due to the intense friction heat. Whilst the Indian subcontinent was crawling northbound like an animal, the greenhouse gasses released into the atmosphere caused an acute rise in the air temperature.

It was 55 million years ago, when the air temperature surged instantaneously during this period of global warming caused by the drift of the Indian subcontinent.

This happening was named "surge in global warming," and attracts some scientists' interest. There are various hypotheses on the causes of this event. One of dominant

hypotheses is; there was a point on the seabed where a distinctively large amount of methane, a gas that possesses a greenhouse effect 30 times more powerful than carbon dioxide, had been dormant. When the Indian subcontinent passed over the point, the methane blew up.

Whilst we call this surge a happening, the temperature rise was only 5 to 8℃, and that instant denotes thousands of years in the Earth's life.

On the other hand, human beings are causing similar temperature increases only within 1 century. Human beings' influence over the Earth overwhelms this happening. If human beings set off such drastic shock waves, the Earth's biosphere will never be able to maintain its security and peace.

The Indian subcontinent advanced further northward, causing the air temperature rise, and crashed into the current Eurasian continent 50 million years ago. It crawled under Asia for as long as 2,000 km from the seashore, and upthrusted Eurasia. Thus, the greater Himalayas were created.

When the crash had halted, the reduction in the emission of methane and carbon dioxide ushered in the era of global cooling. As a result, the Ice started building up in Antarctica 35 million years ago for the first time after the lengthy warm period. Thereafter, the Ice had appeared in the northern hemisphere 3 million years ago, and mild climates suitable for living creatures lasted up until the modern age. Then, human beings came into the world, and, now, I'm here.

I went mountain climbing all the way to Everest which, at that time, was still tranquil. On a rocky ridge at 8,000 meter high, I encountered a yellowish geological layer, in which a marine organism rested in peace. I can vividly recall myself thinking about the past, 50 million years ago, and listening to the creak derived from the bowels of the Earth that bore the massive mountain.

Even 1 mm upthrust per year would generate a mountain 8,000 meters high in 8 million years. I heard that the Himalayas are upthrusting even now, which is evidence that the Indian subcontinent has not completely halted its crawl under the ground.

Human bonds: Unprecedented heavy snow

In the last 10 thousand years, the Earth's climate has been relatively stable. Scientists say; "it is quite rare in the Earth's history that the sea level stays stable for such a long period." There were the glacial stages in the last tens of thousands of years,

when the temperature was lower than now by 5℃, the majority of the Earth's surface was snowed in, and the sea level was lower by 100 meters. Those stages were extremely harsh for living creatures.

Since the dawn of its history, human beings have suffered from heavy snowfall, endured heat waves and survived famine caused by the Earth's climate changes. I can imagine how our ancestors survived adversity, and handed over life to the following generations.

When I retired from my job as an airline pilot, alpine glaciers viewed from the stratosphere had obviously retreated and snow accumulation had decreased. I personally realized, while I was flying, that meteorological phenomena are getting more and more volatile.

A decade had passed since my retirement, with which I sensed a crisis - climate change - and another decade has passed since I moved to a village in the bosom of beautiful mountains in Yamanashi.

In 2 decades, environmental deterioration could have advanced substantially. However, I cannot sense any omen of climate change or meteorological havoc, as I personally spend my days surrounded by scenic beauty, where the four seasons are rotating handsomely.

Although the media occasionally broadcasts scenes of heavy snow, floods and tornados, it might be quite natural that ordinary people rarely possess a sense of crisis.

In the mountain village where I live, we normally had only two or three snowfalls per year, and the snow never accumulated more than 20 to 30 cm. For us, snowfall meant one of the gifts given by the four seasons.

However, in February 2014, an unprecedented heavy snowfall hit the calm mountain village. Transit was paralyzed, which made us realize the importance of rice as a non-perishable foodstuff.

All the extra work I needed to do was to remove snow from my room's skylight window, as I was afraid of the window being broken due to the weight of the snow. Other than that, we had no emergency incidents, such as a blackout or disrupted water supply. I could have some 5 days of free time in my isolated home to think about various things.

Even in an isolated home, I didn't feel lonely with my heart warmed, when I visualized the smiles of our neighbors & village folk and people who always cared

about my wife's health condition. However, I thought about people who needed dialysis treatments, but could not visit the hospital due to the paralyzed traffic.

What I noticed while I was snowed in was that we could depend on the warmth of people's hearts. Currently, we feel it's quite normal to depend on public services in case of natural disasters. 1 week to 10 days of isolation could be O.K. What we need to do is just simply live with some inconvenience during the period.

However, if roads were impassable and the blackout was to continue for a month, some aged people living alone would starve to death or end up dying a solitary death.

In such a situation, we acutely feel how dependent we are on the connection with the outside world to live. I could not see human figures. Only a scattering of houses could be seen in the snowy world. Ancient people surely needed to depend on human bonds hearts yearning and caring for each other - to survive the harsh natural environment.

The TV was broadcasting what actions the local governments were taking. From the interviewee's expression, I thought of the human bonds among solitary contemporary human beings. Such important bonds with dear, close people could be diluted through impersonal monetary ones.

As a matter of fact, there really exist people who are suffering from mental trauma. Those are the people who lost their human bonds and lived lonely lives in temporary housing built after the collapse of communities caused by the catastrophe of the massive earthquake and Tsunami.

As global warming advances, meteorological havoc will surely increase due to increased moisture vapor in the atmosphere. On top of the disaster contingency planning, immense costs incurred by countermeasures for environmental pollution and safety related activities would deteriorate the social structure, in which people depend on somebody, due to budget shortages.

A new era of ancient societies would be revived, where the closest people nestle up and depend on each other.

I think of the human bonds between our ancestors who had depended on each other since hundreds of thousands of years ago and handed over life to the following generations.

Earth and the fate of human beings

I thought that human beings would be able to survive as long as 5 billion years, the

same as the life span of the earth, if we live harmonized with the Earth, but maybe I was wrong.

The Sun is said to heat up by 1% every hundred million years. When the Sun heats up, the Earth's feedback adjustment mechanism works to contain carbon dioxide on the inside of the Earth. If that is the case, after a couple of hundred million years from now, due to the lack of carbon dioxide in the atmosphere, existing living creatures, including human beings, dependent on photosynthesis would not be immune to the fate of disappearance..

At that stage, human beings could emit immense amounts of carbon dioxide into the air to compensate for the shortage of carbon. However, that means the Earth dashing toward a world as hot as hell through accelerating global warming.

The history of living creatures that have survived 3.8 billion years would end within several hundred million years. If no living creatures exist on other Earths, life consisting of elementary particles would disappear from the universe.

If the Sun further heats up, oceans on the Earth would evaporate. As the greenhouse effect of water vapor is intense, the Earth would be further warmed up and all the carbon dioxide and methane contained within the Earth would be released into the atmosphere. Those gasses surround the Earth and accelerate the global warming.

Furthermore, water moisture would be decomposed and flow out into space. Water on the Earth would disappear and its climate would become one identical to the perfervid Venus.

The Sun heats up further and will start inflating. 5 billion years from now, the Sun would be 50% hotter than now and metamorphosed into a giant star that would swallow the Earth and cause it to evaporate.

I, at that stage, have died, burned and become sparse of molecules. I, who was part of the life on Earth, would be evaporated together with the Earth, and embark on a voyage of circulation as gas within space. In a way, I am looking forward to that future.

All the molecules derived from my beloved ones, people who cherished me and those who hated me will embark on this voyage. This is not a fantasy, but the world of science.

Chapter- 4

Biosphere dashing toward extinction

Our biosphere is already in a new phase of extinction

The number of living species has been drastically declining since about 1980 and the biosphere is thought to be in a new extinction period, the 6th in the Earth's history.

Living creatures have experienced virtual annihilation 5 times every 100 million year, caused by the changes in the Earth's environment.

Each time, only a few species of living creatures that had managed to survive extremely harsh conditions, such as covered in ice, hit by an immense volcanic eruption or crash of asteroids, to relay the hope of life to us here in the present age.

The number of living species currently in existence is said to be several million to several tens of millions. The number varies depending on the scientist and the exact number is virtually impossible to obtain. Having said so, a rough assumption of 10 million would not be unreasonable when people like us out on the street think about our future.

Scientists believe that it took ten thousand to one million years for living creatures to be virtually annihilated due to the past fluctuations of Mother Nature. Assuming there were 10 million living species, and it took 100,000 years to become total extinct, the pace of the extinction was 100 species per year.

According to conservation ecologists, at the moment, 200 species are disappearing from the planet every day due to human beings' activities.

Taking the smaller side of 100 species per day, even then, about 35,000 species are annihilated annually, and at this rate all living creatures would disappear within 300 years.

This pace is 300 to 400 times faster than the age when 100 species became extinct annually caused by changes inflicted by Mother Nature. Some scientists say the pace is actually more than 1,000 times faster.

Considering such figures, we cannot help but think that the 6th extinction stage has already started at an immensely brisk pace. Imagine a chronological table of living species' history on a scale of 1 million years: all the living creatures would disappear in an instant at around A.D. 2100. This is how devastating human beings' impact is.

Human beings and large sized animals at the apex of the ecological pyramid would disappear when living creatures at the bottom of the pyramid decline. It's not logical to believe that only large animals survive or be protected by somebody.

Large animals would also disappear at some stage, and human beings cannot be immune to that fate.

Quasi-living creatures, such as new strains of viruses and lethal drug-resistant bacteria are proliferating. These just might be the Earth giving feedback through its regulatory function, in response to the explosion of human beings.

Manmade causes of the extinction of living species – Reason for human existence

For billions of years, living beings have managed through solidarity to proliferate, but what are human beings, the self-avowed lords of creation, doing for the sake of other lives?

Have brains, the cells that human beings are proud of, been bestowed to us for the sake of the prosperity of the biosphere? When I think about life, I always return to this question.

Living species started to be annihilated due to human beings' mass consumption and residual pollution. Juxtaposing the causes, deforestation might come first. Tropical rain forests, in particular, are indispensable habitats for the survival of a wide spectrum of species, and, therefore, the majority of the extinction of living creatures is happening in the tropical rain forest zones.

The main causes of deforestation are; harvesting timber in poor countries to produce construction/papermaking materials for export to rich countries, and reclamation of forests to create fields for agricultural commodities/feed for domestic animals. When we have an urge to taste imported meat, we should simultaneously think of the deforested and deserted tropical rain forests.

Viewed from the stratosphere, wildfires have become conspicuous globally. The cause of these fires may not only be rising temperatures due to global warming, but also the increasingly strong wind velocity. One wild fire I witnessed from the sky was under the Siberian flight route, and extended approx. 500km long, emitting a large amount of smoke.

Chemical substances are another major cause of the extinction. Tens of thousand types of chemical substances, including fertilizers/pesticides, are on the market. Most

of the substances do not exist naturally and, therefore, are chemically stable.

Those substances move all over the Earth on the vehicle of water and atmosphere circulations, and once condensed through the process of ecological chain would damage animals' reproduction functions. As a result, the biosphere is collapsing as no child, fry or baby birds are born. Recently, degraded and micronized plastics are damaging living creatures.

Even in my own narrow world, the number of birds has drastically declined in recent years, which might be due to the adverse effects of chemical substances. Swallows that used to line up on electric power cables preparing for their migration south have decreased radically. "Silent Spring" comes to mind.

In my childhood, I spent lots of time playing with little birds. I can clearly say that the population has declined tangibly. Considering the fact that more than 100 living species are disappearing everyday, this might be a natural phenomenon.

Climate changes also heavily affect living creatures. Organisms live by adapting to the environments surrounding them. Once a climate has altered, they move somewhere else and adapt to the new environment for survival.

Plants that are immovable blow or have animals/birds carry their seeds to change their habitats through each generation.

As the transport speed of plants is slow, they cannot keep up with the latitudinal movement of the isothermal line. Animals that cohabitate with specific plants would disappear together with the plants.

Even with the current global warming of less than 1℃, in the northern hemisphere, the isothermal line moves 50 kilometers to the north and 50 meters upward vertically every 10 years.

It is said that the maximum speed of the isothermal line's movement to which living creatures can still adapt is roughly 5 kilometer horizontally and 5 meters vertically every 10 years. If that is the case, suitable habitats are racing away 10 times faster than the creatures' adaptability.

Pretty and lovely alpine flora and polar bears have nowhere to go. Living creatures that are incapable of catching up with climate changes are disappearing. Any further rise in the air temperature would accelerate the pace of living species' extinction.

As I already explained, the jet stream started exhibiting unprecedented snaking around 1980. When the jet stream moves in a north-south direction, surface weather is

disturbed, and living creatures' habitats lose stability and deteriorate.

The invasion of alien species is also a major cause of extinction of species. Alien species of both flora and fauna that moved in due to global warming or were carried in are expanding at an explosive pace, as there are no natural predators in their new habitats. They drive indigenous species out and ruin biodiversity. These alien flora and fauna have become highly visible around me.

Biodiversity has also been heavily damaged through the reduction in marshes caused by development and single-crop farming.

I need to point out human beings' monopolization of water. We consume water, the springhead of life, exclusively, including the sources of water for living creatures. Failing to return it to the soil, we pollute the water and drain away sewage. Thus, potable water for all living creatures runs dry.

In particular, lengthy sewage pipes in rural, mountainous villages where housing is sparse shortcuts the water circulation, which decreases the places where living creatures get access to water. Simultaneously, the sewage system installation costs per house are high, due to the length of the connecting pipe necessary between houses.

Even from the point of view of human beings' interests, installation of large-sized sewage systems in rural villages lacks justifiability.

Nowadays, the purification performance of small combination septic tanks is extremely high, to the extent that even mountain trout can live in purified sewage water.

By returning the polluted water purified by small combination septic tanks to the soil, we can maintain abundant water resources and installation costs per house could be saved. I strongly believe that large-sized sewage systems should be limited to overcrowded megalopolises, which would contribute to maintaining biodiversity.

The large-scale sewage systems currently in operation have limited purification performance despite the aid of microorganisms' water purification power and immense efforts in science and technology. As a result, the effluence from those systems still contains pollutants that are harmful to marine organisms.

Oceans absorb one third of the enormous volume of carbon dioxide generated by human beings. Consequently, the acidification of seawater is advancing, causing the depletion of phytoplankton such as algae that comprise the foundation of the ecological pyramid.

This fact denotes that the very foundation of the ecological system in the oceans is on the verge of collapse. Phytoplankton is the green forests of the sea and the backbone of all marine life.

Acidification of the sea has brought adversity to shellfish and crustaceans that require calcium to create their shells. Coral reefs are also damaged by the high acidity of seawater; thus, fish are deprived of their sanctuary and biodiversity in the sea is diminishing.

Generally speaking, marine currents are driven by the difference in the seawater temperatures between the arctic and equatorial zones, and the difference in the saline density.

In the northern hemisphere, currents warmed up in the equatorial zone flow northbound and release heat in the arctic zone. The cooled down and now heavier currents flow southbound on the ocean floor, which again gain heat at the equatorial zone and well upwards.

The problem is that the temperature increase due to climate change varies between the equatorial and arctic zones. Assuming that the temperature in the equatorial zone rises by 1℃, that in the arctic zone would rise by 3℃, three times as much.

If the temperature gap between the arctic and equatorial zones changes, both the position and volume of marine currents would be altered. The marine ecosystem and biodiversity would deteriorate, and, needless to say, fishery would significantly decline.

When it comes to the nuclear waste pollution that has been generated by human beings' ephemeral greed, it will remain with us for tens to hundreds of thousands of years. Even if the waste can be perfectly stored and segregated utilizing science and technology, we would be burdened with futile management costs and forced labor for nothing, for the human beings during the period of some tens of thousands of years.

What if human beings were annihilated during that period? The storage system would collapse, causing the pollution to diffuse through the Earth's circulation. The condensed pollution that would accumulate in the bodies of both land-and sea-dwelling creatures would damage their reproduction functions and prevent progeneration.

As stated in the addendum, it is highly likely that nuclear power plants will be targeted by terrorism or could even risk a missile attack.

It is unrealistic to ignore these risks when talking about the safety of nuclear power

plants. The safety of nuclear power plants cannot be realistically addressed without paying attention to these risks. I believe that scientific safety standards are only one part of the safety issue.

Contemporary human life is only 200,000 years old. When I think about the many causes of the extinction of living species, I am always bemused. What is the reason for human existence, including myself, in the cycle of life?

Chapter- 5

The Earth's limited capacity and what we risk if we disregard scientists' warnings

Scientists' warning and mass consumption bred by the freedom to be greedy

"Human beings and the natural world are on a collision course. Human activities inflict harsh and often irreversible damage on the environment and on critical resources.

If not checked, many of our current practices put at serious risk the future that we wish for human society and the plant and animal kingdoms, and may so alter the living world that it will be unable to sustain life in the manner that we know.

Fundamental changes are urgent if we are to avoid the collision our present course will bring about. No more than one or a few decades remain before the chance to avert the threats we now confront will be lost and the prospects for humanity immeasurably diminished."

These are not my own words, but an excerpt from the "World Scientists' Warning to Humanity" signed and submitted by more than 1,600 of the world's leading scientists from 70 countries, who felt a sense of crisis at the outcome of the 1992 United Nations Conference on Environment and Development, the Earth Summit held in Rio de Janeiro.

The fact that so many scientists, who normally tend to be very prudent, made such a collective statement only a few months after the Rio Earth Summit indicates just how significant the issue was.

If the Nobel Prize has any academic authority, the contents of this warning, signed by prominent scientists including almost all of the Nobel laureates in natural sciences of the day, must contain grave scientific evidence.

For further reading, please refer to the following website: "1992 World Scientists' Warning to Humanity".

Henry Kendall, a person who loved being in the mountains, drafted the document.

A crisis in the biosphere is a crisis for succeeding generations, and should be broadcast to the world as a priority, in the same as any serious incident or even a war would be. However, this warning was virtually never broadcast, which seemed a bit suspicious to me.

The United States was then under the administration of George Bush (Senior). Crises that could impact future generations are critically important issues and should be reported every week. Yet, even today, I don't know the reason why, but such issues are rarely broadcast.

Politicians tend to be driven not by scientists' concerns about the future, but by economic issues and corporate contributions during their term. Having said so, our Earth's limitations are part of logic of the universe, which can be neither compromised nor postponed.

Economics consists of a basic concept; an illusion that money can infinitely satisfy people's desire. Why don't economic theories that focus on activities on the finite Earth touch upon the Earth's physical limitations? I wonder how those scientists who worried about the future of the Earth are feeling now.

In 1934, when I was born, the Earth seemed to be infinite and filled with dreams and adventures, while human beings were tiny and feeble. However, human beings had already invented money with which they could infinitely store up their desire without it decaying, and were ready for mass consumption.

Einstein mentioned in his Notes of a journey on Japan; "The circle of life for folks in Japan is deeply connected with nature and all that nature bestows. I sincerely hope they will not forget this way of living." As he mentions, we used to have a beautiful culture, in which people were living in harmony with the cycles of nature. We can easily find traces of that lifestyle in the settings of Haiku, Waka poems and children's folk songs.

However, having experienced modernization and two World Wars, our attachment to such ethos has gradually faded. After Japan's surrender in 1945, words like liberty, human rights and equality were prevailing in society, which could, in a sense, be a reaction to Japanese people's straitjacketed life during the war.

It became almost a cliché in quarrels; "Whatever I do, I am free to do so and it's my personal right."

Together with the concepts of self-assertion, such as freedom and human rights, equality was also advocated. In this line of reasoning, consideration toward others should have been part of our liberty. However, people disregarded this original idea, and have fostered only their own self-interests, and have lost their hearts. Even now, I only hear the word "rights."

The era of mass transportation dependent on oil was born in the latter part of the

20th century, and was supported by young people of my own generation who enjoyed the "Century of Growth." The combination of this mass transportation and mass production has miniaturized the scale of the Earth through the enormous volume of movement of goods and human beings.

The freedom to be greedy, laws that place priority on individuals' rights rather than equality, and money that makes it possible to hoard up unlimited desire, are all linked to the mass flow of goods.

As a consequence, "Consumption is a virtue," a moral tone applauding mass consumption, started to prevail; consumption that, by far, exceeded the amount sufficient to enjoy our lives.

Through this unlimited freedom to be greedy, human beings' consumption had surpassed the threshold that the Earth could afford to sustain around 1980.

Around this period, numerous species started disappearing drastically. The density of carbon dioxide in the atmosphere exceeded 340ppm, said to be the upper limit for the existence of the Ice in the northern hemisphere, and the Ice actually starting melting away, obvious to the naked eye.

Yet, human beings' sense that "the Earth can grant us unlimited blessings" did not change. People simply neglect the warnings issued by prominent scientists, have no intention of reverting back to a lifestyle that considers the Earth's limitations, and are still pursuing economic growth.

Ecological footprint – Index that represents the Earth's limitations

According to scientific literature, around 1980 the footprint of human beings' activities; i.e. consumption and pollution, exceeded the limitations that the Earth could sustainably afford. An index entitled the "Ecological Footprint" was introduced to support this argument, which is the sum of the total consumption of natural resources and pollution.

This index is utilized in the analysis of human beings' burden or impact on the Earth's environment. However, because this index does not include the consumption of living creatures other than human beings, it might be too optimistic to measure the current environmental crisis with this index.

Again, I am not a scientist, and am not capable of assessing how precisely this index can indicate the burden on the Earth. However, considering the drastic annihilation of

living species, one index of life, from the advent of the 1980's, and at the same time, the Ice on the Earth began to melt, therefore the ecological footprint could be deemed an appropriate index to measure the Earth's limitations.

Such a drastic eradication of living species is a warning signal foretelling the impending extinction of human beings, one of the planet's forms of life. In this sense, this index could play an important role when we consider the future of human beings.

Since the dawn of the mass transportation era, carbon dioxide, which has a powerful greenhouse effect, started increasing in the atmosphere as residual pollution. As a result, tangible omens of the deterioration in the living environment, such as the commencement of meltdown of mountainous glaciers due to global warming, started appearing around 1980, synchronized with the reduction in the number of living creatures.

Such visible transformations of the Earth signify an instant leap in the planet's life. Therefore, we can regard phenomena like reduction in mountain snow, retracting glaciers and drastic reduction in living species as evidence that human beings' activities have surpassed the limitations of the planet.

Around that period, viewing the Earth from the stratosphere as an airline pilot, I started getting concerned about the diminishing mountain snow. As I love skiing in deep virgin snow, even while flying over mountains my concern was the depth of the snow. At the beginning, I thought it was just my imagination. However, when I compared the glaciers and snow on high mountains that I personally witnessed with old photos found in mountaineering books, the decline in the amount of snow was obvious.

Turning to the jet stream, which is an important factor for pilots in choosing flight paths; it started to snake in an extreme way. The position of the jet stream significantly affects the Earth's weather.

I know that there are some arguments about how to calculate ecological footprint indices, and the business circles' resistance might be extremely strong. Naturally so, because utilization of these indices denotes giving up economic growth.

George Bush Sr., then the President of the United States, denied the limit to growth theory by saying; "Some scientists advocated the limit to growth theory 2 decades ago. However, we know that growth itself is a dynamic force for change. Growth is a good friend to the environment."

I recall the history of business circles' intense resistance to the alert on pesticides' poisonous effects in "Silent Spring" and the "destruction of the ozone layer" caused by Freon gas. Even the countermeasures taken against the ozone hole, which are said to have been successful, took 26 years to come into effect. It will still take several more decades for the ozone layer to stabilize.

At the moment, 200 living species are said to be disappearing every day. This tremendously high speed of annihilation is several hundred times faster than at any other time in earth's history when a majority of species became extinct. This is nothing other than hard evidence that human beings' mass consumption has exceeded the Earth's limitations, and that living species have entered the stage of extermination.

Human beings are one of all living species and part of the ecological system. Food is the dead body of a living creature. In this sense, my body was formed through the metamorphosis of the corpses of many living creatures. The majority of medicines to cure diseases derive from lives, and small living creatures decompose pollution as well.

Even though human beings cannot survive without help and support from other living creatures, we keep on damaging many of them. The extermination of living species, needless to say, includes human beings who are sitting on the summit of the pyramid of living species. Human beings cannot survive by ourselves, alone.

COP, which has been saying that human beings should take countermeasures as soon as possible, keeps failing to develop a valid treaty, while almost a quarter century has passed since its inauguration.

I don't know why, but ecological footprint never appears on the agenda at COP or IPCC. On another front, economic conferences, where the same leaders gather, are still advocating economic growth loudly.

Chapter-6

Can we become happier with a growing GDP?

Double-your-money economic growth and the future of consumption

Assuming the current consumption doubles, what would happen in the future? For example, if GDP grows by 3% per annum, how many years will it take for the GDP to double? There is a useful formula, with which we can easily compute the years required for GDP to double.

Divide 70 by the growth rate (%), in this case 3 %. The answer is, it will double in 23 years. (70÷X%= years it takes to double)

Example: In a country that pursues economic growth of 7% per annum, consumption doubles every single decade, and will grow up to approximately 130 times 70 years later.

Such consumption could never be feasible. Because the living ecosystem would collapse.

Whilst our consumption has already exceeded the entire Earth's limitations, if 3% growth continues, consumption would double within 23 years, which denotes we need not just 1, but a few Earths to afford that level of consumption. But actually, the social system would collapse before that.

Even with 2% growth, our consumption would double in 35 years, and the consequences are obvious.

(For your reference, the IMF predicts that the worldwide economic growth rate in 2015 will be 3.1%)

A mere 1% growth means that consumption doubles within 70 years, which could devastate the future of succeeding generations, including our children's and grandchildren's.

With only this ratio, we can roughly predict when the economic structure of contemporary society would collapse.

If human beings insist on striving to continue the current 3% economic growth, a catastrophe would take place within at most 20 years. The pollution rate increase becomes steeper toward the end, and the collapse of the economic social structure would come all of a sudden.

The world predicted in 1992 by prominent scientists; “Unless human beings control our greed, the world will become incapable of sustaining life,” will come true.

There exists a tendency toward thinking that economic growth can continue if we can keep increasing efficiency. However, the increase in efficiency is, so to speak, only happening at a pace of simple addition, which can never catch up with the exponentially increasing economic growth.

Needless to say, enhancement in resource/energy efficiency is necessary to live, which has nothing to do with economic growth. You could call this the code of living creatures or even the order of the universe.

Revert back to the limitations of our one and only Earth. To realize a sustainable society, we have no choice other than this, both physically and intellectually.

Can we become happier with a growing GDP?

People seem to have the illusion that the higher the GDP, the happier we are. This mentality might be fostered by the general advocacy for economic growth loudly proclaimed by governments and the mass media. But if that is true, why hasn’t our sense of euphoria increased in the last several decades since around 1980 in particular?

Talking about growth, the “definition of growth for a human being” must satisfy our sense of euphoria through the basics of securing food, clothing and shelter as well as improvement in welfare.

GDP is the sum of all the output generated through labor. Therefore, one simple way to increase GDP is to demolish still usable goods, produce new goods to replace them and ignite people’s consumption through advertising. Employment opportunities also increase.

Manufacture products with shorter service life and shorten the duration of replacement part availability. Enterprises can thereby increase profits through shorter product consumption cycles. Even though there is no space for garbage dumps, rivers are polluted, forests are slashed down, disease is rampant and more jails are required, when consumption increases, both GDP and employment would increase in synchronization.

Even now, when manufacturers are obliged to lengthen service life to beat the competition, their basic strategy of increasing consumption through fanning the flames of greed has not changed.

So, at around 1980, human beings' consumption had surpassed the limitations of one unit of Earth, and the surplus started to stay behind as pollution. But, we are still endeavoring to increase GDP and employment through economic growth.

However, the portion of the GDP that exceeds the Earth's limitations will become the "outside diseconomy" and enormous costs will be incurred to process residual pollution, which is increasing along with economic growth at an exponential pace.

As a consequence, maintenance costs for our social structure that are required every day and fixed costs including welfare are sacrificed. The portion of the GDP above the threshold of the Earth's limitations would not contribute to improvement in living standards or to people's sense of euphoria, as costs incurred by countermeasures for the deterioration of the living environment increase along with economic growth.

The reason why we cannot sense enrichment in our lives, and why our dysphoria is even aggregated while we pursue happiness and damage our blue planet, can be found in the above theory, together with the gap between the rich and poor.

GDP is an index to measure the volume of labor, and includes factors that deteriorate our life. Therefore, we should introduce a new index; i.e. the current GDP minus GDP attributable to the external diseconomy, to alter the structure of the economy to one that reflects its true status. If we advocate the growth of a euphoric society, the most important index is the gap between the rich and the poor.

Why is it that we cannot feel richness in our life? Partially it's because of the external diseconomy and/or the gap between the rich and the poor, but another reason is the sense of accelerating time caused by the fact that human beings are trying to steal time from each other through economic competition. Michael Ende's well-known work in child literature, "Momo," addresses this subject.

Short-term governments did not bother to think about the future generations in the next several decades or even a century later, but have been adopting an economic growth track, easy-going policies, to satisfy shareholders and top management of enterprises. Whenever government faced adversity, they managed to weather the storm by utilizing financial engineering.

However, even though they can manage to postpone the adversity and keep pursuing economic growth, sticking to the myth of mass consumption, the more they delay taking countermeasures, the worse the depletion of natural resources and increase in residual pollution becomes. Not only global warming caused by the residual pollution

of carbon dioxide in the atmosphere, but clusters of new challenges and difficulties will come hurtling down on human beings from all directions.

Many simulations based on various factors said at the time that doomsday would come around 2030. Even we take countermeasures now, the results would only appear after one generation.

We are in 2016 now, and have already exhausted our grace period. However, world leaders have not yet reached agreement on a collaborative framework.

Current status of economic accounting that fails to take into account the Earth's physical limitations

The core of the world economy is the Earth capital scattered all over the world. The Earth used to be infinitely big. When human beings' consumption was still small, this capital was thought to be infinite, and not necessarily posted in the equity section of the balance sheet.

The reason why the amount of the Earth capital was not necessarily taken into account was the fact that the virtually infinite Earth could provide abundant resources. Plus, residual pollution could be considered as "external diseconomy," which would disappear at no cost thanks to the Earth's pollution purification capacity. In other words, that was none of human beings' business.

However, at around 1980, human beings' consumption of resources and the volume of emitted pollution had exceeded the Earth's limitations, and, thus, free-of-charge waste management costs for the Earth capital and residual pollution were no more.

Once the gratuitous Earth capital and waste management costs for residual pollution turn into paid-for costs, if we do not post them in the balance sheet, it will not reflect the Earth's physical limitations and would no longer be economically viable.

A visible example is the management cost for the carbon dioxide residual pollution in the air, which is not posted in the financial statement. Thus, global warming has commenced.

If we disregard this portion of the financial statement, even though the Earth capital is prejudiced and/or residual pollution has accumulated, no losses have to be posted. However, this is nothing but a fraudulent statement.

After the 1980's, the structure of the world economy, a mega enterprise backed by the capital of Earth, has fallen into a capital deficit and started digging into natural

capital, the Earth's circulatory system.

As the amount of capital of each enterprise is visible, shown on its balance sheet, an enterprise would never eat away all its capital. Otherwise, the company would go bankrupt. This is the real economy.

The logic applicable to both the structure of the world economy and individual enterprises is identical. The reason why the structure of the world economy is immune to immediate bankruptcy is that the total evaporation of Earth capital would only come a couple of decades from now. Bankruptcy of the Earth capital is not bankruptcy of a mere company, but the collapse of the very structure of the world economy and all life.

The issue of residual pollution is not limited to carbon dioxide. Poisonous chemical substances, etc. - every type of residual pollution - has started diffusing, circulating along with the Earth's circulation, and the accumulation of residual pollution in water, soil and the atmosphere is getting serious. If we fail to eliminate pollution, our living environment would drastically deteriorate.

At the moment, the deterioration of the living environment caused by residual pollution including global warming is far more serious than the issue of the limit to consumption of Earth capital. The reason is; the biosphere would evolve into something totally different, which would last a couple of thousand or even 10 thousand years in the same condition.

The current situation of the world economy after 1980 stands on par with the situation of a car; even though its fuel tank is almost empty, the fuel gauge is out of order, and the exhaust has started leaking into the interior and is getting dense.

The ever-expanding contemporary economic structure – Impact on the living environment

Corporate profits are being reinvested to establish and maintain oligopoly. If a mega enterprise has fallen into the red, political and business establishments work together to resurrect and support it. Once the enterprise has regained profitability, it again pursues becoming more gigantic to maintain oligopoly.

In order to sustain this structure, demand generated through the mechanism of the market is not sufficient; excess demand that matches production capacity has to be generated. For that purpose, consumption should be expanded, and policies for economic growth are the easiest choice for both political and business establishments.

Under such a world economic structure, assuming a mega enterprise goes bankrupt with a gigantic deficit equivalent to the annual budget of a country, what chaos would happen? All stakeholders; i.e. investors including financial institutions and shareholders, vendors and subsidiaries all over the world, plus employees would be adversely affected, and even a simultaneous world recession could occur.

Therefore, in order to avoid such a catastrophe, "concerned parties who are responsible to only short-term management," both those in top management and governments, could not afford a bankruptcy during their terms, even if their non-action means depletion of Earth capital and deterioration in the living environment.

As a temporary countermeasure for the mega deficit, the financial sector and government together adopt a life-prolonging treatment utilizing financial engineering. However, this treatment works only to maneuver investors' speculations and sooner or later reaches an impasse, as the treatment does not reflect a real economy that matches the volume of Earth capital.

As long as the size of mega enterprises had been within the Earth's limitation, there were at least no issues about the Earth's environment. However, as mega enterprises have kept on expanding man-made structures and consumption, they have grown to the extent that they have started to deteriorate the living environment through their gigantic business scale and consumption.

Both laws and taxation structures have long been designed to sustain the growth of the economy backed by capitalism, not taking the Earth's limitation into account. Enterprises that should have disappeared are surviving thanks to "too big to fail" policies, which makes it even more impossible to revert back to the Earth's limitations.

However, when the threshold of Earth's limitations is exceeded, whatever kinds of countermeasures are taken, unless we revert back to a situation below the threshold, similar but more amplified adversities would come back within several years. The longer we postpone the countermeasures, the greater the collapse will be.

A good analogy is the gigantic war industries after WWII. For them, peace was equivalent to a great crash. They shifted the mega production means used for armament to the production of civilian goods, and inflamed people's consumption to match, not the market demand, but their supply.

Exactly the same scenario was deployed in the nuclear weapons industries that decided to shift to nuclear power generation under the veil of peaceful utilization of

atomic power. Or, their true intention might be to hand down the industry to future generations by disguising its real nature.

Another note about gigantic enterprises; isn't it odd that enterprises are accountable to their shareholders? For example, in a great catastrophe caused by a nuclear power plant accident, the responsibilities of the company's top management are intense, as the accident could be really life threatening for a large number of human beings.

In case of a serious accident, they cannot be waived from responsibility for human beings other than their shareholders, even if they step down. They cannot justify themselves by saying; "the accident was caused by unprecedented factors beyond human imagination". I believe that their deeds could be regarded as a case of "willful negligence." Now, the significance of management responsibility has become huge, and the laws must be altered in line with reality.

Recently, I often encounter companies disguised as "Earth-friendly enterprises." On the other hand, a cascade of even more gigantic new construction concepts and plans is appearing.

Have you heard of the term, "green wash?" A corporation disguises itself as an Earth-friendly company, yet advocates mass consumption through a shower of advertisements on how consumption equals happiness. Such a corporate strategy in disguise is called green wash.

Political and business establishments promote economic growth that exceeds the Earth's limitations. In particular, governments are even willing to pay out cash subsidies to inflame consumption. It is very strange that the same governments and enterprises are promoting recycling.

Mass consumption that induces people to use disposable items is the antithesis of recycling. Virtually no recycling businesses are profitable and we are running out of landfill site resources. Recycling cannot act to pardon mass production.

Recycling historically had been an integral part of the lifestyle of human beings who were living a sound life. Real recycling means finish up the product and discard the waste in such a way that it can smoothly return to its place in the cycle of the environment. Historically, the Japanese economic structure itself was a circulatory society with built-in primitive recycling markets.

Even as human beings face the crisis in the Earth's living environment, our mental solidarity is not developing. Focusing only on causal analyses, we are unable to

establish legislation that would unfavorably affect our daily lives in the short run. To an old man, the current situation where we are in limbo and cannot take any action, is just plain sad.

World population trend

The world population that has quadrupled in the last century is the biggest factor, together with human beings' excessive consumption, that impacts the Earth. However, there is now a general understanding of the conditions needed to control the birth rate.

The birth rate can be lowered by implementation of basic health services geared for young children and expansion of elementary education for future mothers. Thanks to the world's efforts in line with these policies, including UNICEF's, and increase in urban populations, the birth rate has decreased

The world's population may stabilize at a level slightly lower than 9 billion by the end of the century. However, even if that were the case, unless the gap between the rich and the poor is alleviated, fundamental problems concerning the environment and population would not be solved. Furthermore, as the state of human society and the biosphere 30 to 40 years from now are unforeseeably opaque, it is virtually impossible to estimate the population then.

When we look at the "Global population trend" shown below, the population had increased by about 900 million between A.D. 0 and the Industrial Revolution, meaning a pace of half a million per annum.

In the 150 years between 1800, the advent of Industrial Revolution, and 1950, the world population increased by approximately 1.5 billion, which is equivalent to an annual increase of 10 million. Entering the coal era, the world population started exploding.

At around 1950, human beings entered the oil-dependent mass consumption era, and the population increased at a pace of approx. 60 million during the following 2 decades.

Since the beginning of the high-growth period, the world population has been increasing at a pace of 80 million per annum, which is 7 to 8 times as high as the coal era.

Comparing this pace with that prior to the commencement of the usage of fossil fuels, 500,000 people a year, the coal era saw a fast and furious 20 times, and the oil

era, an explosive 150 times.

≪Global population trend≫

Note: Population figures are rounded up/down to simplify the trend.

10,000 years ago: several million (Start of agriculture)

A.D. 0 ~100 – 200 million Increased by approx. 200 million in 10,000 years

(We can imagine how difficult it was to survive from the very slow pace of population growth.)

A.D. 1000 – 300 million Increased by 100 million in 1,000 years

A.D. 1800 – 1 billion Increased by 100 million every century

(Industrial revolution; Carbon dioxide: 280ppm)

A.D. 1900 – 1.5 billion Increased by 500 million in 100 years

A.D. 1930 – 2.1 billion Increased by approx. 200 million every 10 years

A.D. 1940 – 2.3 billion Increased by 200 million in 10 years

A.D. 1950 – 2.5 billion Increased by 200 million in 10 years

A.D. 1960 – 3 billion Increased by 500 million in 10 years

(Advent of mass transportation)

A.D. 1970 – 3.7 billion Increased by 700 million in 10 years

A.D. 1980 – 4.5 billion Increased by 800 million in 10 years

(Human beings' consumption exceeded the Earth's capacity)

A.D. 1990 – 5.3 billion Increased by 800 million in 10 years

A.D. 2000 – 6.1 billion Increased by 800 million in 10 years

A.D. 2010 – 6.9 billion Increased by 800 million in 10 years

A.D.2015 – 7.3 billion （Carbon dioxide in the atmosphere: 400ppm,
and increasing by 2ppm per annum）

Chapter- 7

Thoughts on Energy Issues

New Energy Development – What is Clean Energy?

At the beginning, I would like to note that the crises facing human beings do not exist in the shortage of energy that is required for our mass consumption, but in the deterioration of the living environment caused by residual pollution.

This is a direct consequence of the fact that our mass consumption has exceeded the Earth's purification capacity. Climate change triggered by the residual carbon dioxide pollution is one form of proof.

The premise that human beings would become happier the more goods they had and the more they consumed through economic growth was an illusion. As a consequence of mass consumption, human beings have created an immense sorrow - the destruction of our very own living environment.

The processes involved in manufacturing goods involve eliminating impurities and waste from raw materials deploying energy, and diffusing heat. Therefore, whenever we use energy, the heat and dirt generated both by the energy itself and the product are diffused in the atmosphere.

Human beings are currently on the development of clean energy. However, even if there were an infinite volume of "clean energy" that never generates pollution, the biosphere would collapse from the load of the residual pollution - pollution emitted from products that simply keep on being manufactured utilizing energy – that exceeds the Earth's purification capacity.

In general, pollution passes through the Earth's purification function and is returned to the original circulation of the Earth. However, there are time lags in the returning to the circulation process depending on the type of energy and raw materials.

For example, if we consume a volume of a certain substance within 5 years, which is supposed to return to the Earth's circulation in ten years, 5 years worth of pollution would remain as residue, and such consumption is not sustainable.

Even nuclear waste will return to the Earth's circulation in units of 10,000 years, but human beings with a life span of only several decades could not handle the waste sustainably.

The circulation that is best harmonized with the daily life of human beings is the cycle of the four seasons which are complemented by myriad living creatures. The cycle of the four seasons is a selfless gifts bestowed from others' lives.

The physiology of human beings has evolved in accordance with the grace of the four seasons. That might be the reason why we sense the four seasons beautifully.

Solar energy is said to be clean. However, when the sunshine reaches the geosphere, the majority of the energy has already been consumed for the life of the Earth. Therefore, the expansive volume of energy that human beings aspire to does not remain.

To collect this residual energy, use of other types of energy is required, which generates pollution that needs to be diffused. When we deduct that pollution amount, the balance would be miniscule.

The volume of energy we receive as God's gifts, such as solar and wind power, is in fact low per area. Thus, vast land areas and immense facilities would be required.

Energies consumed for the production/installation of those facilities should be offset from the collected solar/wind power. One of the reasons why the profitability of the development of clean energy is debatable exists in this point.

If we use the sunshine as is; e.g. (for example) hanging out laundry, with virtually adding no labor, that is truly clean energy.

If human beings greedily seek clean energy that requires vast swaths of land and increase generators, forests would be slashed down and the environment of our hometowns would deteriorate, turning the landscape into gruesome scenery.

It is plainly greed rather than foolishness to destroy the forests that nurture many lives, just to pursue gratuitous solar energy.

The urgent issue for us, is to put our efforts into suppressing the volume of consumption to the level below the Earth's limitations, not to develop new energies. The perils of the biosphere cannot be alleviated without reverting back to that level.

I would like to point out again that one feasible method is to control mass consumption by altering the flow of money through tax reformation. The best and shortest avenue we should select is to endeavor to reduce residual pollution to the level within the Earth's field by efficiently utilizing oil energy and existing facilities.

Why? Among the current energy choices we have, oil is the most abundant, the easiest to use and the cleanest.

If we stick to economic growth and develop new energies utilizing resources that are dirtier than oil, we can increase GDP and employment, but the mounting pollution treatment costs would bring even greater difficulties. Human beings, through no fault but our own, would shorten the grace period until the collapse of the socioeconomic structure.

There is a common notion that science and technologies will solve the issue of residual pollution. Basic knowledge of physics could help us to understand whether or not we can actually eliminate the pollution through science.

In the expanding universe, all things must pass in one direction of time. If human beings try to revert back the diffusion of pollution through science and technology, it would cost enormous energy, as the movement is against the flow of time.

We may be able to erase some pollution. However, as more pollution than can be erased is being generated, the total volume of the pollution would increase. Therefore, we cannot reduce pollution through science and technology.

This is a rough sketch of the law of the universe. In short, no matter how significantly science and technology advances, we would not be capable of reversing the flow of time through science and technology.

Fundamental energy for life – Cyclic wheels, Mother Nature's blessing

Living creatures have been surviving several billion years enveloped in the free gifts from heaven. They needed no money, but only exploited the instinct of solidarity to pass their hope on to the following generations.

For life, their fundamental economic value for survival derives from the energy generated by the Earth's cyclical force of nature, which is gratuitously bestowed on us from Mother Nature.

The Earth has 2 circulations; i.e. the cycle of water linking sparkling white snow, clouds, rain, brooks and oceans, and the cycle of life linking living creatures from trees, grasses, flowers, microorganisms and large-sized animals. Living creatures have been surviving on Earth thanks to the generous gifts generating from the interactions between these 2 cycles.

In other words, a gift of dynamics; the engine of the cycle of life is powered by the solar heat and the cycle of water. The heat emitted by the engine is absorbed by the cycle of water and cooled down. The evaporated water rises to the stratosphere and

releases the heat to the universe. This resembles a sort of water-cooled heat engine in an automobile.

This is the complimentary gift from the heaven generated through the collaboration of the water and life cycles. The engine powered by the cycle of life has been proactively establishing itself in several billion years through the solidarity of all living creatures.

A brief sketch of the cycle of life is; plants convert inorganic substances to food utilizing water and solar heat, which feeds animals and turns to “dirt.” This dirt feeds microorganisms that convert the dirt back into inorganic substances and heat.

When we create compost, heat as high as 80℃ is generated. This heat is a phenomenon of the process, through which microorganisms decompose the dirt into the original solar heat and inorganic substances.

We use a rather negative term, “spoil” for this process to decompose dirt executed by microorganisms. However, without microorganisms, mountains of dirt would cover the Earth within a year. Soil is a dirt treatment plant, in which small living creatures work voluntarily.

In short, the negative term “dirt” is used to describe something unnecessary for human beings but what is absolutely a must for living creatures that are waiting for the next process. Within the cycle of life created autonomously by living creatures, there exists no waste that deserves to be called “dirt.”

Lives become food for other lives, when they die. Discarded debris is decomposed by microorganisms and returns to the soil. Nutrition returned to the soil would foster plants, to feed other lives. In this way, living creatures increases species through solidarity and expand the link of the cycle of life to all the corners of the Earth.

A plant is an existence that fattens up and enriches the cycle of life. Utilizing solar energy, plants convert carbon dioxide in the air and water sucked from the soil through the process of photosynthesis. The output of this process becomes alimentation that fosters living creatures, and, simultaneously, emits oxygen as a waste of the photosynthesis

Plants return water used in the photosynthesis to the atmosphere as moisture vapor. The cause of abundant rain over the forests is the rich moisture generated by plants.

Plants are playing a principal role in the cycle of carbon and oxygen and heat provided by the Sun. In other words, plants are the springhead of life generated by the

cycle of life.

On the other hand, the cycle of water absorbs the heat returned through the decomposition of dirt executed by microorganisms, vaporizes and climbs up into the atmosphere to release the heat to the outside of the Earth.

Evaporation is a mysterious power; a gigantic, but completely free gift that is hoisting water as heavy as 500 trillion tons per year against the force of gravity. The hoisted moisture is cooled down in the stratosphere. Releasing heat, the moisture becomes clouds, rain and snow. Clouds are actually an immense reservoir floating in the air.

Blessed rain and snow return to the soil to wet the bodies of living creatures, and absorb heat and dirt to nurture their lives.

Snow is an even more precious existence than water, as it absorbs more heat. Therefore, virgin white snow looks beautiful to human beings. Anything good for life looks beautiful.

Through this flow of heat, all the circulations on the Earth link to the greater circulation of the universe. This denotes that our bodies, a tiny part of this cycle of life, are linked to the great universe through the heat.

Until a couple of centuries ago when human beings encountered fossil fuel that derives from living creatures, human beings had been living within the gifts granted us by the gratuitous circulation.

The value that the cycle of life brings to us is comprised of; the gratuitous labor of living creatures, food and the nurturing of lives. These are the gifts living creatures receive from the gratuitous energy continuously being emitted.

Modern economics has defined value as something that is convertible to money through the market. While modern economics regards greed, an illusion that varies from time to time, as a driving force of the society, it judges the gifts granted by a heat engine, the Earth's circulation, to be valueless in the market, as they are free of charge.

However, I believe that its history has been one of extravagance and the destruction of the very elemental structure of the circulation.

The dynamics of the cycle of life are similar to a beautiful tapestry woven using a single thread spun through the solidarity of life, which is extremely delicate and even a tiny fray would expand through chain reaction.

It seems very bizarre to have an economic activity that satisfies humans' transient

greed, even up to the extent that requires us to destroy the precious gifts from the cycle of life and water.

Wisdom, something that human beings are proud of, is bestowed to us so that we could pass on the living environment with its bountiful circulation to the generations following us in the future to come.

I believe that our role as living creatures should be to foster and raise these bountiful, free cycles of nature utilizing our cerebral function, unique to human beings.

The reason why political and business establishments oppose environmental conservation treaties is because, "such a treaty would affect the current economy."

However, the economy they are talking about only spans the period equivalent to their transitory term, and lacks the concept of the future. For these shortsighted reasons, they are destroying the welcome blessings of God in long run, through such actions as deforestation and construction of dams.

Does it sell well at the market, or not? Human beings, who have grown accustomed to measuring the value of life by the amount of money they have even tend to measure spirits using money.

If we can measure our mind using money, why don't we measure not only parts, but the entire cycles of life and water by properly converting to the monetary utilizing a supercomputer value in a long run.

The value of these circulations, which are virtually intangible, is difficult to measure. However, since money itself is an illusion, this, even in a rough calculation, would be one road toward revolution onto true economics that regards gratuitous value as value.

Human beings have not been enlightened by the fact that we are alive thanks to other lives. But, this very economics would enlighten human beings about the "solidarity of lives."

We old people cannot depart this world without tackling efforts to revive the once-damaged Earth's circulations and hand them over to the following generations of lives.

Trends in Earth's environmental issues –The impact of consumption on the Earth

I have searched through academic archives and identified concerned trends. Forgive me if it seems a bit dull, like study notes, but my aim is to enable the reader to succinctly comprehend the general trend.

Circa. A.D. 1950 – Dawn of the mass consumption era. Commercial nuclear power plants start operations. (A.D. 1945: Japan's surrender)

Circa A.D. 1960 – Advent of mass transportation. Chemical substances, smoke & soot and pollution in the oceans and rivers started eroding Earth's natural cycle. "Silent Spring" that alerted on the risk of chemical substances' diffusion was published.

Circa A.D. 1970 - Secretary General of the United Nations issued a warning; "Unless all countries globally cooperate to implement countermeasures within 10 years, the Earth's environment would deteriorate to an irreversible status."

At just about the same time, "The Limits to Growth" was published and warned that consumption could not surpass the Earth's capacity. Japan quickly recovered from the defeat in WW II and became the world's No. 2 in GNP.

2 times oil shocks hit the world; a warning about economic growth. Human beings could have been enjoying sustainable and satisfactory lives, if we had taken countermeasures vis-à-vis these warnings. However, the world didn't budge, even at hearing the oil shock warnings.

Circa A.D. 1980 – Human beings' mass consumption had exceeded the limitations that could be sustained by one Earth. Since then, consumption attributable to the marginal increases in GDP has been remaining as residual pollution.

The Ice in the northern hemisphere started melting down visibly, and living species started drastically disappearing. These visual changes on the Earth are evidence that human beings' mass consumption has exceeded the our planet, Earth's limitations.

Carbon dioxide density in the atmosphere in this decade was 340ppm, which is said to be the upper limit for the existence of the Ice in the northern hemisphere. Synchronized with the carbon dioxide density, the air temperature has gradually increased.

As a result, the Ice in the northern hemisphere is headed toward obliteration and the sea level is slowly but steadily increasing at a pace by which it will rise 25 meters within several centuries.

Circa A.D. 1990 – The Earth Summit failed to generate the outcomes that had been hoped for. More than a thousand prominent scientists from all over the world jointly issued a warning; “Immediate and drastic change is a must. Unless we can control our greed, the world would metamorphose into one that cannot sustain life;” but the warning was disregarded.

Extreme weather became widespread, and unprecedented phenomena in aerological weather and the environment further advanced.

A.D.2000 – Human beings consumed 1.2 times as much as the Earth’s capacity. Naturally, the 0.2 portion remained as residual pollution.

Antarctic ice shelves started collapsing. Although the Kyoto Protocol came into force, some major carbon dioxide emitting countries withdrew from or refused to ratify the treaty. The market in carbon dioxide emission rights did not work efficiently, and the density of carbon dioxide has further increased.

While conferences were simply going on, human beings did not undertake countermeasures. Aspirations for economic growth were further stoked.

A.D. 2013 – IPCC announced that the air temperature would rise by 2.6 - 4.8℃ by the end of the century.

Living species had faced the peril of total extinction 5 times every 100 million years. Living species are disappearing at a pace hundreds of times as fast as the past 5 experiences.

It is safe to say that living creatures are now on the verge of the 6th annihilation.

A.D. 2015- Carbon dioxide density in the air exceeds 400ppm, and is rising at a pace of 2ppm per annum. 25 years from now, by 2040 A.D, the density would exceed 450ppm.

The chronological table below sketches the history of the Ice;

1℃ increase in the air temperature denotes a gradual 5 meters rise in the sea level.

When the density of carbon dioxide in the air exceeds 340ppm, the air temperature would increase by 2 - 3℃ in a synchronized manner, the Ice in the northern hemisphere would disappear, and the sea level would rise

by 25 meters.

If the density further increases and exceeds 450ppm, the air temperature would increase by 4 to 5℃ in a synchronized manner, and all of the Ice on Earth would be on the verge of total disappearance. The sea level would rise by 70+ meters, which would continue in units of 10,000 years.

Note: Pace of the sea level increase;

There is evidence in the past 130 thousand years of history that the sea level rose by 5 meters in 100 years, caused by a natural increase of 1℃.

If the air temperature surges by 5℃ within this century, the pace at which the sea level rises would accelerate.

Human beings have used up their grace period in which they could have crafted valid, full-fledged countermeasures. We are in an awful stage where we have no idea whether or not, or even how, we could hand over a less-deteriorated biosphere to the generations following us.

Circa A.D. 2020-Environmental conservation measures, which were supposed to be sufficient in 1980 would become completely useless in 2020, due to the aggregated residual pollution over 40 years. Human beings are consuming not only natural resources, but also time, simultaneously.

Circa A.D. 2030-Human beings will face a series of impasses in natural resources and pollution, and various adversities would stampede toward us all at the same time.

The global socio-economic structure would very likely collapse, including sovereign bankruptcy.

Unless human beings revert back to the limitations of the Earth's natural cycle, the longer we wait to take countermeasures, the more seriously our quality of life would deteriorate.

The more we wait, the greater society's collapse will be. That collapse would happen in an instant.

Circa A.D. 2040-Finally, carbon dioxide density will exceed 450ppm. Once this threshold is exceeded, the air temperature would rise by 4 to 5℃, and all of the Ice on the planet would gradually disappear. Our destiny is a world with a sea level more than 70 meters higher than now.

Circa A.D. 2050-Our children and grandchildren might be forced to live foul lives

amidst the residual pollution.

Circa A.D. 2070--I cannot even imagine the condition of the biosphere at that stage.

Human beings' longevity would probably be significantly shortened, caused by various physical influences, and the population of human beings on the planet would face obliteration.

Chapter - 8

The increasing gap between the rich and the poor is the root of all evil

The increasing gap between the rich and the poor causes all the evil.

The gap between the rich and the poor is the cause of friction in the world economy, both within and between nations manifesting in the form of terrorism and the current refugee problem. It disrupts human society both in terms of mind and material, and further is the root cause of the degradation of the global environment.

If the gap between the rich and the poor causes crime, then such gap itself is a crime. Conflicts and disputes between religions in the modern world have their roots in the gap between the rich and the poor.

After the half-century long economic growth in the free market of the world, the issue of the differences between developed countries and developing countries and the gap between the rich and the poor have now spread into the developed countries, where many of their young generation are forced to become the working poor.

Perhaps it could be said that the sad term "working poor" has been created by affirming greed which the free market has created, or in other words, created by a society based on knowledge and laws which is indifferent to the impoverished and their lives.

The young generation will become responsible for payment of the astronomical debt and pension and health care payments for the elderly generation. At the same time they will be forced to deal with a degraded environment and be forced to manage hazardous compounds and nuclear wastes created by past generations.

Thirty years after World War II, as I flew around the world and saw nations where the gap between the rich and the poor is far greater, it struck me Japan has become a comparatively safe country.

At that time, the maximum rate of the Japanese progressive income tax was as high as 75%, minimizing the gap between the rich and the poor and thus resulted in a safe country. People were happy simply by being released from the sufferings of the war.

But by lowering the maximum taxation rate in order to benefit the wealthy, Japan has now taken second place in terms of the gap between the rich and the poor, among the large GDP nations. Because of the increasing corruption of morals, we now need to

worry about the safety of our children commuting to school and the increase of crimes committed for inexplicable and obscure reasons.

The adverse effects of the gap between the rich and the poor are the source of most of the problems in human society. As long as a taxation system that favors the rich co-exists with a heavy consumption-biased economy, economic disparities will inevitably occur, creating envy and hostility.

The “non-regular employment system” which was adopted in order to be competitive in the world economy is the Japanese version of the fixed low wage. The minimum wage in Japan is the lowest among in developed nations. It is a pity that the leaders of the nation have adopted this system which is a far cry from the “pursuit of human happiness” guaranteed by the Constitution.

Those whose income does not allow the “pursuit of human happiness” then, should not be counted as employed. Won’t this be in violation of the Constitution?

Many of the working poor are sent to nuclear power plant sites under a non-regular employment status, without knowing the realities of the exposure to radiation. Nuclear power is thus generated at the expense of their health.

A society with a large gap between the rich and the poor causes moral corruption which triggers crime, resulting in security measures cost increases or so-called "external diseconomies." Due to the increase of this cost, the allocation of funds for happiness and the maintenance and development of society such as welfare and education are cut back.

As a result, murders and indiscriminate slaughter committed due to widespread hatred are happening. Suspicion and emptiness of heart and as revenge to the society are causing suicides. The loneliness caused by the disintegration of human relationship has led to the fading bonds between parent and child, husbands and wives, and smiles are increasingly disappearing from citizens.

I took a look at the disparity around the world. According to UN documents, the total GDP of the world is about $70 trillion and the world's population is about 7 billion people. This makes the annual wage to be an average of $10,000 per person.

Furthermore, the document says that about 3.5 billion people, which is half of the world‘s population, is living on $2 or less a day. That’s about $700 a year even you work without a day off throughout the year.

$2.5 trillion seemed like such a small amount for 3.5 billion people. I did the math

many times, but it is not $25 trillion; it is only $2.5 trillion.

The remaining 3.5 billion people get the remaining 95 percent of the $70 trillion. No wonder satisfying conclusions cannot be reached at those peace meetings. It is hopeless to achieve world peace with such disparities unsolved.

In this half century, the gap between the rich and the poor has widened to make one wonder if we have become bereft of intelligence. And the gap is steadily widening along with the rapid growth of the world economy and the growing world population.

The grudge against the rich felt by the poor facing food shortages and who are forced to work at cheap wages instigates the creation of hotbeds of terrorist organization and is one of the destabilizing factors in the Middle East and a hindrance to world peace.

The large gap between the rich and the poor causes other problems. Food, when moved about, tends to be accumulated in the wealthy countries. The multilateral distribution system allows for the development of farmlands and crop production in low cost countries with cheap wages which are then exported to countries who are willing to buy at a higher price than the producing countries. This is the origin of the "North-South Divide."

There is another tragedy from this distribution structure. If the food exported is a surplus product, this is not an issue, but the reality is that even countries whose population suffers from hunger export their food products to those who will buy them at a higher price.

Even as we look at the food distribution alone, food flows to places where there is money. Hunger exists not because there is not enough food, but because people do not have the money to buy food.

The reason for the lack of money is not because these people are not working but because they cannot get any wage increase, earning only a dollar or two a day. The big reason for not getting any wage increase is because they are working for the people of other countries. Far since the days of colonialism, there are still many countries that get away with paying low wages, and therefore the wage rates are on a downward trend.

These food products will go to consumers of wealthy countries, but such consumers do not know the faces of the low-wage workers, their working conditions, or the practices—so far from their own—of these poor countries; they are simply looking for lower priced products.

Therefore, even as the world economy grows, the situation of low wages is not resolved, and the poverty becomes a permanent reality.

As an international person, it is important that you not only have the skill to learn a foreign language and be a successful trader, but also have a sense of moral bond with people around the world. “Solidarity in life” is the fundamental for living together.

I think we should regard any person’s life as precious as our own, and work based on this concept, wishing happiness for everybody. I want people to feel a moral bond to everyone throughout the world. The monetary bond will not last long and will not produce peace and joy.

In my view, as one who has had many opportunities to fly between the rich and poor countries, what looked funny was that in these countries with large gaps between the rich and the poor was that the rich lived together in quarters surrounded by high walls guarded by an armed private force, as if they were in a prison.

But life outside the “prison wall” seemed far from quiet life. I just wanted to turn my eyes away from those people and their lifestyle. The situation was more than sarcastic, and nothing other than an “irony.”

Even though some may dismiss it as a fantasy, if you really wish for the happiness of future generations, there are no solutions other than transforming the economic structure, including a fair tax system, reflecting the concept of sharing which is common sense for human beings.

Despite life being universal, the fact that a difference exists between the rich and the poor is a mortal sin of human intelligence, and, including the destruction of the environment, these are nothing but the root of all evil of human society.

The gap between the rich and the poor, and the global environment--Can the developed countries be a model for the developing countries?

The gap between the rich and the poor is related to the destruction of the global environment. The poor countries have to export natural resources, agricultural products, and labor to the rich countries at a low cost, at the expense of devastating their own environment in order to obtain foreign currencies. And these exported goods increase consumption and pollution in the rich countries.

There are many people who have no choice but to destroy the environment for living, while there are too many rich people who by choice do damage to the environment by

developing timberland, converting them into buildings, and whipping up the desire for consumption by lining up cars and commodities.

There is a close chain reaction-like relationship between the gap between the rich and the poor, peace, and the environment. If we want peace and the recovery to a beautiful global environment, reducing the gap between the rich and the poor has to be top priority.

I am very reluctant to say this but, it seems to me that the slowdown of economic growth in the rich countries along with the deterioration of the global environment is causing the rich countries to invest in low wage countries, and, in the name of democratization, grow their economy by whipping up greed and converting this to the power of their own economic growth. As a result, the least desirable thing is the triggering the gap between the rich and the poor. This will cause envy and devastation of morals.

The gap between the rich and the poor is accompanied by the devastation of the environment. What if we start the production in the countries where the natural resources and labor are at a low cost?

As you can see on the television screen, huge buildings and large factories are lined up, cars and motorcycles are overflowing on the road, and water pollution and destruction of the forest are everywhere. One can only imagine that the heavy air pollution is causing the widespread presence hazardous compounds. The gap between the rich and the poor is widening and I hear stories that nuclear power plants are being sold to countries where even primary education is not sufficient.

Isn’t this an act that is neither for economic growth nor for happiness of the people but to exhaust the land and humanity of the other nation? Can’t it be said that such a framework is putting pressure on the environment of the developing nations and allowing developed nations to earn profit and protect their environment, expanding the gap between the rich and the poor?

There is a worrisome tone of argument about what would happen to the global environment if the consumption of the developing nations reaches the same level as the developed nations. On the other hand, large companies are investing in the developing nations, such as to inspire greed, thus widening the gap between the rich and the poor and causing moral destruction.

My question is, why do we end up with such results when there are supposedly

many kind and intellectual people in at large companies.

Companies are structured to maximize profit to the extent that it does not violate the law, a system that goes against common sense. Prime examples are selling weapons and nuclear power generation to the poorest of nations.

As long as there are no laws against it, organizations' behaviors are motivated by profits, overriding the kindness and sense of responsibility of people, even if it results in residual contamination and widen the unfairness, exhausting the resources of partner nations. I think this is more a problem of the inadequate law or what the Constitution tells the nation to be, rather than an issue of the corporate mentality or the minds of the people.

In Japan, even though there is a law that prohibits the export of weaponry parts, a loophole in the law allows deadly weapons to be exported in the form of nuclear power generators which can be considered to such.

If we want happiness and prosperity for developing nations, we should not be pursuing short-term profits, but making our priority investments in welfare and education in those countries, paying attention to fostering real democracy and not widen the gap between the rich and the poor. The result should be a society filled with calmness, fairness, and happiness, which will reduce religious conflicts and leads to a peaceful nation. There will be beautiful country sides and smiles in people's hearts.

Although developed nations are considered materially wealthy, only a limited portion of the population is wealthy and the rest are in a tough spot; many become prisoners due to the gap between the rich and the poor. Food is excessively wasted and there are no smiles on the face of the people on the street.

If they only know the reality of wealthy nations, people who live in a quiet countries, will not feel like following the model of the developed nations.

Economic disparities between nations in the world create hotbeds of the terrorism. Domestic disparity in the society causes civil war. Every day we see on the television that weapons are sold to both sides, destroying the life environment.

The conclusion of the modernization era between the Great Powers left nations vying for natural resources and with it the sequelae of ethnic domination and colonization, and a gap between the rich and the poor in the resulting troubled independence. And, as a result, global environment also deteriorated.

When the Eastern block nations began to adopt the free market economy, it was

expected that they would become gentle and equally rich nations with little gap between the rich and the poor.

But instead, they have only taken on the detrimental features of the free market economy, further widening the gap between the rich and the poor, and exhausting rural areas by heavily polluting the environment. This may become a major obstacle in dealing with the continuing crisis of global environment deterioration in the future, just when the global cooperation is needed.

The scenario is similar to the era when Japan, which during the process of modernization, departed from the cultural idea of “Circulation Philosophy,” and became unable to control the military sector.

Although it is commonly said during the discussion of disarmament, weapons are a waste if not used, but once used, they will destroy the social structure and both sides become impoverished. The outcome, if any, will only amplify hostility between each other.

The problem is that even if the weapons are not used, weapons are continually being upgraded to be expensive and high-powered for the sake of the growth of the munitions industry during the time of peace, exhausting the nation’s funds which could otherwise be used for the happiness of the nation. Such weapons, expensive to maintain and useless if it is not used but would destroy the whole world if used, is exactly precisely what is termed "external diseconomies."

If we are intelligent enough and take an opposite view, we could create harmonious life with censures, sanctions and sensitive diplomatic responses instead of spending trillions of dollars in military expenditures on civil wars of other countries. And if this military expense could be used for the purpose of those countries’ welfare instead, hostilities would turn into friendship, narrowing the gap between the rich and the poor, and then the world will naturally tend toward peace.

Instead of wasting trillions of dollars and many human lives, and use these for environmental programs and peaceful diplomacy, then I think it will not be not too late to recover a peaceful and beautiful world.

The principle of material ownership and happiness

There is a simple principle about possession of goods and happiness. If there is no difference between the rich and the poor among us, we can be in peace, in body and

soul. Also we can be kind to the others.

If we are unhappy because we don't have the material goods, that would mean people in the ancient days, who did not have any of the convenient things we have today, were not happy at all. Whether we have material goods or not is not a factor that determines happiness. If only you or a certain people are in possession of such goods, then everyone becomes unhappy because the situation causes envy and conflicts.

Regardless of whether a nation is wealthy or not, if there is a small gap between the rich and the poor, then such a nation would be calm at journey's end. Smiles and kindness are the best "hospitality" for a traveler. It was precisely so for me in my 80 some years' of journeys--the pleasure meeting kind-hearted people.

Although I have had many opportunities to visit countries where there were large gaps between the rich and the poor, I never felt comfortable in such places. Seeing the poverty outside my modern hotel made me depressed by the fact that I was a part of the society symbolized by the hotel.

Whether I flew to these countries as an airline pilot or for mountain climbing, such experiences touched my heart.

I have compared the reality and my life. It is all about the standard of if I am materially wealthy or not. Thus the idea came to mind to calculate by dividing the GDP of the world by the world's population.

The resulting GDP per capita, in which I included babies to elderly people, was about $10,000. This is about one million yen per capita per year, give or take some change in the exchange rate. At this standard of living my wife and I would make two million yen per year. Whatever I actually make is then embarrassingly luxurious.

According to an U.N. document, more than half of the world population is living on less than two dollars a day. Thinking about these people makes me having little time left to live uncomfortable.

Another thing about material goods and happiness is that it seems that once people have certain amount of material goods and money, their happiness level does not increase proportionate to the increase of such material goods and money.

Up to the point until you obtain what is necessary to live satisfaction increases, but at a certain level satisfaction starts to decrease. There must be an intersection where the decrease in satisfaction meets the increase in material goods, similar to the feeling of fullness after meal.

This is not just my thought processes. When I looked into the U.N. documents, I think I found that the intersection was around $14,000 per capita annually. This is a very interesting figure when you think about the level of desire, luxury, and happiness of the human.

During my 80 years of life, I have met happy people but they didn't seem to be happy because they had money and goods. I have also seen many wealthy people who always had sour expressions on their faces. Having said this, I think we can say that, beyond a certain point, wealth in terms of money and goods has nothing to do with wealthy of the heart.

I have also imagined how I will change if I get more money, power, and a higher social status. Will I become more suspicious? The thing I fear the most, what I think is the unhappiest of all situations, is loneliness. The fear of being lonely may increase as you have more property and desire for power.

In the end, it seems that once you acquire a certain level of goods, your time starts to become occupied with managing such goods, and your mind becomes engrossed with showing off your property with a sense of superiority, which makes your mind impoverished.

I believe that unless you become abject, it would be better to be poor, so that you won't need to spend time thinking about your goods and money, and instead use the time to think about other lives and become spiritually rich in that way. But in actuality, not getting enough even you work hard will make your heart poor and lonely just as if you have too much.

It seems to be that having too much or too less makes the mind impoverished. I think this is also consistent with the teachings of the old sages.

Presently the world is busy being chased by the illusion of the so-called time thief. Japanese character "busy" is the character "mind" and "loss" together, as in "losing one's mind." The character implies that the mind of both the rich and the poor will become impoverished if they become too busy. I feel sorry for those busy people who lead the world, but at the same time it worries me. I want the leaders of the nations to be people that put solidarity of life as a priority.

Urban life is driven by money and without money you cannot live unless you steal from someone else. There is no choice but to repeat this even you come out of the prison. For the poor, lack of money is a matter of life or death.

What do you choose to buy something? Maybe you are buying it because an advertisement perked your desire despite not feeling the need for it. In modern society there is an increasing number of adults who stir up a child's desire to buy unnecessary things, and don't care one bit about it.

Under such circumstances, children grow up believing that, rather than creating human bonds, the possession of goods will make them happy, thus their minds become corrupt. They may become the ones to lead society or nation and yet not have the sympathy to consider human lives.

Rarely are those goods that you bought due from the enticement of advertisements turn out to be necessary. Many of them are not easy to use and you end up putting them in the closet, putting the out of sight, out of mind. The junk then gets in the way when you look in the closet for something you really need.

And yet you hesitate to throw it away out of a feeling of wasting something. All the more if they are trinkets bought on a trip that bring back even a little bit of memory. It is the same sentiment you feel when you find broken toys and dolls or children's clothing left behind in the closet by your grown-up children or grandchildren.

It is my ideal to leave nothing behind after my death, but time is running out as I postpone throwing away these things.

The same can be said for my monetary assets however small. It is not necessary that I hand the assets over directly to needy whose annual income is less than one million yen, so long as it gets distributed through the tax system that distributes them as welfare.

Perhaps this is unsolicited interference but I think people who have a lot of assets that didn't get consumed during their lifetime will have a lot of trouble when they depart. As my own departure comes close, I'm starting to think about many things which I didn't think of before.

Similar to an uncluttered Japanese alcove, I believe people are happier with less things around them.

I am confident that happiness does not arise out of a materially satisfied civilization.

My feelings for the gap between the rich and the poor – One cannot choose to be born

There would be nothing more splendid a world if we can share happiness by working together, wherever we are and regardless of our individual capabilities. Such

thoughts come to mind when I think about the gap between the rich and the poor, about the global environment, and about all the troubles in the world.

My first overseas experience was when I was invited to the All India Tennis Championships in Kolkat as a student. And at that time I saw tremendous wealth and tremendous poverty. I remember finding people lying cold, outside on the street out of my hotel in the morning.

After becoming an airline pilot, I had many chances to fly to those poor nations where I was always struck by the illogical fact that I was born who I was.

I did not choose to be born. I could have been born as a dirt poor, a person that is hated, some other creature other than a human, or even a non- life substance such an inorganic molecule. All of us are born and given life by sheer chance.

It goes the same for talent. Some are born with superior talents, some with excellent understanding, some with outstanding organizational skills, some with good memory and others with high IQ. I want people to whatever their talent to be used towards the happiness of all mankind and creatures.

These precious lives and talents are given by chance should not be your only. The wealth earned with your talent should be used to wish and bring happiness to as many lives as possible.

How nice it would be if my country, Japan, can be in the forefront to be an example of such a nation. It would make me be happy that I was born in Japan. I think we can accomplish this by making changes to the Constitution which includes a provision stating the importance of life as well as rethinking the taxation system.

I sometimes fantasize that I have great ability. Then I can live a joyful life by making many people happy. It's only a fantasy and never came true.

But fantasy aside, I would like as many lives as possible happy to the utmost of my ability. I wish I had known about "The Blue little bird," which I have found now, that expresses how making others happy makes oneself happy in my younger days.

Let's look at this from another point of view. What if you spend the wealth you earned with your talent only for yourself or a specific organization? Excellent talents, intelligence, and passions which are not found on human bonds then become a dangerous weapon. That person with extraordinary ability then becomes associated with selfish desire for vanity, power, honor, and money.

Although to different degree, everyone has some vanity. And vanity, which is tied to

all sorts of selfishness, is a difficult thing to deal with. I spent a lot of time and energy to try to get rid of it all my life but still, I am still short of my goal.

I believe that those who were in a position to lead the world must have had great talent. But the world is not taking any action and fighting each other to a breaking point when the life on earth is in danger.

A certain book on psychology contends that people and existence surrounding a vain person are to satisfy his/her vanity. This brought a chill to my mind. I want those people to use their talents not as a weapon but to hand over the beautiful earth to the next generation.

Chapter- 9

Free Trade and Environment

Movement of goods and the disruption of circulation

The global environment can be easier understood by viewing the environment as circulation systems. Environmental destruction means destroying natural circulations endowed to the earth, such as water circulation, biological circulation and so on. Increasing the volume of circulation increases the purifying capability of the earth. And, as a result consumption can be increased.

The way to have plenty of circulation volume is to shorten the distance goods need to move as much as possible. The longer the moving distance, the more circulation will be bypassed, reducing overall circulation.

For example, exporting food means exporting water and soil. The soil becomes impoverished leading to a decrease in the volume of circulation and resulting in the fall of production volume.

Compensating the soil with chemical fertilizers and groundwater will only lead to desertification. The agricultural land of nations that have been forced to import food will become abandoned, impoverished fields, leading the soil to collapse. International division of labor due to the movement of agricultural products destroys agricultural soil, and as a result reduces total world production volume.

Furthermore, movement of goods involves increased emission of carbon dioxide. Therefore, the longer the distance of the movement, the more detrimental effect to circulation and consequently to the life environment.

Just in terms of the manufacturing industry, if ten tons of raw materials were imported and three tons of products were produced and exported, seven tons of waste will remain as pollution. Furthermore the importing country's manufacturing industry, and therefore employment levels, will shrink.

Although various free trade agreements are currently under negotiation, none of them seem to address global environmental issues such as soil conservation and carbon dioxide emission reduction. It is quite curious, as if the emerging crisis of the biosphere seems to be none of their business.

I don't think that the ongoing trade liberalization negotiations where everyone

competes to sell to each other goods the other doesn't even need at a cheaper price will make the consumer happy. I will touch on this subject later in "Why imported goods are inexpensive," but the reason why goods are cheap must be due to some unreasonable production process.

Isn't the primary objective of trade is "to exchange what the other lacks" and isn't this the basis for human to live in solidarity? If you don't like to be sold what you do not need, then you shouldn't sell to others what they do not need. What is at the back of these trade talks are political contributions by huge corporations seeking an oligopolistic market.

Thus it seems to me that the outcome of trade liberalization negotiations is decided by the amount of political contributions. The result, in many cases, lacks fairness and will adversely affect the developing nations.

In retrospect, the introduction of Large-Scale Retail Stores Location Law in Japan must have been based on the long-term globalization strategy of long-distance mass transportation using international capital.

The introduction of Large-Scale Retail Stores Location Law, which interrupts global circulation by long-distance transportation, has been a factor to degrade the life environment.

I know this may not be realistic but isn't trade liberalization based on protecting the life environment the freedom for humans to move and live? Birds and mammals have lived without damaging the earth by doing so.

Nowadays, I feel like the borders exist as an illusion for people in power. This is how I felt every time I flew over the borders.

In a different sense, those large multinationals also seem not to have an idea of borders and homeland.

Locally consumed local production increases circulation—a small society is ideal.

The best way to enrich the circulation of a region and reduce waste pollution thus saving the life environment is to consume locally produced products and recycle them into the local soil.

Recently, as one of the measures to protect the country's economy, locally-consumed local production is being recommended. Locally-consumed local production will enrich the circulation and reduce environmental pollution. This is a culture that

embodies wisdom of living.

Because the economy of a region that practices locally-consumed local production requires shorter distance of transportation, there will be less bypassing of the circulation system, and as a result, the regional circulation will be enriched and there will be less energy consumption and residual pollutants.

The merit of a regional economy is you can see or know the face and heart of the producer and the production process. The economy of locally-consumed local production will reinstate the fading human bondage. The more the life environment becomes difficult, the more the human bondage becomes important. It was the same during World War II.

The regional price is based on the human bondage, the culture, the way of life, and the balance with the various necessary goods of that region. Because we have chosen imported goods just because they were cheap, relationships with other goods were lost and as a result, shrank the regional community, that is, the human bondage.

Living in countryside and seeing the decline in the regional industry and the increased presence of mega-stores nearby, reminds me of the words of a certain economist, “Small is beautiful” which is equivalent to saying that a small society is ideal.

The small-sized economy which requires short distances in transportation and consumes local production is much better off than the global economic structure as there will be less environmental pollution and will be better able to withstand crises. In addition, economic relief, if necessary, is easier to implement in a smaller economy.

To pass on a better livable world to the next generation, it is important that we recover the degraded life environment however difficult the task. It is necessary that we return to locally-consumed local production, that is to say to switch from a globalized world economic structure to a regional economic structure.

Importation and exportation, which are merely neutral exchanges of money, reduce human bondage. It is a proven fact that people are less responsible towards exported products.

If trouble among nations or a food shortage occurs, exports with less human bondage will stop instantly. As the global environment is now heading towards degradation, occurrences of imported goods being halted will increase in the future.

Even countries with fertile agricultural soil will see an increase in abandoned fields

once the country succumbs to trade price competitions and starts importing food products. The soil has become rich over the long years only because of the close relationship with the culture of the region.

It will take at least ten years to restore the soil of an abandoned field, therefore instantly resuming agriculture is not possible should the import of food stop due to a conflict between nations. Abandoned fields are actually the undermining of agriculture. The concept can be applied not only to foods but also to any products.

I want people to discuss how we can keep this wonderful earth full of circulation for the next generation as the main agenda for not only trade talks but also for various global conferences.

Japan, with its exceptionally low self-supporting rate of food production and their dependence on long-distance imports, seems to be abnormal considering the idea that we should restore a sustainable economy by maintaining a rich circulation and reducing residual pollutants.

The kind of beautiful scenery of our mother country that I envision to leave for the next generation is a land where there are plenty of water and trees with rich circulation and where people consume local production. This is nothing but the root of life.

Why imported goods are cheaper

Other than those mass-produced agricultural products of wealthy countries made possible by the support of the oil industry in the form of pesticides and mechanization with subsidies, the reason for imported agricultural and other products being cheap is because the labor and the oil transportation costs are extremely low.

The reason for the low labor cost of the exporting nation is due to the wide gap in wealth between the nations. The cost for transportation is low because it does not include the processing cost of the residual pollutants of the oil.

In general, cheap imported goods are manufactured by those people working with extremely low wages. And even a small raise in wages will cause the job to shift to other cheaper country.

We cannot call this a fair free trade competition when imports come from countries where low wages are fixed. This structure that makes permanent the difference between the rich and the poor as well as an unstable society in the developing nations is at the sacrifice of world peace.

Some say that imports from such countries contribute to the employment of the exporting countries. But this is an interpretation of the importing country who benefit from preservation of poverty in exporting countries by way of cheap goods. The world will never be peaceful with such system. Taxes that have nothing to do with world peace have the highest cost.

We simply look at the price of cheap imported good and food but we should be thinking about those people and children working for only one or two dollars a day, if at all, in those counties where there is a wide gap between the rich and the poor.

There is a big possibility that the raw materials of those expensive branded goods you surround yourself with or those branded treats that you savor are produced at the price of the harsh illegal labor of children who have been kidnapped.

Adults in monetary difficulties prey mercilessly on children who are in vulnerable positions. The gap between the rich and the poor can be the hotbed of any kind of evil.

Think about any society, the process by which foods and goods are produced, and how they are transported to the shops. You may find moral bondage with the people in the world.

I want the realities of the gap between the rich and the poor in the world and the production process to be taught at school to foster considerate consumers or as an official subject in the food education in the school system so that the next generation can have a peaceful world.

The conflict over water between the rural and industrialized urban area--the urbanization of the world and food import in Japan

It is said that 1,000 tons of water is necessary to produce one ton of crops. In industrial production, water is also necessary for cooling and rinsing. Moreover, using a liter of oil consumes tens of liters of water. Therefore, agriculture and industry are in competition over water.

In those nations where the water supply is not sufficient, water tends to be used for industry rather than agriculture where there is a higher added value and therefore more foreign currency can be earned. In such nations, rather than for circulation agriculture, namely locally-consumed local production, agricultural land and water tends to be used for industrial agriculture and industries. This will cause the reduction of agricultural products in the world.

Those farmers who become dispossessed of their lands and water supply will head for urban areas as so-called unemployed refugees, and become the cause of social unstableness.

These increasing rural refugees are one of the reasons of the surging urban population and is becoming one of the features of urbanization in countries where the difference between the rich and poor are wide. There is a strong possibility that these people who have lost their agricultural land or those who lose their jobs in urban areas are joining terrorist organizations.

Here, I would like to remind you that there is another issue regarding mass food imports into Japan.

Food is created by converting water and greens. It seems strange that such nation like Japan which has plenty of water and greens imports huge amounts of food products from nations that don't have sufficient water and greens.

As a result, such nations will deplete their water supply and soil, exploit low-wage workers, reduces the agricultural lands in their own nation, which will lead to the depopulation of the rural area and the lowering of their food self-sufficiency ratio.

This is a basic issue for a nation.

Japan is rich in the resources of life--rice paddy cultivation is the wisdom of circulation

Japan, with plenty of greenery and water resources, is called as nation of forests. I always felt at home when I flew back from those nations where there are less greenery compared to Japan where you have four beautiful seasons.

The ultimate resources of life are water, greenery, and the soil and, we can always rely on the sun to shine. Therefore, it is strange that Japan, with its plentiful resources, is often characterized as "a nation without resources." I have seen many nations but Japan is one of the few nations that possesses plenty of the resources of life.

Although global warming may lead to climate change, countries such as Japan that have plentiful resources of water and greenery, have a strong vitality to survive.

As far as I can remember, clean water was not a thing to be bought but something that was available free of charge. Only when I went to other countries did I realize that tap water tasted bad and people would pay for drinking water.

Based on the information that even water of the large rivers do not even reach the estuaries, water shortage will become more serious than oil shortage. Although oil is an

essential natural resource it is a secondary resource for life as it is not circulating and will be consumed at the end.

In the coming decades which will experience the degradation of the living environment, areas with plentiful water will be more important than the oil-producing nations, and there will be more disputes for water. We will enter an era where protecting water will become essential.

In a world faced with water shortage, it is quite possible that Japan, which has abundant water resource, will become a target for those corporations who do water business across the borders. Actually it is already a reality.

If we allow such water business, we should apply progressively increasing fees when the water is exported in order to prevent mass outflow of our water, so precious for life. We cannot expect patriotism from those corporations who do business across borders.

We hear stories about buyout of land by people of other nations. These could be the survival policies of these other nations buying out the land for water business. We need to do something before this becomes an issue. Cold-hearted reality of diplomacy may cause armed disputes when it comes to the issue of survival.

Water circulation is the most valuable free gift from our earth. Rice paddy cultivation, which takes maximum advantage of circulation, a free force of the nature, is truly a wisdom of the culture. Rice paddy culture integrates humans with circulation. As long as there are rice paddies, we can sustain life.

Two thirds of our body is composed of water, of which a few liters are drained from our body daily. Only clean water can compensate this loss. We can say that water is the body itself. A person weighing 60 kilograms will only weigh 20 kilograms if water is removed from the body. If we don't drink water for ten days the body will be dehydrated by sweating and urination. The blood becomes thick by stagnated circulation and death occurs due to accumulated wastes in the body.

Water is the ultimate resource; selling water, other than for the purpose of aid, is like selling your life.

Nations with water shortage are increasing—the waters in their large rivers don't even reach the estuary. I am wondering how long Japan will depend on food products from such nations.

Chapter- 10

Hope is in the Change of the Tax System – The Party of Progressive Taxation, a party of the young generation

Revising the Tax System

Not being a scholar, there may be some criticism to what I write, so allow me to give some background first.

I started to think about the progressive tax system after being troubled by the wide gap between the rich and the poor which I encountered on the many opportunities that I flew to those nations. And therefore I have devoted myself to the activities of UNICEF for many decades.

It was around 1980, when I reached the idea of the progressive tax system. That is when I saw the intellectually unbelievable reality of the widening gap between the rich and the poor through the relaxation of progressive tax system in one of the richest nations.

The gap between the rich and the poor, destruction of the environment, and world conflicts are linked as contemporary social issues. Setting aside the issue of the gap between the rich and the poor, the Earth is too small to accommodate the doubling expansion of the economy driven by the freedom to be greedy for growth.

The vague image I had of a crisis of humanity has become as a reality along with an increasing number of extinct species and global warming. If we do not change the current economic system, what will happen to the next generation? We, the older generation, are the ones who have created this economic social structure through the freedom of greed.

My generation, myself included, who are now senior citizens, are the ones who created this doubling economic growth and the hugely expanded economic structure which has destroyed the living environment of the Earth. However, we cannot do anything, including changing the law, due to constraints of social structures and personal relationships.

I feel responsible and am apologetic for leaving all these issues such as residual contamination, the huge amounts of debt, and the pension and medical care fund crisis to the young people. But to overcome the crisis of humanity, it seems to be that there is

no other choice but to pray they can be solved by the young people. I would like to leave the reform of the tax system in the hands of the young people who are responsible for the coming generations.

There are two purposes for tax reform. First is to eliminate the gap between the rich and the poor, and the second is to provide a roadmap that puts consumption back on track so that it will stay within the limits of the earth's capacity. If we follow the current path, we will simply maintain the status quo and procrastinate developing any counter-measures.

Complicated policies and mental theories are not necessary. Just change the tax system and the flow of money will change, which in turn will induce a change in the way of life and the view of the world.

Be it the world as a whole or individual nations, societies move along with the flow of money. Maybe the only hope to change the flow of money is changing the tax system.

Around 1980, following the examples of other nations, Japan reduced the maximum rate of its progressive tax system, which was a reform heavily favorable to the rich.

Although policy-wise this was just a "simple change" in the tax system, the flow of money changed drastically, increasing the gap between the rich and the poor and changing a peaceful society into a free for all.

Changes to the tax system produce rapid automatic changes that follow along with the flow of the money. Therefore, the direction of a nation can be changed by adjusting the tax system. Changes in the flow of money also alter human behavior and impact social reform.

In democratic countries, fortunately, if structural reform does not occur internally from the government, we can always reform it from the outside by a simple and practical way—by voting. And, whether poor or rich, we all have one vote.

If the young people keep on being indifferent to politics and let the older generation run the country, the young people will end up living as the working poor under an unbearable living environment degraded by residual contamination.

Taking advantage of the system of democracy, in which each person has one vote, it is not just a far-off dream for young people to be able to be responsible for a regime, as will be described in a later section. I want them to think seriously about their futures so they can spend peaceful and happy days.

Even protests of the magnitude that necessitated the use of tear gas have not once been successful to make the government withdraw from a decision. To change the government, young people need to vote and not leave the decisions to the older generation. To change the government, we need to get rid of politicians who are tied up with " legal bribes called political contribution".

The environment of the nation and the minds of the people will completely be different when the tax system changes. If the young people become responsible for the regime and change the tax system, anything that was thought to be impossible will become possible.

If the flow of money changes because of the tax system reform, the gap between the rich and poor will be eliminated and we will automatically be on track to stay within the earth's capacity.

There will be no more excessive economic growth, a sense of fairness will be generated as the gap between rich and poor decreases, envy and selfishness will also be reduced, and smiles on the faces of the people will return as they greet each other on the streets and elsewhere.

For an increasing population to co-exist on this Earth, the idea of sharing and stability of the society have to be the priority. With the crisis of the living environment, the days of endless and individualistic greed are gone.

I expect Japan to carry out a tax reform package before any other nation which reduces the gap between the rich and the poor and allows an escape from the vicious cycle of up-to-one's-ears mass consumption that depends on the economic growth.

These days, information is transmitted instantaneously. I want to encourage the young people around the world to cooperate and in however small a way, contribute to change their future world to a hopeful one.

Eliminating the gap between the rich and the poor

Isn't a democratic nation one that has few differences among the people? I want the democratic nations of the world to lead other nations by eliminating the gap between the rich and the poor.

A nation that only talks about human rights on one hand while allowing individuals to pursue freedom of greed and accept the gap between the rich and the poor on the other cannot become a model to others. The keyword for eliminating the gap between

the rich and the poor is a hyper progressive tax system.

Adverse effects of the gap between the rich and the poor are the same whether in poor nations or wealthy nations. There was a country—a rich and generous democratic nation—to where I always looked forward to flying.

But around 1980 when that nation simplified its progressive tax system and drastically reduced the maximum rate to give relief to the rich, the gap between the rich and the poor widened rapidly, causing many homeless people on the street, and I saw the nation change into a turbulent atmosphere. The gap between the rich and the poor is the cause of all evils.

In Japan, politicians and industries claimed that we would lose in the global competition if we don't keep up with the current world trend of tax reduction. Few years after lowering the highest tax rate, the gap between the rich and the poor became established in the nation.

Moral corruption resulted, lowering the safety of the society and creating more disorder. Lowering the 75% progressive tax rate is the reason for the introduction of the gap between the rich and the poor and the corruption of morals.

It is said that if the large corporations increase workers' wages, this will benefit the economy as a whole; i.e. a trickle down theory. But this is an illusion. The wage rate increase is higher in these large corporations than other companies so this will further increase the gap between the rich and the poor.

Japan is ranked in the third place in terms of GDP among the large nations but in terms of the gap between the rich and the poor, it is ranked in a dishonorable second place. The minimum hourly wage is almost the bottom ranking.

Reforming the gap between the rich and the poor is simple. Income necessary for what the Constitution calls "basic quality of life," which consists of modest food, clothing, and shelter is to be applicable to 0% tax bracket. Anything beyond will be taxed progressively with no limit in the tax rate. Then there should not be any extreme rich with an unbelievable annual income.

I think the society will be stabilized and an ideal democracy can be resurrected if we reform the tax system to a hyper progressive tax system. This system will reform the gap between the rich and the poor which is the cause of all evils.

As an idea, how about a tax rate that sets the income of the Chief Justice of the Supreme Court as the net maximum? The gap between the rich and the poor will be

eliminated and fairness will resume together with the circulation of the money within the society.

Is this too unrealistic? But without thorough reformation, society will not stabilize, the way of life will not change, the gap between the rich and the poor will remain, and mass consumption will continue. It will be a disaster for the next generation.

The way to reduce consumption to within the limits of the Earth's capacity -- Regressive Circulation Tax

The basic cause that led to the crisis of the living environment was that resources which were not circulated or resources which need longer periods to return to the circulation were consumed in the interim, resulting in the accumulation of residual contamination. Circulation is the key word.

By introducing a tax system where corporations who aid or recover circulation receive a lower tax rate, the incentive to bring their tax rate to zero would cause the circulation to recover rapidly.

And at the same time, any business that degrades the circulation or increases residual contamination will be imposed a higher progressive circulation tax. This should lead the way to reducing consumption to within the limit of the earth's capacity, decreasing residual contamination created by the current economic growth which is pushing the limits.

Large corporations are motivated to reduce their tax burden. Therefore we can expect policies of corporations to change with tax reforms.

Residual contamination will decrease due to the enriched circulation and the huge cost to eliminate contaminations, the so-called "external diseconomies," will then also decrease. This cost savings can replenish the financial resources necessary for the development of welfare and social structures.

"Recovery of the Circulation" is the big umbrella policy that will bring everything into one path. The concept of "Environmental Tax" is to create individual policies and these small "paths" make for inefficiencies.

The term "Circulation tax" may seem like just another tax, but by utilizing the regressive tax system, the more you enrich the circulation, the less tax you end up paying. If you want to keep the beautiful earth without paying a hyper-progressive tax, convert your business to something that doesn't destroy the circulation.

With such a reformed law, the flow of consumption will dramatically change towards keeping it within the earth's capacity. Since it becomes an issue with dealing with the flow of the money, dealings or conflicts with humans should decrease; thus the impact of the reformation should not be so painful.

With the difficult issues that face the next generation, I hope that the young people will take advantage of the equal right of voting, get together with like-minded people to form a party against social unfairness, and vote for a bill that incorporates a regressive tax system and a progressive tax system to promote circulation.

Hopes for the Establishment of a Progressive Tax Party

Just as it was 150 years ago when the young people opened up Japan and saved it from being ruled by the great powers of the world, now our current young generation must get together and take action once again.

Passively acknowledging the gap between the rich and the poor or the crisis of the life environment will only force the young people to live under a degraded life environment with a poor social life. We simply don't have time to wait for a decision by an international conference which is in essence waiting to see what other nations will do, just like Japan did in the past.

Again I will repeat here that fortunately in a democratic nation, when an action becomes necessary to deal with a crisis regarding social unfairness or the global environment, there is a simple and practical way to deal with it. Whether you are rich or poor, the vote has equal effect. Utilizing this system there will be no need for a bloody revolution.

Just as long as you can collect enough votes for your objective, you can obtain your goal. If the young people vote with a clear objective and not leave it to the older generation, then they can have their intentions reflected in the governmental policies.

The more you leave issues to the others or postpone actions, the more difficult it is to resolve the problem. The ones who will suffer are the next generation. It is important for the young people to start reforming the social system from the outside.

There are many young people with low wages called the working poor or non-regular employees but are counted as employed to reduce the figures of the unemployment statistics. Even people with full-time employment are having difficulty in making their monthly loan payments.

If the young people and the non-regular employees, who make up for about forty percent of the Japanese work force, unite, they can have a candidate that commits to carrying out the regressive and the high-rated progressive tax system. Such a candidate could reach out for the vote of those who feel the unfairness of the society, now in the majority. Then, quite possibly, their voice can be heard by the government.

A “Progressive Tax Revolution” is not a dream. It will be the shortest path towards a sustainable consumption society with fewer gaps between the rich and the poor. The young people must simply become responsible for the regime and work towards the passage of a bill for a hyper-progressive tax system. This will be the most effective way to adjust the interests of the parties concerned. We can also expect a quick response from huge corporations towards saving tax.

If a hyper-progressive tax system or a regressive tax system designed to enrich the circulation is adopted along with the guarantee of an equal society with the hyper-progressive tax, then there will be a clear path towards returning to the consumption that is within the earth’s capacity limits and hope for the next generation will revive.

Half a century ago, the citizens of the Unites States of America united and sent a human to the moon. Anything impossible will become possible if we are united. The whole world will change if all the young people around the world get together, tackle the issue of tax reform, and cooperate together via Internet.

The current economic social structure, including the tax system, has been created and been protected for a long time by the people who have been gaining profit from this structure. Even the law has been amended for their convenience.

For example, political contributions and lobbying by corporations are legal, the biggest detriment of our democracy since it violates the fairness of votes and changes the ideals of the politicians. So asking the people who benefit from the system to reform is nonsense since they will resist anything that will change the status quo.

Any agreement for reformation will be adversely affected by those who try to benefit more than others and who resist every little compromise such that any action will be hard to come by.

Short-term profits and power are given more priority than the future of the young people. The responsibility for the results of the huge engineering works or nuclear plants which will affect the environment for a hundred or even millions of years cannot

be placed on the politicians and the leaders of the corporations once they have retired.

If the young people of the future generations keep on being indifferent to such issues and leave decisions to the current regime, they will end up living with a huge negative legacy.

I would like to entrust the hope for tax reform, preservation of the life environment on earth, and future peace of humans to the next generation.

Although unintentional, we, the older generation, have wrought much harm to this beautiful earth. As such, I believe we have the responsibility and obligation to fully cooperate with the young people to ensure the happiness of the generations to come.

Fairness in money circulation in society

Enterprises are pursuing an oligopoly position in the market, and increase their capital to grow further in exchange for bigger dividends payable to shareholders. Then, they insist that they are accountable to shareholders.

Under such a mechanism, the profits generated would circulate solely within the affluent; i.e. expansion of the enterprise and dividends for shareholders. Money that is supposed to act as blood to deliver nutrition to the body of society cannot circulate through the entire society.

On another front, the Japanese government has been supporting enterprises under the premises that unless they do so Japanese enterprises would be losers in the battle for oligopoly, and the government follows other countries' tax reform trends. Furthermore, they significantly suppress the progressivity in income tax rates to stimulate the consumption of the affluent.

Consequently, fairness in the taxation scheme has disappeared and the money flow from the poor to the rich was established. Thus, Japanese society, which used to be relatively fair and secure, has metamorphosed into a chaotic one where the rich get richer whilst the poor get poorer.

What also happened was computerization of money to mutilate its substance, making it possible to increase money in an instant.

Such money is not compensation for people's labor, but exploitation of those who work honestly, and/or from gambling based on the information war.

Money autonomously seeks self-propagation and zillions of dollars are rambling around the E-world every day. Not money's actual substance, but the associated

speculation is swinging the world economy and foreign exchange, which act to destabilize economic activity.

In the midst of global economic competition, stocks generated by burgeoning enterprises, new taxation schemes that widen the gap between the rich and the poor, and digitalization of money, all together function to let money circulate only among the rich, regardless of the enormous amount of money that exists in the world.

TV commercials are inflaming speculation in stocks and mass consumption every day. However, only the rich can afford to play the stock market. Save those people mesmerized by those TV commercials, neither stock trading or hyper-consumption have anything to do with ordinary people.

In order to regain our society's health, we can find a tiny glimmer of hope in tax reform, through which the flow of money in society could be altered. If we can manage to do so, our society would evolve into a bright, livable and gentle one through the resolution of the gap between the rich and the poor, and apt control of our consumption.

I realized from my observations all over the world that the narrower the gap between the rich and the poor, the more comfortable daily life is even for the affluent. The flow of money in those countries is regulated by their taxation scheme.

A tax system that shares, and doesn't compete—the joy of sharing

It will be wonderful if the tax collected by the progressive tax system brought about by tax reform will be used for the happiness of many.

If each individual, with the full use of their ability, can work towards the happiness of others and create a society that shares that joy, what a wonderful life for humanity, what wonderful days. I think all this is possible by way of the tax system.

With the premise of it, being hyper progressive, a simple tax system will bring clarity to its fairness. It would be a sharing tax system and not a competing one. The consumption tax, which is supposed to be far-reaching but manageable, is inconsequential for high-income people but burdensome for those low-income people whose ratio of daily necessities to total budget is higher than those of high-income people, therefore this is not equal sharing. It is as if both are donating the same amount of money.

"Sharing" is a concept to put our hopes on. "Sharing" is a doctrine contained in all

the religions of the world. I would like to expect followers of religions, who constitute the majority of the world's population, to follow the teachings of their religions.

Under a progressive tax system, if the high income earners' large tax contributions make the life of others happier, then it could be said that "Earning money not only makes others happy and but also that fact will make you happy." This is the peaceful life that God teaches.

A tax system that emphasizes sharing will disassociate money from envy or greed, and people will praise rather than be jealous of high-income earners. Money will metamorphose into something backed by the heart pursuing happiness.

If the way of the tax system can change the greedy, self-centered mind into one that aims to bring joy to others, then people will also take good care of green forests and water which are the basic essence of life. The life environment will be rich and people will start having concern for the prosperity of all creatures also.

It is often said that high taxes and low net income will reduce the motivation for labor and research, therefore human intelligence will not make any progress. But such an idea is nothing to do with research or work that hope for the happiness of the people, but is pursuing a tax system that affirms the freedom of greed.

While there are plenty of goods you can obtain with abandonment, next to you are those who have trouble getting food for the day. It is not progressive thinking but degraded intelligence arising from the loss of life's bonds if you buy luxuries without hesitation because you believe you have "rightfully" earned your money under the low tax system.

Intelligence is giving the lives and happiness of others the same importance as your own. Consumption of luxuries with abandon, that is to say, the degradation of intelligence, has caused the crisis of the whole biosphere.

The tax system, just as the Constitution, is an expression of the mind and intelligence, and will have a great influence on the reason for the nation's existence and dignity. Laws tend to be made by powerful and rich people. The gap between the rich and the poor and the destruction of the environment are the results of the people who duly follow the law.

If the law doesn't prohibit you from spending the profits which you earned legally, then isn't the law protecting a sin or a fraud? Just because you follow the law doesn't mean that it is justice.

There are idle people who do almost no work, while there are people who earn a lot of money with their acute intellect or earn income without working. Is there a difference between those types of idleness? People who consume more are more sinful creatures.

I imagine that the total amount of the income unrelated to working, such as earnings from investments, stocks and interest, are huge compared to welfare payments paid to people who cannot work or who simply are idle and do not work. For the stability of the society and happiness of the people, implementing welfare, such as public assistance, is more important than protecting those with greed not willing to give up income which they earned without working.

The gap between the rich and the poor has widened, and it is not unusual to see people with annual incomes of 100 million U.S. dollars, or of 10 billion Japanese yen and these people think that their large annual income is due to their ability.

But people do not choose to be born. It is all by chance that some are born rich, while the others are born homeless. I want those who are born with extraordinary ability to make good use of their ability to help others without such abilities and bring prosperity to such lives.

It can be said that money is illusionary. In a simple life, money takes on a realistic role, but as greed increases, money becomes an illusion.

Once your income and debt rise to such levels that are hard to imagine, you feel no embarrassment that the debt is ten times the national budget.

I think the progressive tax system is the best solution to detach illusion from greed. Otherwise the inflated illusion will suddenly collapse one day in the near future, and everyone will become unhappy.

We should spend our life thinking about human bonds, keeping in mind that the annual per capita GDP of the world is about 10,000 U.S. dollars or about 1 million Japanese yen on average.

Chapter-11

Solidarity in life – Why do people climb the high mountains?

Why do people climb the high mountains? Solidarity in life might be the answer.

I first experienced the instinct first-hand that "There is Solidarity in Life" when I climbed Mt. Everest without oxygen cylinders and was alone in a tent 8,000 meters above ground.

Feeling utter loneliness as if I were left alone on the moon, I desperately looked for the trees, flowers, or birds in the emptiness of the ice. That was the old days when this mountain was still quiet.

I thought to myself, why am I climbing such a high mountain in unbelievable loneliness? Then it came to my mind that "there is an instinct in life forms to try to expand the biosphere from the bottom of the sea to the highest mountain in solidarity."

It has been conjectured that life forms have always sought to live in solidarity, and each species adapted to their environment from the lowest parts of the earth to the highest mountains, spreading to all the corners of the earth.

For me, it was an epiphany confirming that we all started with the DNA of one life 3.8 billion years ago.

What I was vaguely looking for before departing for Mt. Everest was probably the instinctual solidarity with other lives which all arose from the same DNA and the nostalgia for the bonds of life which mankind was losing.

Coming back from the mountains to where there are many people, the bonds of the people and the solidarity with other lives started occupying my mind.

At first my wife was in favor of this mountain-climbing undertaking, but as the departure got closer she started to oppose it, which was very painful for me. Although I carried out my plan, since then I started to see each life as having its only one consciousness.

This experience of the loneliness in a tent 8,000 meters above ground provided me with an understanding which brought great pleasure and I cherish it as my lifetime treasure.

At the risk of sounding arrogant, I feel like the high mountains allowed me to look at life with modesty.

The instinct of solidarity, forgiveness, and love – between the old brain and the new brain

Up until now, I didn't give much thought to the belief that humans are special in this universe, and that God listens to our prayers and is concerned for our happiness.

Many say that mankind, who has a new and developed brain, is more advanced than other creatures, the majority of which have old brains.

But has mankind evolved as a living organism by having a larger brain? Lives were lived based on instinct alone for 3.8 billion years before we took over.

Despite the fact that lives existed for several billion years, mankind takes pride in its birth 200,000 years ago. But why does mankind, supposedly more evolved than other creatures, create this crisis of the biosphere? How will the biosphere change if mankind disappears?

There is also a theory that mankind, which is only one of the several tens of millions of species, uses up 40 percent of the blessings of what the Earth has bestowed on all creatures.

Since my wife was stricken with Alzheimer's disease, I have spent a lot of time thinking about the brain. Also, I started thinking about the relationship between the instinct of life, love and forgiveness, and the brain.

If all lives are divided from a single life, each life should have inherited the same familial instinct in their DNA.

The thought that each life has an instinct for solidarity and family in their DNA and in the old brain makes me feel the bonds of life and deep familiarity with other creatures in nature.

But nowadays, a look at the anatomy of the human brain shows that the newly developed large brain in humans wraps over the old brain, as if to put the instinct in the old brain under its control.

As a result, it seems that the conflict between the old and the new brains creates a divide between the mind and instinct, causing the mental and physical diseases which mankind started to suffer.

Couldn't it be said that one of the characteristics of mankind is that the "instinct for solidarity of life" has been alienated by the new brain which prefers the inorganic? This may be the reason why mankind damages other lives which support solidarity.

If we get far from the solidarity with other lives, bonds between humans will also be lost, and lonely existence takes over the mind. Is such loneliness what is called original sin in religions?

When you feel lonely, it is the already fading instinct aching, a condition that could be termed as "the heart's feeling of nostalgia for solidarity," suffering as it tries to recover the bonds of life. This feeling might be what we call " Love or Charity".

But since the "Love" which the new brain searches for is out of the loneliness and not as an instinct, it will not easily reach the brain of others. I think that is why "forgiveness" became necessary along with love.

As the instinct for solidarity decreased, selfish greed grew. The infinite greed for money of the new brain endangers the continuity of life and the lives of other living beings.

If only the new brain evolved in a favorable way, bonds with other species as well as between humans could have been stronger.

Anything good for life looks beautiful – the happiness of life is to be found within the circulation

I always feel relieved when I leave the urban area and get to play in the fields, in the mountains and by the waterside, and encounter flowers, green trees and hear the babble of streams. I think this is because pure water and green trees are good for life and "anything good for life looks beautiful."

Ten years have passed since I have decided to move to the countryside as my final abode. My friends living in the city wonder what I am doing in the countryside and worry that I might get bored.

The difference between the city and the countryside is that in the countryside there is lots of water, trees, and the creatures which are the origin of life. In other words, the volume of the circulation is overwhelmingly greater in the countryside than in the city.

Watching the strange ecology of each single life, each of them with a unique form, is nothing but a miracle considering that they were all connected to just one life 3.8 billion years ago. I never get bored watching these different life forms considering how in the past, we were ancient brothers and sisters.

Although my friends worry about my getting bored, with my wife at my side, I am never bored as I explore the habits and mysteries around us, play in the forest, watch

the stream flow, and appreciate all the blessings of nature.

The blooming spring flowers, the adorable newborn cute little birds, they are all lovely. They provide an instinctive joy when you think such life will be handed over ever after we die.

Encountering streams surrounded by green trees makes us happy because water and greenery are the origin of life, they also nurture life.

My wife and I feel the harmony of nature in the flowers in the fields, green trees and grasses swaying in the wind, and even weeds as well as the rotating four seasons and the silent rhythm of the falling snow.

The flowing clouds, the murmuring of the stream, the raindrops dripping from the leaves, the songs of birds and insects, all of these are life itself and the rhythms of the circulation of nature. Circulation is life, the grace of life; what is good for life is beautiful.

My wife had simply been stating that nature was so beautiful. When she started to understand the reason why it looks so beautiful, I felt that her life was soaring in the sky.

How many more new leaves will we see? How many more autumn leaves will we see? Both my wife and I are wrapped up in the day-to-day grace of circulation. Dynamic life forms in the spring brings a nostalgic sense of childhood, and the autumn leaves make us ponder about the silence after death. We can put ourselves, who will eventually encounter death, in the place of the falling leaves returning to soil, entrusting their hope to the buds.

In Japan, there is a spirit to love the flowers just as they are, as they exist naturally in the field. I have read an article saying that picking flowers and bringing them back is a desire to own life as an inorganic thing.

Nature is a form of circulation. We are alive by the benefit of circulation. We have evolved to feel that benefit as beautiful. Other lives must feel the same.

Maybe that is why being in a rich circulation environment heals our mind and makes us feel happy. I think that “happiness lies in the water and the greens, and within the rich circulation full of life.”

The grace of circulation nurtured and enriched many lives, and the joy that we experience from witnessing that brings happiness to our minds. My wife’s and my lives are filled with joy. Anything good for life looks beautiful.

Food is life – Study of food education

Whenever I have a meal, I feel for the lives on my plate whose consciousness has an importance equal to mine. My heart freezes when I believe I hear them whispering whether I am worth so many lives being sacrificed.

Many lives devote their lives to others in order to bring about prosperity and continuity of life. The delicious food we enjoy are those lives.

There are many gourmet programs on the TV but there must be a sense of emptiness if the food is being eaten without any sympathy towards the sacrificed lives.

When you go to buy food in Japan, meat, for example, is packaged after being cut or processed so it has no semblance of the original creature. So, unless we teach our children about the origins of food in some way, they may grow up not knowing that the food they eat were actual lives.

We now often hear the term "food education." I want the concept that "foods are lives" to be taught. As a foundation for food education, I want children to be brought up and taught based on the heart cherishing lives.

When my children were small, I thought about showing them a slaughter-house. I thought how it would make them think about those lives were being sacrificed. Experiencing a slaughter-house might have been the best way to show them how other lives die on our behalf.

I went to see a chicken farm utilizing the broiler production method with my children, where chickens were put in a small cage so they couldn't move and therefore grow fat. The human equivalent for such size cage would be less than the size of a single bed. I wonder what kind of mind a person has to come up with this kind of cruel treatment when you think that these chickens have a consciousness just as valid as our and are sacrificing themselves to be eaten by mankind.

How easy it is to only eat without having to grow, breed, or slaughter. While we never made it to the slaughter-house, I always recall that intent when I buy meat.

Instead of saying the typical words, "thanks for the food" before and after a meal, I would like us all to communicate to the food that you will treasure your life in consideration of the sacrifice the food has made and convey to it your gratitude and remorse. At the same time I would also like you to keep in mind there are many people including small children in the world who do not have sufficient food.

If children can only learn at a young age, in school or from their parents, that lives help each other to create prosperity, that we can only survive by eating another—which is about the bonds of life—then they may have consideration and gratitude for the lives being eaten. And I hope that when they grow up they will think about the happiness of others around them.

How many lives have been sacrificed for me to grow and develop? And old as I may be now, I still need to continue taking lives. In this sense, how painful and sorrowful life is.

Learning about life during childhood – solidarity of life and the continuation of life

I was born as a human by chance and lived my life through the support of other lives. My day-to-day life is based on the overall benefit arising from the circulation of the nature and bonds, that is to say the sacrifice of many lives and by the actions of other people.

Knowing that my life was given by chance, the concept of living with solidarity, and the free gift of circulation, I wondered if the way I lived was right. But the vague image I had in my mind has become as bright as dawn. I have been reading many books, not knowing what I was looking for.

When I was a child, I was said to be "komachakure." It's a word from a local dialect and I am not sure how to translate it but maybe "cheeky" is close. Anyway that characterization makes me smile.

I was also admonished to be modest, but as I loved human beings as much as I loved birds and squirrels, what I saw in the behavior of adults did not seem like modesty to me. I was embarrassed when I went out into the society, still not understanding what modesty was.

How would I feel if others did unto me as I did unto others? I grew up without having that simple notion of compassion.

It is difficult for those children who grow up in a society where bonds between people are decreasing, to nurture their own consideration both intellectually and emotionally, for the lives of others. It is same with tennis, which I love—you will not progress if your practice strays from the basics.

Moral education is discussed in the Diet now, but I think the basic of morals is not such a formal issue, but rather an emotional consideration and eye about the lives of

others.

Etiquette is recently being called “good manners.” Same as with morals, etiquette is simply a mindless formality unless you have intellectual and emotional consideration and eye for the lives of others and, without such, etiquette is just a form of vanity in disguise.

Aren’t the activities in athletic clubs at school, which are considered to be strictly disciplinary, also in danger of becoming a formality? During such an important period for the mind to grow, I want the upperclassmen to be a role model against vanity in disguise.

Showing consideration is a universal mindset. If you value all life and possess eye to pray for happiness for all, your mind will be unhesitatingly peaceful whichever country you go to, whomever you meet. This is how I felt.

From a very early age up to graduation from elementary school, I want schools to incorporate a curriculum that specializes in teaching consideration for life and the importance of sex for the continuation of life. Because I think these are the most important basics wisdoms in terms of perpetuating human lives.

If they learn about solidarity of life and continuation of life, they will think about being thankful for the blessings of nature, caring about the growth of the environment, and wishing for the happiness of others. That will also probably put a smile on their lips.

I believe that the thoughts, words, and actions for “thank you,” “I am sorry,” and “please,” will come naturally if they are said in consideration of people’s lives, not money. It would be wonderful if the standard of living returns to people’s consideration for each other rather than money.

Had I had such education before marrying with my wife, we could have spent our days regarding each other and looking at each other as one precious life in our day-to-day lives.

As my wife and I did not have the basic understanding of life in our hearts, we experienced emptiness and conflict for a long time. When the heart is not connected to the basic understandings of life, spending life together might be painful.

What is scary about falling in love is that you force yourself believe that all that you see in your partner is favorable. But except for the fact that both partners have life, there are no commonalities, such as birthplace, culture and personality.

Now, if we have a basic understanding of life, we would probably have continued interest in each other, correct each other's ways of living, and encourage each other, and this will be good enough.

There used to be a wonderful culture in the old days of Japan where the basic of way of life was to assimilate with the circulation of nature. But when the era of modernization came around, the emphasis on science and technology caused even the mind to have to divide its labor to such matters which, I think, reduced the opportunity to learn about life.

If we are to emphasize science and technology, high importance should be placed on educating the way the mind should work, otherwise humans will grow without developing a balance between mind and knowledge.

Science and technology, which are not based on the solidarity of life, will become a dangerous weapon and destroy the circulation of earth. Intellect and desires that are not based on life will not only make other lives unhappy but will also lead to the collapse of the biosphere.

The reason I wrote about my wife and my experiences after all these 80 years is that I felt that the fact that I was born by chance, that we share life and prosperity in solidarity with other lives, that we have sex praying for lives' succession, were the basics of life, something that I wanted to pass on to the next generation in this biological circulation.

If I were to be born again as a human, I would want my parents to put me in a school where they teach what I consider the basics of life.

The story of the solidarity of life - from the first life to my life

I think about the lives that kept going without a break from the first single life 3.8 billion years ago up to my life. I wonder what kinds of lives existed in between and how they entrusted their hope to the next generation. These things come to mind when I think about being raised by my grandparents and my parents, and the experience of raising my children and grandchild.

Soon, after death, I will revert to being molecules, so I wanted to trace my roots. I ended up only finding that my ancestors were tiny unicellular fungi.

It is a very rough flow but I have traced the story of life which came to my mind. I tried to depict in narrative form the history of life which prospered in solidarity and

continued to entrust hope up to the present.

Hundreds of millions of years after Earth was created, a substance that kept replicating appeared in the sea. A unicellular fungus wrapped in a film of fat arose.

That was the birth of the first life. It seems that fats have the property to become round-shaped in water; therefore they are said to be wrapped. The unicellular organism replicated itself and lived on very little for hundreds of millions of years.

Bacteria called cyanobacteria, which create sugar by combining light, appeared. This is the origin of evolution. The process of photosynthesis produced oxygen as a waste product. Oxygen in the sea and subsequently in the atmosphere increased. This happened about three billion years ago.

Then a large unicellular organism that incorporated bacteria which produced sugars in their cells through photosynthesis emerged. Is this the beginning of solidarity or the beginning of exploitation? The incorporated bacteria transformed into chloroplasts. This large unicellular organism became the ancestor of plants.

Despite the increasing oxygen—poison to life—in the atmosphere, another new bacteria appeared. These bacteria take in this dangerous oxygen by inhalation, and then combine the sugars intercepted by other bacteria and this dangerous oxygen together, creating a highly efficient energy, and discharging carbon dioxide by exhalation.

This was a high-efficiency energy revolution which produced several tens of times more energy than what had been obtained by the force of fermentation, and by the use of oxygen, which was a waste product, life was greatly activated. Now mankind is suffering from carbon dioxide, which is a waste product, but life has been effectively using such waste from ancient times.

Then a different larger unicellular organism incorporated these bacteria into itself, creating high-efficiency energy, which they began to use. The incorporated bacteria transformed into mitochondria. This larger unicellular organism became the ancestor of animals.

Plants, having chloroplast which provides nutrition within itself, evolved into a life form that need not move.

Mitochondria convert nutrition which animals have stolen from the plants into a dynamic energy. And the animals came to exist as a life form which lives and moves around actively using this energy.

For some reason, chloroplasts and mitochondria became settled together in plants,

but I cannot understand the reasons why or the consequences of the relationship between these two. Some research say the cell which incorporated the mitochondria incorporated the cyanobacteria afterwards.

Anyway, since animals only have mitochondria and no chloroplasts, their nutrition depends on plants.

The large unicellular organism which is the ancestor of plants and animals incorporated the chloroplasts or mitochondria in each body, but in addition, it created a basket called nucleus which housed the important self-duplicating DNA. The scientific name of this cell is called eukaryotic.

Going through such process, life becomes complicated. As time goes by, the eukaryotic unicellular organisms begin to cooperate, coming together to share work. This is the beginning of the multicellular organism. This was the big step towards the current complex and large creatures. This was about a billion years ago.

At the same time, it seems that they divided into male and female as an advantageous strategy for survival. Maybe that is because even in one body, a mixture of cells with diversity is probably stronger when in jeopardy.

At that time the environment was quite different from how it is now. Since the rotation of the earth was faster, there were 70 more days per year. Probably, a day was about 20 hours. The moon was much closer to Earth than it is now. Somehow I felt like I am touching upon an interesting secret of the universe. I do not remember learning such interesting things in school.

The ozone layer was still thin, and creatures stayed in the sea to avoid the ultraviolet rays. Life survived, adapting to the severe changes in environment.

But until 600 million years ago, there were only several dozens of species. It was discovered from fossils that the number increased explosively to 10,000 species during the Cambrian Period, which was about 500 million years ago.

There are different opinions and they also are in conflict with the theory of evolution, but fossils tell us that the various types of creatures currently existing came into being in the past ten million years.

When I was a child I believed that if I kept on wishing that I could fly, feathers would grow on my arms. So I held large fans in my hands, tied a fan on my back and jumped from high places. I thought it was the same with birds that they grew wings because of their desire to fly in the sky.

As we become adults we learn about the mysterious ecology of life. It is natural for a person to think that if consciousness is a result of chemical reaction to information produced by the brain, then the consciousness that I want to fly in the sky is also related to evolution.

Anyway, the unicellular organism, the first life form which appeared almost 3.8 billion years ago and survived about 3billion years on very little, finally became multicellular about 800 million years ago, then gradually similar to our current form, with features such as hands and feet rather than being in the forms of bacteria or algae.

With oxygen increase, the ozone layer started to thicken 400 million years ago. What I imagine is that plants rose out of the sea leaving their roots in the water followed by animals. Plant prospered and covered the earth.

There are various theories, one of which is that about 300 million years ago, a global volcanic activity covered the sky with volcanic fumes, followed by several million years of a cold period, and it seems that most of the plants and animals became extinct.

They became respectively coal and oil sleeping deep underground until they got unearthed by modern people and used as fuel.

The ancestors of mankind, which were mammals, appeared about 200 million years ago, and were creatures somewhat like rats. The apes appeared 15 million years ago. Rats evolved into apes. Apes became the first to walk on two legs five million years ago.

The appearance of current mankind was even later, some 200 thousand years ago. Neanderthals appeared a little before that and lived together with mankind for more than a hundred thousand years before disappearing. Why they disappeared is not known.

Looking at this flow of life, it can be seen that creatures have evolved in prosperity by mutual cooperation. I think that there is instinct for solidarity in all the genes of life, which makes me even more cherish the lives of all creatures around me.

So far that is the story of life. There are many theories in scientific publications. It is only since around the time I was born that we started to learn more about life and the earth. As a general story, I think what I have related is good enough, although it may be somewhat debatable as it includes much of my imagination.

What I wanted to say is, I wanted you to know how life had solidarity, how they cooperated hoping for mutual prosperity, and how they died and handed over their

lives to the next generation.

I think about the life which has been continuing unbroken since 3.8 billion years ago, and want to entrust the hope of life and leave this beautiful earth to the following generations.

Chapter-12

My cosmic view

The circulating macro cosmos – Life and the swirl of the universe

Flowing clouds, streaming rivers, the setting sun, changing seasons, and the leaves on the tree entrust life and hope to the next generation as they cease existing themselves. Things transform as they go around the universe.

All creatures, including me, as well as stars are all born and they die. Maybe the point when the transforming flow of elementary particles of the universe change is the events of birth and death. All existence in the universe continues an eternal journey called circulation while the swirl of the elementary particles transform themselves.

If you look at this flow as a process of departure, entrusting hope to the succeeding generations, I feel that the soil, grass, insects, trees, forests, stones, rocks, mountains, even the moon, stars, the sky, and the entire universe - which I really don't understand - are very lovely considering that all lives are formed from the same vortex of the elementary particles as I.

Living in the countryside, my wife and I enjoy strolling in woodlands and valleys, and enjoy encounters with babbling brooks and the many lives surrounding us. At home, we enjoy watching all kinds of lives coming to the trees in our garden. These are precious days left for my wife and me.

The lives around us will depart when the time comes for each of them. They try to live as long as possible, but at the end they calmly accept their fate, entrusting their hope to the following life, and return to the eternal journey called the circulation of the universe.

It seems to be not a big issue when a single life, out of the infinite number of lives throughout the ages, disappears from the earth. Even if the earth and the sun disappear, the universe apparently remains silent.

But if we view the universe as a consciousness in itself, it is just the same whether the entire universe disappears or I disappear, and that is an unfathomably fearful thought.

My life is only one in a few decades of the history of the universe. I will have experienced joy, sorrow, loneliness and fear of departure, feelings I would have never

known had I not been born. What is life?

Since I was a child, when I came across a babbling brook, I always liked to watch the stream flowing down. And I still do.

There is a “swirl,” where the water flows over or around a rock. The swirl stays at the same place, no matter what. Curious, I picked up a stone and threw it at the swirl. The swirl disappeared momentarily but soon appeared again in the same place.

Literature I have read says that in order to get rid of the deteriorated cells in a body, the body replaces all its cells in a few months to one year. Am I a completely different person from a year ago? If that is true, I will be glad if my brain cells with violent temper will be replaced by ones calm and a clear-minded disposition.

Even though my whole body is replaced, my ego remains. Is there any difference between the swirl which stays in the stream and my ego? Is the identity of life something like the swirl?

I have also heard an expression saying that life is like the fire of a candle. But I prefer to refer to it as the swirl, as it makes me feel more like being in the current of the universe.

If life is like a swirl, that means that cells simply flow through the body without any beginning or end in life, just like elementary particles swirling in the infinite flow of the universe except for momentary stagnations once in a while.

When I look up at the universe from this perspective of the concept of swirl and circulation, the whole universe feels like a single organism and I feel my mind expanding into the universe.

I see any number of sizes of swirls, from the atomic level microcosmic swirl of an electron to the large universe swirl in the night sky, all the swirls being tied in harmony and circulating in the magnificent universe.

According to the theory of thermodynamics, it is said that there is an order in the circulation of the universe. For example, swirls of elementary particles assemble to become atoms, atoms become molecules, molecules become cells, and cells linking together with the circulating blood become a swirl of multicellular elements, which is the human body, a circulating microcosm in itself.

Humans consume other lives, the discharge of which will be consumed by future lives. Having the bonds of life, mankind is a part of the circulation of the life.

Looking at the lives around us, thinking about the chain of bonds of life, it is natural

to think that in this universe, one is born to give life to others after departing from one's own life. Why do some of mankind burn corpses without giving them to the other creatures?

As humans, a small circulation living in the biological circulation, which is a rank higher, we are living thanks to the lives of the others. And even such biological circulation can exist thanks to the circulation of the earth. Therefore, I would like to humbly value the lives of others and be mindful of the limits of the circulation of the earth.

The earth also belongs to a circulation, that is, of our sun. A star is comprised of infinite particles that have condensed within the large circulation of the universe. And the galaxy is comprised of those stars assembling together, forming a swirl.

Our lives cannot be separated from the bonds of the universe as everything is all connected, from the small circulation such as blood to biological circulation to the circulation of the earth and ultimately to the larger circulation of the universe. We cannot live apart from the bonds of the universe.

We are small swirls, just like the swirls of stars and galaxies that appear and vanish within the magnificent universe. Although different in size, our swirls are similarly composed of elementary particles, thus the children of the universe are born from the same large circulation of the elementary particles of the universe.

Our Earth and the stars will return to the circulation of the universe when the time comes to die and will become some other existence. We and the stars will all allow ourselves to go with the flow of the infinite elementary particles and probably are now enroute on an eternal journey.

My body must be a transformation of a star which exploded a long time ago and died somewhere in the universe. Which part of the universe did I come from?

If we look at this from a circulation point of view, it can be said that this universe is one of the larger circulations. Or will this universe be sucked into a huge black hole and transform into an order of another universe? Like the countless explosions of supernova, there might be countless universes, or if we ever pass through the black hole, the time flow might be reversed.

According to the science of the universe, it is said the time expands and contracts. So when you are running and competing against light, the expansion and contraction of time, which is a relative phenomenon, is no longer a wonder and dreams can expand to

become infinitely large. We are able to have this joy because humans were given a cerebrum.

I like this feeling that I am part of a larger circulation of the universe, where the stars, earth, various lives, and myself are all of the same composition, all swirls of elementary particles of varying sizes. I can feel the sense of unity with the universe, whenever I encounter a new season.

Spending my days in the countryside, surrounded by the circulation that includes lovely birds, forests and streams, I can feel from the beat of my heart that my body is directly connected to the circulation of the universe.

While I am living in the circulation where the four seasons are rotating appropriately for earth's creatures, I notice that I do not have to worry about the future.

Although the rotating four seasons are the same, I enjoy them each year similar to the joy I feel when, as I repeat to read a book word by word, I have discovered some new aspect of the heart of the author. I enjoy the deepening unity with the universe as the years go by.

From ancient times, religious leaders and sages have been warning us against becoming attached to goods, money and mind; this is probably because they have realized, from meditation and intuition, the truth about the large circulation of the universe. The truth of the universe being God may be the basis of the religions.

In the universe, there are laws of forces such as circulation, diffusion, and contraction. These forces, such as the force of gravity, electromagnetic force, and nuclear force, all of which are different in intensities, seem to act in harmony and equally on each elementary particle existing in the micro universe to the macro universe. I think it will be more a straightforward, if we term this comprehensive law of the power of this universe as "God."

It seems to me that the law, to which God kept directing mankind is the renunciation of greed and obsessions, and to become one of the members of the swirl, be in solidarity with other lives, and follow the order of the circulation of the universe.

I began to feel the joy of living with the bonds of the circulation of this universe, and am happy now that I understand the wisdom that the indigenous people of the world left for us and the heart of the circulation that flows in the underlying culture, which are folk songs, folk dances, fairy tales, haiku, poetry and paintings created by our ancestors.

Mankind has rebelled against God while at the same time honoring God. While modern people worship the works of religious leaders and sages, it would be mere idol worship without adopting the attitude to live in the large circulation of the universe and having concern about the mass consumption that has gone beyond the earth's circulation capacity. Isn't disregarding the truth of the universe the sin of idolizing a fantasized God?

The majority of the people in the world belong to some kind of religion; the non-religious are actually in the minority. If most of those people who belong to those religions really believe in God, then I think that mankind would be peaceful and happy.

In other words, there is still hope, even now, that we can return to the laws God shows.

Sitting in front of the embodying risk of living environment, it reminds me of the scene of Buddha sitting down and preaching the truth of the universe or the part in the Old Testament where God punished the people in the desert for moving away from His love into idolatry.

The starlit sky and the light of the house

I think about those people back in the early days of mankind who watched the mountains and the starlit sky from the same place where I am sitting now. What were they thinking? What kind of dreams did they have and what hope did they entrust to the succeeding generations? And what kind of earth will we leave when we depart?

After discovering fire, they must have spent nights by the bonfire. The surroundings must have been completely dark. Were there fireflies? I imagine them looking up into the eerie night sky. The topic of conversation must have been about the beautiful night sky full of infinite mystery.

The more they think the mystery of the universe, the more the imagination turns into fantasy in their dream, and perhaps it would seem like a voice from above. Myths also might have started in this way.

Even after mankind became familiarized with fire and was able to have light during the night, the night sky must have been still quite beautifully rotating all over the earth, and it must have aroused the imagination of the people.

We can imagine how much time people spent looking at the stars from the surprising knowledge they had about the movement of stars when, even in recorded history, they

had no telescope.

And finally mankind invented electric light and the steam engine. Since then, mankind has been living with a mysterious illusion called the time thief. Nowadays, those who watch the night skies are either those who have plenty of time and mind to spare or those who do so as a job.

I think the reason why we modern people stopped watching the night sky and stopped thinking about the universe is not only because we are busy but also perhaps because of the way modern urban houses are built.

At night, once the street lights and room lights are lit and the blinds come down, the bond between the night sky and humans is severed.

I noticed this during a climb of the Himalayans when I was talking with the chief Sherpa watching the night sky while we were walking to base camp.

The size of the universe - My sense

One of the joys I had as a commercial pilot was that I had a lot of time to watch the night sky. This was because I tended have chances to pilot many night flights, popular with passengers who wanted to sleep in the aircraft and immediately start their day when they arrived at their destination in the morning.

When flying on autopilot, the night sky doesn't move, thus you don't feel you are flying almost at the speed of sound. Except for the occasional shooting star penetrating the night sky, there is only a lonely silence that stays still in the utterly dark space. As I gaze at the stars, my mind wanders back to a world that only ancient creatures had seen.

What I see from the cockpit window during a night flight is a universe full of the night sky. Thinking about the size of the universe as often as I do, I had memorized figures somewhere along the line.

After I retired and moved to the countryside, the surroundings are dark and I have a lot of chances to look up at the night sky. So remembering those figures, I let my mind wander the universe, watching the stars.

I tried to have my wife memorize this figures as well so she can let her mind wander the universe with me, but due to her Alzheimer's disease affliction, sadly she cannot really understand the universe in three dimensions.

Although it makes me feel somewhat guilty to watch the universe using these

figures, understanding the depth of a star and the space to the end of the universe gives me a joyous sensation of feeling like a part of the universe family every time I look up at the night sky. And I will write it down here so that it can be used as a reference.

To make it easy to remember, the figures are simplified into units of 5 and 10. I didn't even dare qualify the figures with "about" since that might make one think it was a rough estimate or that it might be wrong. But to get a sense of the universe which expands at the speed of light, even a significant error will not deter it from making sense of the universe.

The figures are based on the speed of light, which is one billion kilometers per hour.

First is the solar system. It takes only one second to the moon, and ten minutes to the sun, so the sun we are seeing now is the sun ten minutes ago. There are ten planets, thirty minutes between them. Because the edge of the solar system is five billion kilometers away, the radius of the solar system is five hours.

Next, the distance between stars suddenly become longer, and it takes five years even at the speed of light. So I consider anything within the edge of the solar system as one of my relatives, since the edge of the solar system is as close as five hours whereas the closest star is five years away.

Among the countless stars in the night sky, when I think as I'm looking up at the night sky of the fact that the nearest star is in its form of five years ago, all kinds of thoughts, feelings of love and hate, even the fact that I have lived until now, become sublimated or evaporated to the universe into which I become drawn.

What a lonely existence in the universe are the sun and ourselves. I can visualize our solar system floating alone in the space of the universe.

If we think in this way, the term "universe" shouldn't just refer to the outer limits of Earth's gravitational sphere, but at least should include the outermost planets of our solar system.

The galaxy consists of 100 billion lonely stars like our sun, all in a swirling form, and it takes one million years at the speed of light until you reach the next galaxy!

I feel sympathy to "Mr. Light," who in our minds is a hard worker, being so fast. But actually Mr. Light is too slow for the universe.

The universe is said to be expanding. So the distance between the galaxies floating in this space is still widening.

And there are 100 billion galaxies in the universe, so the journey to the end of the

universe will be 15 billion years at the speed of light. And there may be a world of a different level beyond the end of the universe.

Coming back to the solar system, the earth rotates around the sun at a speed of 100,000 kilometers per hour, which is a tremendous speed in terms of flying. But being on earth is the same feeling as being on an aircraft, a sense of just floating in the sky.

We go around the sun riding on Earth. It is a journey that takes a year; i.e. one billion kilometers per revolution. Due to the Earth's tilted axis, we can experience the four seasons during one revolution.

The four seasons gives me great joy and appreciation for being born as a life. I will appreciate everything without complaining how hot or cold it is, and accept everything, even the worst storm, simply as they are.

Soon, though I want to return to the soil uncremated, I will revert to molecule when I become ashes by being cremated which I dislike. I will depart on a long journey, but I will be traveling together with the Earth for a while.

According to the science of the earth and the universe, after hundreds of millions of years the earth's atmosphere, contrary to present condition, will lack carbon, and the life forms depending on photosynthesis, like us, are destined to disappear. Life was born 3.8 billion years ago but will disappear in hundreds of millions of years from now.

The earth will keep rotating around the sun and after five billion years, it will be absorbed by the enlarged sun. Then the earth vaporizes, its molecules including ones derived from myself turning into gas, and departing for a new eternal journey into the large universe. I wonder what kind of world is waiting there.

The stars, like the sun, also grow; they age and die just like us and will also continue to circulate in a different form.

Thinking of this process, the stars, the earth, as well as, life and mankind, all of those are not special existences in the universe but the small elementary particles which exist universally as the same space families born from the Big Bang. While boundless elementary particles are eternally circulating, fading out and reborning in different existence.

Thus, all the existence in the universe is equal, from mankind's good to evil, happiness and unhappiness; and my birth and death are all inevitable in the course of the transience of the universe. It is hard to find appropriate words but perhaps a

fluctuation of a mirage of elementary particles in the large circulation of the universe may be a close description.

Although it was a modest trip, taking only one second at the speed of light, mankind has made it to the moon in search of an expansion of the human sphere. Until then, the night sky and the universe was a world of infinite dreams and intellectual curiosity.

But that dream has changed to the desire to develop space around the earth, and now a layer of garbage is starting to surround the earth. Will mankind be trapped on earth surrounded by garbage?

As science and technology develop to make life more convenient, people no longer watched the night sky, and the heretofore dreams of space are fading. It seems that the mind of mankind is becoming just a shell, excluding not only the night sky but also the lives of the others, dealing only with small computer games in their own little world.

The new brain that mankind is proud of expands the dream towards the universe on the one hand but is strongly oriented towards inorganic issues on the other hand, and it seems that the instincts of the old brain, which is necessary for survival, have faded.

This is a process of disorderly diffusion of the universe, or possibly degeneration, rather than evolution. Strangely enough, perhaps it is a normal process of diffusion and transformation of the universe that life, an amazing thing, will disappear hundreds of millions of years from now.

Daydreams about what comes after death.

Watching the sunset from my veranda makes my mind a little lonely. It must be because it reminds me of my mother going out of my sight when I was a child.

When sunset arrives at the edge of the southern Japan Alps, I feel that the huge earth has made one rotation. It is the world of the Ptolemaic theory which makes us feel as if the Earth is not spinning.

With Earth as my vehicle, I have already gone around the sun 82 times. After a few more times, I will say goodbye to my human form and become a micro-molecule.

What I have related up to now is something that will happen to me in the near future for sure. I wonder what my molecules, which will be scattered after my death, will become a part of. In addition to the fear of dying, there is also a sense of a vague nirvana.

Isn’t this the law of life, that one’s life is given from the lives of the others, so when

that life dies, it should be given to the others.

Buddha is said to have told his close disciples that they do not have to save his bones nor have a funeral. I think he also does not recommend burning remains, knowing the laws of the universe and valuing the law of life.

I want to settle down soon entrusting myself calmly to the laws of the universe. It might even be quite fun that once I die I might get the answers to all the questions I had.

If I am to be reborn, will it be a wonderful thing to be reborn as a human? It might be more fun to imagine being reborn as another existence. But I am attracted to the world of humans because I have experienced many things and spent a lot of time with humans, so naturally I have a bias toward the world of mankind.

What will happen if I am not chosen to be reborn as a human? I think it will be disappointing if I am not chosen to be born as a human since I will be leaving behind those people who were precious to me or made me happy, and never come to an understanding each other with those who hated me.

It must be sad to go to the other side and leave behind a person who is lonely. Because I wanted to stay with a person when that person is feeling lonely, rather than feeling happy.

If I am to be reborn as a human, I want to be in the world where the words for wishing happiness for each other are mutually understood. That is because I had the painful experience of caring for some people who built a thick wall around the heart, when I wished to live hand in hand with those people, encouraging each other.

Once a person closes the mind, that person will not accept anything you say. It is true in any type of relationship, for instance love, when things cool off, what used to be a kind and affirmative association becomes downright mean. It should be the opposite for love to simply change to affection.

The words of religious sutras are really beautiful. Although it would be natural for believers to interpret them in a good way, it seems that people do not make the effort to interpret the hearts of others in a good way rather than a bad way, or be fair rather than sly.

Although there may be some critics of what I write, I have a strong longing for a world where minds understand each other. People may feel isolated after all, but if words cannot communicate, then connection by instinct will have far better results.

Just look at the fact; the seeing-eye dogs read the handicapped persons' minds, guarding them from danger.

If such training can be done for seeing-eye dogs, I wonder why this cannot be done for children, a far easier task it seems, so they understand the minds of their parents, or so the adults will understand each other's minds.

I have the joy to have met a precious person who spared time for me, not leaving me behind. I don't think that a lifetime is so long that you don't make the time to try and understand each other when you had the precious chance to meet and share at least some time together.

At the risk of sounding greedy, I would like to be reborn in a world, which I wish from my heart would not be so busy, so that there would be sensitivity to the human mind, and that there would be no hatred nor a gap between the rich and the poor.

More than that, indifference might take one far from the bonds of life. Hatred is a sentiment you feel because you are interested in that person, so you will probably help that person from dying. Sometimes hatred becomes love. What a nice thing to meet a mind that has gone beyond love and hate.

But there will be no such chance for indifference or negligence. Isn't the gap between the rich and the poor created out of indifference? I think all the roots of evil come from the gap between the rich and the poor.

Looking back my life, I think there were more sad moments than joyful ones. I think I felt more sadness probably because my efforts to please people were not enough. At least that's what I tell myself is the case.

The moment I felt joyful and happy to be alive was when I saw kindness of life in the mind of others. But strangely, I got my eyes watery with joy for other people's happiness rather than my own.

Perhaps because of the belief that the intelligence of mankind is something supreme in the universe, mankind figures centrally in religious scriptures, with seldom any reference to other lives. I think this is because these scriptures were written by the disciples.

If we regard intelligence as mankind's sole superior evolution, the compassion towards other lives, which is solidarity of life, will fade; the inability to realize that mankind is supported by the bonds with the lives of others will make it difficult to escape the solitude of loneliness.

I think about the death of lives other than humans. Those lives that I ate, and birds, cats, dogs, and trees that have lost their lives because of me; there are also lives that I have stepped on without noticing. Were there any people who became unhappy or even died because of me? What a horrible thought.

I think how tragic for those scientists whose discoveries about the law of the universe or the earth have indirectly caused many tragedies to people and other lives.

What fate that I was born as a human, when life is at the point of being threatened with extinction. The degraded life environment will definitely remain with the generations to follow. All the people around the world will experience the feelings of the current poor people.

Mankind with strong vitality tend to survive. But, if those who care only their survival survive, they would not care about the lives of others and the same crisis will be repeated. There is hope for the future of mankind only if they seek to survive in solidarity. Thinking about the fate of mankind, I feel like I can't die and leave things the way they are.

If a few millionaires in the world provide half of their assets before the value of the money crashes for redemption or to recover the global environment, there will be a completely different future left to the next generations. They can proudly leave their names in the history of mankind. The so-called electronic fantasy money bubble, an astonishing amount of assets, will soon burst.

As I write about these post-mortem fantasies, I was “re-born” into the current world of many worries. I wonder if the ancient people also fantasized as I am doing while having their consciousness in the present. Perhaps this became a scenario of some horror stories.

Anyhow, if there is a world where you can live eternal life that is also nice. But even if not, if a force that is beyond the knowledge of mankind created the universe and transformed it, then we should leave our mind and body to the laws of the circulation of the universe. This is what I have been talking over with my wife.

And finally, it is my greatest regret that I did not treat my children in a loving way because of my violent temper.

I thought the influence I had on their young minds which had not developed an idea of abstraction must have left a strong impression. So I have taught them especially about the kindness towards life.

But instead, what remained in their young minds was not parental love, but the abuse associated with me, as they still insist. It is a big pain in my heart before departure.

I have used the Japanese character “Yu” (which means kindness) in the names of my two children and my grandchild, with the hope that they will become persons who will be sensitive to the sorrows of other people. The only way of life I have wished for them was to spend their days considering the lives of the others and have a mind and outlook to hope for others to be happier.

Now, at this point in my life, I believe that this is a skill of heart that one needs to nurture in order to get joy from one’s life. If I were to be reborn as a human, I would definitely like to become a compassionate father and a grandfather.

I will depart, hoping that someday my children and grandchild will read this book, word by word, which I wrote with all my strength as a prayer for the generations who will be living in a degrading bio-environment.

About my wife, we were born in this world and met each other by chance, and with whom I spent more than half a century;

Before departing for the long journey, I have come to understand that my wife’s mind was more important than mine. As my wife is thinking that my mind is valuable, that is fine.

Recently my wife comes up to me from time to time and says, “I love Kouken!” Kouken is my name. I asked her what she likes about me with a violent temper, and she immediately replied “It is your heart I like.”

These unexpected words from my wife, who is in the last stages of her mental disease, is the most precious gift in my life. I thank the mystery of the brain.

My wife is enthusiastically revved up to keep on smiling until the last minute. And therefore, she is very cheerful. Even if her condition may worsen and she starts to not recognize who I am, I want her to keep smiling like she does now, and soften the hearts of people around her bed until the day of her departure.

Addendum

The gap between the rich and the poor and the safety of nuclear power generation

The probability is high that a missile attack or sabotage at nuclear power plants could happen. Although it may be inconvenient, if this probability is not factored in when calculating the safety of nuclear power plants, their safety standards will be unrealistic.

Although a world at peace is naturally a prerequisite, the safety standards of current nuclear power plants cannot exclude the possibility of missile attacks as an unexpected factor, as missiles are proliferating throughout the world. Scientific safety standards are only a part of safety. We cannot hope for the peace of the world leaving the gap between the rich and poor as it is. The nuclear power plants cannot be protected against the risk of a missile attack.

Although I have hesitated, what I write here has already been written about in lots of documents. Thus, I have decided to write these words using a common sense style, for ordinary people.

Even if a missile were small, if it hits the tanks where nuclear materials are stored, it will have an effect equal to the hit from a maximum-strength nuclear warhead missile. So, it is not safe just to protect the nuclear reactor.

A large amount of spent nuclear fuel is stored in the storage pool or re-processing plant. Plus, at the re-processing plant, there are cooling pipes running everywhere within the facility with a total length of some100 kilometers.

If the storage pool which contains the nuclear fuel waste of more than 10 nuclear power plants, or the cooling pipes, get damaged by a missile and the water leaks, disabling the cooling function, it is going to be a cross-border catastrophe.

Germany has abolished the operation of reprocessing plants, because in case it becomes impossible to cool the nuclear waste, it is predicted that tens of millions of people will die. If the dead are on a scale of tens of millions, there will be no habitable places left in the country.

We can see the images of the catastrophes at Hiroshima and Nagasaki. An accident at a reprocessing plant would be a thousand times worse than Hiroshima or Nagasaki. When we discuss the issue of re-processing plants, I want you to know these facts.

The problem of the gap between the rich and the poor also exists in the workplace at nuclear power plants. Non-regular employees and laid-off people are called in, and are working being exposed to radiation. Only in cases of a severe accident, workers are authorized to work in conditions where one is exposed to 10 times, 100 times, 250 times more radiation than that of ordinary people, but even if there is mass exposure, it is not clear exactly how much exposure one has suffered. I cannot write anymore, as it is too painful. Can we still say that such a situation has no relationship to safety?

What will happen if we export the nuclear power plants to countries where there is a huge gap between the rich and the poor, and no sufficient elementary education is given, as we cannot export any more to the rich nations because there will be no more demand there. Even in the rich nations, safety management, safe storage and protection of nuclear power plants are difficult.

Even if an accident does not happen at a nuclear power plant, isn't it the same as a rich nation exporting nuclear waste that it is incapable of storing and cannot dispose of? For whom and why are these nuclear power plants so forcibly put into operation?

Is nuclear power generation acceptable if it's accident-free?

Even though we assume that no missiles are flying in, or there will be no sabotage nor a war, nor sea level rise because of global warming nor an accident at a nuclear power plant, the poison of spent nuclear fuel waste remains in units of tens of thousands of years.

According to the nuclear waste storage plan of nations operating nuclear power plants, it is written that tens of thousands of years to a few hundred thousand years are needed or even the longest nation says, it requires storage of one million years. And it's only 2 hundred thousand years since mankind appeared.

We are going to force the following generations for 200 thousand years or more to bear the management costs and forced labor of nuclear waste that was used for one period of the greed of modern people.

What is sad is, nuclear waste already exists. What we can do is to at least reduce the residue of nuclear wastes. In order to lighten the burden on the succeeding generations, I think to stop the nuclear power plants immediately is at least our atonement for the selfish act that we've committed.

If people who promote nuclear power are thinking that future science and

technology will solve the nuclear fuel waste problem, it is as if we are forcing the following generations to gamble for something that you will not be able to recover if you lose. It is the same sort of gamble as this other issue: even though there is no final dump for nuclear waste, we are forcing the next generation to deal with a dump called an intermediate treatment plant. And, does mankind think that they will not start a big war for tens of thousands of years?

Can those people, who promote the restarting of nuclear power plants, leave this world calmly, allowing their children, grandchildren and succeeding generations for tens of thousands of years to store nuclear waste? If the following generation refuses this burden, what awaits them is the punishment of nuclear exposure.

If you think the about the principles of democracy, isn't it strange that such a serious issue as the existence of nuclear power plants is determined by the majority of the people of the town and city where the power plant is? The descendants of several thousand generations cannot participate in the decision of the majority.

We still hear about plans for new nuclear power plants. At the stage of design, it should require long-term design that takes into consideration the sea level rise caused by global warming, earthquakes and tsunamis in the future, but the planned value for the design becomes lower, influenced by constraints of construction costs. It is also strange that the responsibility of the corporate executives and government vis-à-vis the planned value is limited to the short term, which they are responsible for.

The unexpected accident shows that there is a gap between human engineering and science theory. It is also the nature of mankind that if there are no accidents for several decades, the safety management cost will be "rationalized" until an accident occurs.

Nuclear power plant boils water at 100℃ with a temperature to generate a star. It is natural that such temperature difference causes poor thermal efficiency. The temperature of the spent nuclear fuel remains at 200℃ after 100 years.

If mankind become extinct or if the civilization dies out, the poison of nuclear waste leaks out without an administrator, and start entering the circulation of water and the atmosphere, concentrating within creatures and continuously destroying DNA. .

Why is such nuclear power generation called clean and inexpensive energy? This will be a sad parting gift of the new brain which mankind is so proud of.

Wasn't our code of life supposed to be prosperity and sustainability of life that says we do not leave behind what we consumed, and depart leaving the beautiful Earth

behind for the future generations?

References

Whilst academic books normally contain a glossary with a large volume of references at the end, I assume that for those who want to know only the outline, such references would be unnecessary. Therefore, I would like to introduce only 3 books (Japanese language version) that I have read more than 10 times.

The original versions of which are listed below. I encourage readers to peruse these books, as they contain important figures and information.

For readers, endurance may be required to read through these thick books, if you are not specialists in the domain. Having said so, as my book provides the outlines, it might not be too difficult to read through these 3 books. That is the reason why I have written this book with heart and soul.

Note: I have not added detailed explanatory notes on concerned pages, due to the nature of my book; it is not intended to be an academic publication.

Should you have any questions, you would be able to obtain answers by reading these 3books and/or materials that you can easily access via the Internet. However, there is a wide variety of materials, including antitheses, which the academic world cannot be immune to.

James Hansen, [Storms of my Grandchildren], 2009, Bloomsbury Press

In 1981, Hansen's article on the risk of global warming appeared in "Science." He is a harbinger of the study of global warming, and his opinions and literature have been exerting influence on international global warming conferences. He advocates that the density of carbon dioxide should be suppressed below 350ppm.

Although global warming is one of crises of the biosphere caused by residual pollution, Hansen does not mention about the Earth's limitations which is the root cause of the crises.

I don't know the reason why he believes that fast-breeder nuclear reactors would be capable of solving the issue, whilst his idea about how to handle high-level residual radioactive waste is unclear.

Donella H. Meadows, Jorgen Randers, and Dennis L. Meadows,

[Limits to Growth-The 30-Year Update], 2004 , Chelsea Green Publishing.

In this book, the future is simulated in 10 different scenarios, based on altering the input data.

The book also explains the indices that exhibit the Earth's limitations (ecological footprints).

Al Gore, [An inconvenient Truth], 2006, Rodale Books

Al Gore was the former Vice President of the United States of America, The comparison of pictures of the Ice, several decades ago vs. now, is very interesting.

The legal battle; Gore vs. Bush with regard to the presidential election is a noteworthy event for the Earth's environment.

Special thanks

First of all, I highly appreciate “you” for reading this message till the end. Your interest and passion brings great joy to my heart.

This manuscript is the “will” and the prayers to be conveyed to the succeeding generations from me and my wife.

The publication of this “will” into an e-book was only possible with the generous support of prominent chief editor Mr. Masahiko Motoki, the founder of the “School for Editors”, and the editor Mr. Eisuke Goto as well.

Mr. Hajime Sudo, who has been supporting my UNICEF activities in his capacity in Japan Airlines for many years, continuously offering his sincere advice and friendship throughout this project, to which I am truly grateful.

My debate mate Mrs. Chie Kamo and her husband Kosei, my Davis Cup tennis team mate, were the ones who first advised me to translate this book into English.

Mrs. Sadako Ogata, former United Nations High Commissioner for Refugees, who has given her recommendation message for my previous book as worth reading, offered without hesitation to recommend this new book also. Meanwhile, M.D. Yoshiki Hiki and his wife Sumiko, an essayist, have gone far out of their way to care for my wife’s health as friends.

A late senior tennis player, who was also a renowned late scholar, advised Japan Airlines to employ me. Thanks to this, I observed, everytime flying around the worldwide sky, the Earth being badly polluted. As a result, I was given the opportunity to see the gap between the rich and the poor being widened rapidly, and to meet the children of UNICEF.

These unchanging warm supports to my wife and me, have given to our soul great consolation.

Mr. Keisuke Hatano, my close friend and tennis mate for years, helped me in translating of “this will”, together with Mr. Hiroshi Kuroyanagi and his wife Margaret, my colleagues of Japan Airlines, with incredible patience. I am very grateful to all of you.

I now realize that I could fortunately make my dreams come true, and

that I owe many of them to those precious friends and benefactors, whom I have met through my beloved tennis life.

Devoting my youth into this sport, has brought me much joy and happiness to the following years. The memories of tennis and the sky are my dear and spiritual hometown.

Lastly, I would like to give the heartfelt thanks to my dear wife, Noriko, whom I deeply love, who is suffering from Alzheimer's.

It was painful to me that she has patiently waited for me by reading my previous book while I was writing this manuscript.

She must have felt lonely sometimes, and that might have worsened her symptoms to some extent, however, she brought me great joy when, sitting side by side, she told me that she loved my heart and soul.

Looking back our 60 years life, dear Noriko and I have always encouraged each other, without giving up the hope, endeavoring to become the very best couple.

Now there are days when we have nothing left to discuss. Instead we enjoy each other's company, smiling in silence.

Upon our passing away in the future, I wish my wife's soul and mine, in this e-book, fly across the skies of the earth, carried by the wave of electrons, praying for the happiness of the generations to come.

Late autumn, 2016

Kouken Okadome

About the author

Kouken Okadome

1934: Born in Fukuoka, Fukuoka Pref. Japan

1956 -1957: Member of Davis Cup Tennis, Japan Team

B.A. Keio University

Joined Japan Airlines Co., Ltd. (JAL) as a ground staff

After 5 years, changed the status to the cockpit crew based on his strong desire

Flight time as a Captain: approx. 14,000 hours.

For approximately 30 years, working for the promotion of UNICEF through JAL

Former Councillor, The Japan Committee for UNICEF

Former Trustee, Yume Miru Kodomo (Dreaming Child)Fund

1986: Climbed Mt. Everest utilizing no oxygen tanks up to 8000m

Currently residing in Hokuto, Yamanashi Pref. surrounded by beautiful mountains.

He is the author of...

"A Captain's letter from the stratosphere – Message for mountains and the Earth's environment", 1993, Yamatokeikoku-sha （機長の空からの便り）

"Days; Departure for a long journey", 2012, Gendaikikaku-shitsu (永い旅立ちへの日々)

"Time for Determination – How human beings can save our precious Earth", 2014, Gendaikikaku-shitsu (人類の選択のとき)

Note; This e-book has been rewritten from "Time for Determination"

Many thanks ; You-tube Editor Mr. Eichi Shiozawa

; Narration by Mrs. Katrina Anderson