
Prof. Dr. Dr. h. c. Timi Ecimovic

THE PRINCIPIA NATURE

The Nature and Homo sapiens Global Community



Zg. Medosi, Korte, Slovenia, 1st of May 2011



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The Principia Nature – the Nature and Homo sapiens Global Community

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Dear Readers,

I want to offer you a good book. If there are any reasons for your being unhappy, do let me know, please!

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By

Prof. Dr. Dr. h. c. Timi Ecimovic



Acknowledgment:

To my family, to Ansted University family and to humankind global community!

To friends and colleagues: thank you for your selfless friendship and support.

To readers: thank you for your concern and interest.

To all humans: do not give up!

Zg. Medosi, Korte, Slovenia, 01 May 2011



1. Foreword and Executive Foreword

1.1 Foreword

What is the truth? »The Philosophy of the Truth« has been anthropocentric philosophical term/asset/issue from commencement of the humanity and it is an ever lasting and never ending discussion. Truth has been and is a quality of each individual, local community and society (The Global Humankind Community). Meaning and philosophy of the truth has been discussed and I will make effort to present most recent philosophy of the truth.

The truth is a topic, which has been discussed countless times and by countless people during 200000 years of humankind history. By the Nature heritage Homo sapiens has ability to express his thinking, acting, co-ordination, feeling, and many more personal and societal issues. Of course, with evolution of Homo sapiens and our civilization the truth of pre-antiquity humans has got many more meanings and become nowadays a very complex or complicated issue. Please understand my discussion as a system thinking practice.

From Pre-stone and at Stone Age, antiquity, great civilizations (China, India, Persia, Babylon, Egypt, Greece) to Roman Empire, great cultures of other continents (North, Latin and South America, Oceania and Australia, and Africa), Mediaeval times, Renaissance, Baroque, Pre-industrial and Industrial ages, Information, and Innovative societies to the age of Globalization truth has always been an integral part of each and one representative of Homo sapiens and society - as outlook of Homo sapiens societal ability for living and continuum.

At present the Globalization society, which could be described as »Globalization is amalgamation of national economies into united world system based on rapid capital movement, new informational openness of the world, technological revolution, adherence of the developed industrialized countries to liberalization of the movement of goods and capital, communicational integration, planetary scientific revolution, international social movements, new means of transportation, telecommunication technologies and internationalized education«.¹ I know there are many more definitions but I do agree with the one presented.

In my research *the truth* could have a commencement: The philosophy is the search for knowledge and understanding of the Nature, and meaning of the universe and life. In my opinion truth is: The quality or state of being true; Loyalty; Trustworthiness; Sincerity; Genuineness; Honesty; The quality to being in accordance with experience, facts or reality; Conformity with fact; etc².

However the truth has centric thinking position and it is truth, which is always a deciding issue for quality of research. Today there are many theories about truth. To mention some³: from: »The neo-classical«, »Tarski's«, »Correspondence«, »Realism and anti-realism«, »Deflationism« and there are many more theories from antiquity and consequent ages, which I am not discussing or mentioning. We may discuss it at large as philosophical viewpoint, but I will try to present the real research as truth about *the Nature*.

¹ At page 220 of »Global Studies Encyclopedia« ISBN 5-05-005719-1, 2003.

² Webster's NewWorld Dictionary, Second college edition, 1984

³ Wikipedia – Stanford Encyclopedia of Philosophy



The Nature, The Universe/Cosmos, The Star Sun System, The Planet Earth System, origin of humans etc are parts of the large content we call »The Nature«.

Present understanding of the Nature by humankind has been building up as long as present civilization has been evolving and I hope it will continue so for many more generations of humans.

The Author

1.2 Executive foreword by Sir Prof. Dr. Mayor Roger B. Haw⁴

Firstly I would like to thank the author Prof. Dr. Dr. h. c. Timi Ecimovic for inviting me to write an executive foreword for many of his books. Again, he has asked me to write a foreword for this book.

Timi is one of the few academicians who steadfastly voice concerns simultaneously in the Nature and Homo sapiens Global Community. He offers some reflection perspectives of the substance and spirit of change that needs to be imbibed not just by change masters but also by the world citizenry at large. He selflessly shares the privileges of his research experiences with readers. The work is simultaneously simple and profound. I hope this is not the last book the author writes.

The author work provides contents for thinking as well as intimate examples of the processes and ways human being applies thinking and reaction by thoughtfully raising many critical issues of development. It is neither a period work nor a treatise. The work leads us to intellectual adventures across the generations, across parochial and universal cultures.

The collection of research information and articles cultivates the mind and assists readers to clarify values. The work inspires intellectual empowerment in unobtrusive ways. The author's engagement with many international events and personalities in the world are shared with us so that we begin to peep into the world of thinkers and thinking, relatively unpolluted by political manipulations of ideas. The writer draws from his 46 years of learning and researching experiences and put his thought in this profound book. Indeed Ansted University School of Environmental Science is very proud to have been working together with Prof. Dr. Timi Ecimovic for the past ten years. Especially many students have benefited from his leadership guidance and practical supervision.

Timi also explores the notion of thinking and deep thinking for the future. He believes that no discipline is superior to any other discipline for all forms of knowledge lead to the betterment of human civilization.

The writer uses the findings of reports as evidence for the substance and directions of change required. Based on such reports and ideas from the knowledge corpus the writer commits to

⁴ Sir Prof. Dr. Mayor Roger B. Haw from Penang, Malaysia is founding member of the ANSTED University and many more.



uphold uncompromising excellence and guard against conflicting roles and expectations, which unwittingly subvert the pursuit of excellence and leads to mediocrity.

He also recognizes various forms of bureaucratic red tape, which hinder accelerated development including the achievement of R & D, innovation and commercialization agenda. Timi works is an intellectually sensitive work exhibiting mindful 'sense of' interspersed between articles and quotation lines. The work exhibits a sense of history, a sense of purpose and mission, a sense of urgency, a sense of commitment, a sense of balance, a sense of meaning, a sense of the tangible and intangible, theoretical philosophical and functional practical, a sense of the contemporary period and a sense of the future of mankind. The work provides a flow of learning pleasure of historical and ideas milestones.

It is a book, which would be on the shelves of scholars and patriots alike, the lay citizenry and the impassioned change masters and drivers of change. The community of university scholars, societal advocates, and university students will find the book engaging and elegantly instructive.

Roger Haw Boon Hong

Professor in Corporate Sustainable Responsibility

Founder cum Chairman of Ansted Social Responsibility International Award (ASRIA)



2. About the Author

Prof. Dr. Timi Ecimovic (1941) is an eminent international scientist, independent researcher, lecturer, first head of SEM Institute for Climate Change, retired in May 2004, and first Chairman of The World Thinker's Forum. Since June 2004, he has been appointed professor and chair of environmental sciences at Ansted University.

He is researcher working on: The Nature; nature, space and environment protection; the climate change system; system thinking; globalization; sustainability, and sustainable future. He was among the first researchers to apply nature, space, and environment protection in a local community by activities we call today Local Agenda 21 Processes – a holistic program for survival of our civilization under new challenges of the third millennium. **“From local community sustainability to global mankind civilization sustainable future”**.

He has been among the leading independent researchers with many international publications and talks. Together with many researchers in co-operation worldwide within operational research, case studies and complex problem solving research, system thinking, and learning he is assisting a systemic, holistic and a better understanding of the present. His latest research within the system theory/system thinking may provide a possible answer enabling us to understand our world better.

For research on the climate change system and the book “System Thinking and Climate Change System (Against a big “Tragedy of Commons” of all of us), Ecimovic, Mayur and Mulej and co-authors, 2002, he was nominated for the Nobel Prize 2003.

His work on “The Information Theory of Nature” was his second nomination for The Nobel Prize during 2007 in Physics. His third nomination for The Nobel Prize in Physics 2010 was for “The Environment Theory of the Nature”, published in the book “Three Applications of the System Thinking”, Ecimovic, 2010. Within last 10 years he has contributed trilogy “The Nature” and trilogy “The Sustainable Future of Mankind” – please see www.institut-climatechange.si

Dr. Timi Ecimovic is an active member of the European Academy of Sciences and Arts, the European Academy for Environmental Affairs, Doctor of Environmental Sciences (H.C.), the first Chairman of World Thinker's Forum, professor of the Environmental Sciences at Ansted University, and international consultant of the UN.

“The invention and innovation is the masterpiece, but the knowledge is the art”. (Ecimovic, for the book, 2011)

Written at: Upper Medosi (Zgornji Medosi), Korte village, Izola – Isola municipality of Slovenia, EU, Europe, 01 May 2011.



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4. Executive Summary

“We may learn and research the *past*, we can see and understand the *present*, but predicting the *future* leads to nowhere”. The future is unpredictable. (Ecimovic, 1997)

“Unfortunate is baby, child, and adult whose mother did not teach him that the learning is best ability and is best quality of humans”. (Ecimovic 2011)

I think, I was lucky, that my family was old fashioned, and I have learned from baby age onward. Today, I am 70 years old, and I am happy on any day I learn something new. I know it will not last forever but the longer the better.

It is my final research presentation on natural sciences and global humankind community issues at the commencement of the 21st century.

During 1965, I was 24 years old, when I did my first research. I have experienced 46 years of learning and researching. My final work is closely connected with the Nature, so I think, I have been following the path of natural sciences, and I am sure it is the corner stone for everything.

We humans we have eyes to look but many times we look and we see nothing. We humans we have ears for hearing but many times we hear but understand nothing. We humans we have ability to speak, but many times we talk but say nothing. We humans we have brain to process what we see, hear and communicate but many times our brain offers us nothing. Learning how to learn for the whole life could be useful, but is not common with present-day people. It could be fault of the nature, which I do not believe What I do believe, is that learning how to learn, and should be a part of our education from the baby ages to the final day of our rest.

Since 1986, I have put all that I have learned and know to work and research on the nature issues. The nature is where we belong and it is our mother and father. Humanity is a part of the nature but has no rights to exclusivity whatsoever.

Out of many presentations, publications, talks, and lectures I would like to point out some recent works. After 20 years of research works I published “System Thinking and Climate Change System (Against a big “Tragedy of the Commons” of all of us)”, with R. Mayur and M. Mulej, and co-authors, 2002, ISBN 961-236-380-3, a book of 302 pages, soft cover paper edition and a CD.

It was our first publication in the book form after many presentations worldwide on systemic background of the climate change and introduction of the **climate change system**.

The next in line was the book “The Information Theory of the Nature, and” published in 2006, Ecimovic, ISBN 961-91826-1-8, the paper book, and CD. Final part was “The Environment Theory of the Nature”, which was published in the book “The Three Applications of the System Thinking”, Ecimovic, 2010, ISBN 978-961-92786-0-4, bilingual paper book and CD in Slovene and English, As usually in our life the things have a turned-around following order and the last should be the first.

In co-operation with many scientist and researchers worldwide, I concluded two trilogies:



- “The Nature” is trilogy of: “System Thinking and Climate Change System (Against a big “Tragedy of the Commons” of all of us)”, with R. Mayur and M. Mulej, and co-authors, 2002, ISBN 961-236-380-3, a book 302 pages, soft cover paper edition and CD; “The Information Theory of the Nature, and” published in 2006; and “The Three Applications of the System Thinking”, in 2010,
- “The Sustainable Future of Mankind” is a trilogy of: “The Sustainable (Development) Future of Mankind”, Ecimovic, Bunzl, Esposito, Flint, Haw, Mulej, Shankaranarayana, Wilderer, Williams, and Udyavar, 2007, ISBN 978-961-91826-2-8; “Sustainable Future, Requisite Holism, and Social Responsibility”, Bozicnik S., Ecimovic T., Mulej M., digital book on sustainable future been number two of the trilogy, 2008, ISBN 978-961-91826-4-2; and “The Sustainable Future of Mankind III” Ecimovic, Esposito, How, Mulej, digital book, ISBN 978-961-92786-2-8, 2010.

Both trilogies are displayed at www.institut-climatechange.si

All in all what I am trying to present here is the truth about the nature and Homo sapiens global community.

We (humankind global community) are a part of the whole. The whole from the point view of system thinking and requisitely holistic approach is the planet Earth system, which is a part of the whole of the star Sun system, which is a part of the whole of the Milky Way Galaxy, which is a small part of the whole of the Universe, The Universe is with all known and many larger unknown parts to humanity the whole we may see as the Nature. The rules and techniques of the nature are not known to us for the whole of the nature. A small part of the knowledge of it is a treasure of the humanity, and we have to research and learn much more to be able to understand more about our sustainable future.

The epic song of the humanity has some 203 millennia long history. From commencement via prehistoric times and civilisations confrontations of Homo sapiens neanderthalensis and Homo sapiens sapiens, Stone ages, great civilisations of Antiquity and times of classic Greek philosophy, horrible times of medieval ages, industrialisation, information, and innovations we have arrived to the globalisation of today, I hope the dark ages of humanity will end, and new era of sustainable future of global humankind society will commence during the 3rd millennium of our times.

Many individuals marked their times and influenced evolution of the society to mention some; Confucius (551 – 479 B. C.) of China, Siddhartha Gautama Buddha (563 – 483 B. C.) of India, Socrates (470 – 399 B. C.), Plato (427 – 347 B. C.) and Aristotle (384 – 322 B. C.) of ancient Greeks, Jesus Christ of Christianity, Alexander the Great (356 – 323 B. C.) of Macedonians, Julius Caesar (100 – 44 B. C.) of Romans, Mohammed (570 – 632 A. D.) of Arabia, Charlemagne (742 – 814) king of the Franks (768 – 814), Napoleon Bonaparte (1769 – 1821) of France, Leonardo da Vinci (1452 – 1519) of Italy, Albert Einstein (1879 – 1955), Adolph Hitler (1889 – 1945) of Germany, Sir Isaac Newton (1642 – 1727) and Stephen Hawking (1942) from the UK. It is clear that leadership of exceptional individuals changed and could change history.

Latest ruler of the humankind “Master Monster Money” invented during last millennium B. C. in China and as ruler of present humankind community is here during 2011 in full power.



5. The Nature

5.1 Introduction

The nature in large meaning from view point of the natural sciences, environmental sciences, system thinking, operational research, complex problem solving, case study research, and holistic or better requisitely holistic approach is the **Universe/Cosmos**.

Universe⁵ has been described as “the totality of all the things that exist; creation; the cosmos” and “the world or the earth, as the scene of human activity” and “an area, province, or sphere, as of thought or activity, regarded as a distinct, comprehensive system”.

A part of above description has something to do with our civilisation heritage – religions and believes. It is particularly seen at mentioning creation. I know it is hard to accept reality, but in science it has to be so.

My research is about systems, system thinking, requisite holism, complex problem solving, case studies and I would like to challenge you with small sentence about systems:

The term system will here rather mean a feature/event/process that is so complex in its components, relations and influences between them and their consequences that it is difficult to comprehend and even more difficult to control.⁶

To me the universe has many definitions and descriptions, which will come with future experiences and research. I would like to mention some:

- The Universe system is most complex system mankind could research,
- The Universe system is environment for the nature,
- The Universe system is totality of all things that exist,
- The Universe system is so immense that it is hard for humans to understand its immensity. We need new standards in research work for the universe.

The Universe system, as environment for the nature or the **basic environment**⁷ discussed for the nature from the quality/internal viewpoint, could have following characteristics:

- The Universe system has no commencement and no end,
- The Universe system contains all matter, energy, information, dimensions, light, rays, powers and forces, particles, transformations and other contents not yet known to mankind,
- The Universe system functions are systemic: interdependences, interactions and co-operation,
- The Universe system as basic environment is environment for the **continuum**⁸ of the nature with all happenings, transformations, dimensions, and systemic relations.

⁵ Universe at Webster 1986

⁶ By Prof. Emeritus Dr. Dr. Matjaz Mulej of Maribor University, Slovenia,

⁷ The basic environment has been first discussed at »The Environment Theory of the Nature«, Ecimovic, 2009.

⁸ Please see footnote 7.



The Universe system from the formal viewpoint could be seen as composition of the environments, larger and smaller *requisite holistic units*⁹ to us at present known as galaxies, star systems, and planets. There is large content of smaller energy and matter forms. Of course, it is within to us seen present dimension, which does not exclude other dimensions to as at present not known.

The universe system is *basic environment*¹⁰ meaning that within it, the present nature is at home, and as such, it is precondition for the nature existence.

5.2 *The Environment Theory of Nature*¹¹

The environment theory of the Nature is takes environment as precondition for anything.

»Basic environment« of the Nature is the Universe or the Cosmos. Within it the Nature exist in countless forms, dimensions and contents as »**interdependence, interaction and co-operation**« of all matter, energy, information, dimensions, light, rays, powers, forces, particles and yet unknown contents of the Nature.

The beginning or end of the basic environment does not exist, but it is »**continuum**« of the Nature, which makes/holds/transforms all contents. The basic environment (the Universe or the Cosmos) should get proper description, which according to system thinking does not commence with beginning and end, but it exists as »**continuum**«.

The present thinking ability of humans could not accept reality of the immensity of the basic environment - the Universe or the Cosmos. For present researching techniques, the basic environment universe system is immeasurable. At present, we have researching possibilities for exploring our neighbourhood within the basic environment - the Universe or the Cosmos.

Our horizon is limited with our techniques and researching abilities/possibilities. For our understanding of the dimensions within the Universe, we are also limited by our scientific language – mathematics, which is not yet evolved for the needs of the Universe researching.

That is why humans have discovered the theory of relativity, the big-bang theory, black holes, unified theory, strings, and many more thoughts that are brilliant applications of the researchers, but could not properly describe the basic environment or the Universe.

Let me put on records some definitions of the environments:

1. The *basic environment* (the Universe or the Cosmos) it is environment within which the Nature exists as **continuum** of all matter, energy, information, rays, particles, dimensions, powers and forces, and yet unknown contents of the Nature. The basic environment (the Universe or the Cosmos) does not have the beginning or the end, but

⁹ The requisite holistic unit term comes from the »Law of Requisite Holism« as practical application within the natural sciences. As description to assist, I may say; the requisite holistic unit is the smallest but yet still understandable whole. In case of future reduction, the understanding is decreased.

¹⁰ Basic environment has been term introduced by the author in his book/work »Three Applications of the System Thinking«, Ecimovic, 2009.

¹¹ »The Environment Theory of the Nature« was presented in the book »Three Applications of the System Thinking«, Ecimovic, 2009, and was the basis for his the Nobel Prize nomination, 2010.



- has countless forms of matter, energy, and information transformations, dimensions, and systems. It is a continuum, and it is a system or the Nature.
2. Second to the basic environment (the Universe or the Cosmos) are countless form of matter, energy and information of larger and smaller dimensions as requisitely holistic units of the nature or: the star systems, the galaxy systems, and within them individual star systems, such as our star Sun system with planets and the planet Earth.
 3. The basic environment (the Universe or the Cosmos) as system makes possible the **interdependence, interaction and co-operation** of all matter, energy, information, rays, particles, dimensions, powers and forces and yet unknown contents of the Nature. Consequently each and every case system under observation: big and small bangs, seen or dark energy, black holes, galaxies, star systems and all other forms of systems within it, have their contents and characteristics (individuality).
 4. The star system environment it is a particular star system with its internal and external environments and systems.
 5. The planetary system is a part of the star system and it has its external and internal environments and systems.
 6. The star Sun system is a part of the Milky Way Galaxy, which has 100000000000 + other star/planets systems and countless meteorites and other forms/systems of matter, information, and energy. All of them are moving like a top and circular movement around each other. According to **interdependences, interactions and co-operation** the star Sun system is moving like a top and with app 800 000 km/hour speed circling around the centre of the Milky Way Galaxy. The circular movement is the main physical characteristic of all larger and smaller forms of matter and energy within the Nature.
 7. The planet Earth is one of eight planets, but only one of them with environmental characteristics allowing “the living Nature”. The planet Earth contains its three basic environments (the planet Earth basic environments): the Land, the Water, and the Atmosphere environments.
 8. “The living Nature” at the planet Earth’s natural system has countless living creatures larger and smaller forms and systems, amongst which there it is the Homo sapiens’ civilization. All of them share the environment or the Biosphere, which is a tiny and thin part of the planet Earth system’s surface, within the land, water, and atmosphere’s lower part.
 9. The Homo sapiens’ civilization has its own environment of different characteristics but in the third millennium the urban environment prevails as its internal environment made by humans. Other forms include: rural areas; agriculture; forestry; transport means systems including roads, railways, airports and ports; industry; sports including sport facilities, etc.; military with barracks, armaments and other facilities; education with schools, universities, researching facilities, etc.; healthcare system with hospitals, researching and other facilities etc.; and etc. In 2008 in Europe (EU) 17 % of total area was sealed land or land taken from the Nature and occupied by the Homo sapiens civilization.
 10. The living creatures’ environment could be divided in internal and external environment. Typical internal environment (within the body) is cell liquid or blood as environment for blood cells etc., while the external one consist of family, local community, society, surrounding, water (bathing, drinking, etc.), air for breathing, etc. The living environment decides/allows whether any living creature is to be alive or not.
 11. Man made system has internal and external environment – for instance the car has its combustion engine as a part of its internal environment, and roads as part of its external



environment. Homo sapiens civilization's environment and its natural environment are parts of the general natural environment.

12. Also a number of other social creatures have their living environment to mention some: bees, ants, termites etc and a number of parasitic creatures have living environment within host living environment to mention some: microbes, viruses, endo- and exo-parasites etc.
13. Living environment could have countless different forms. One of them is urban environment with Homo sapiens global community made of requisite holistic units or environments – towns, cities and mega cities. Inhabitants could be described as Homo urbanus¹² civilization and parallel Homo slunus¹³ civilization.

Please accept my discussion as initial recording and other characteristics, contents, and possibilities could be worked out by others research work.

5.3 *Continuum*

Putting the “continuum” in the centre of the Nature makes a huge difference in possibilities for research. The continuum is a result of the environment and its content the nature systemic relations and operations.

It makes understandable the nature, living more part as other part is less known to us. Continuum is force of the nature. The commencement of the living nature at any requisitely holistic unit of the nature, usually at planets with adequate environment, is result of the local environment. The sooner the life is born, it is its continuum the as only force needed. Because of slow evolvement, from commencement of the anaerobic primordial creatures on planet Earth, it took the nature approximately 2000000000 years to evolve the next generation of aerobic creatures. To humankind civilisation, which is approximately 200,000 years old it looks incompatible. The reality is that continuum from commencement to the present is the only possible way.

When analyzing happenings in the known star system, intergalactic space, and galactic spaces where major catastrophic events are transformation of the matter and energy and are exceptionally fast happenings, it is hard to understand their reason as continuum. However, it is continuum, because any transformation of the energy and matter is somehow the birth/commencement of the new system whatsoever.

With philosophic approach, it is understandable because any system has its commencement, childhood, adult ages, and old ages, which end in whatever way. Adding to it the continuum as purpose, it makes difference from present thinking. Of course, major novelty is requisitely holistic approach¹⁴, which makes possible to understand reduction to units, which are capable of certain happenings. I am suggesting requisitely holistic units at all levels of the universe system as whole and as separate parts.

Reductionism to the level of understandability has been known for a long time. In addition Einstein confirmed usefulness to the level of keeping understandable. That is also the corner stone of requisitely holistic approach.

¹² Homo urbanus are people who live within reasonably organized urban environment.

¹³ Homo slunus, are people who live within mega and poly cities slums.

¹⁴ »Requisite Holism« has been part of the Law of requisite holism (Mulej/Kajzer, University Maribor, Slovenia) from the world of economics.



In this way we may describe basic environment as the universe system the whole. As requisitely, holistic units are parts of the universe system within which the galaxies, star systems, and planets are requisitely holistic units.

It is not law on universe system but a step toward understanding of the nature.

5.4 System operations

Therefore, we have now the basic environment and the continuum, we have basic requisite holistic units, and our home the planet Earth is one of them. System operations are result of many different happenings at different requisitely holistic environments, which put environment under research. In my research the operations are result of **interdependence, interaction, and co-operation** of all matter, energy, information, light, rays, powers, forces, particles, dimensions and yet unknown contents of the Nature.

Interdependence¹⁵- dependence on each other or one another; mutual dependence – the nature and the universe system are interdependent and mutually dependent; the universe system and Milky Way Galaxy are interdependent; the star Sun system and Milky Way Galaxy are interdependent; star Sun system and planet Earth are interdependent, living nature and three basic environments on the Earth – land, air and water – are interdependent; human body and mind are interdependent; In my opinion, everything is interdependent.

Interaction – action on each other; reciprocal action or effect – in the nature everything is reciprocal and affect environment, life and other nature, the universe system, etc. Within the requisite holistic unit, everything is in interaction and the system as whole interacts with major system within which they are placed.

Co-operation - the act of co-operating; joint effort or operation; Ecology is an interaction between organisms that is largely beneficial to all those participating – in the nature co-operation is integral part of a complex relationship or integral part of system operations. To my research co-operation is closely connected with information, as described in the information theory of the Nature.

Evolvements within the nature are the result of all matter, energy, and information permanent interdependence, interaction, and co-operation. The nature has only one form - “**present**”.

All three - interdependence, interaction, and co-operation - should be understood as part of system operations.

The present understanding of the Nature has been evolving on as long as the present civilization has been a part of the biosphere. I think it is the time for a step forward, and understanding of the nature will follow.

The differentiation of the nature to the living nature and other parts, conditionally described as non-living nature, are heritage of the humankind thinking pattern, and need to be revised in the future.

¹⁵ By Webster 1986



5.5 Evolvment

Due to immeasurability of the basic environment, the universe system as whole, humankind at present has no possibility of following evolvment of the universe system as a whole. To us it is possible to research evolvment of parts of the universe system known to us, and of course the star Sun system including the planet Earth.

One of thinking problems, have been a heritage of the past that is predicting the future, should be handled properly. Humankind could research and learn about past, also present could be known, but predicting the future is not possible.

Generally discussing the evolvment of the nature could be described as “***evolvment is always multidimensional from smallest to biggest part of the environment under research and has only one direction – ahead***”.

The nature is always in “present” and has only one direction to evolve – multidimensional evolvment ahead. It could not be repeated¹⁶ whatsoever.

5.6 The Information Theory of the Nature.

The novelty of the information theory of the nature is research of the term “information”, which has been researched in connection with the system thinking, and the philosophy. The “information” was understood as a system of the abilities, quantities, qualities, relationships, instructions of each and every matter, energy, light, rays, powers, forces, particles, dimensions and yet unknown contents of the Nature under prerequisite of **interdependence, interaction and co-operation**.

Transformation of the matter and energy with their information is an event simultaneously according to the environment qualities as major influence to the information. New transformation has its information in the same manner as the genetic code of living creatures. It is precondition of their continuum, and it is at the moment composed of transformation. In living creatures it is according to prearranged (by the nature) genetic structure, and in the other parts of the Nature the genetic structure is exchanged for abilities, qualities, quantities and other characteristics of the environment, within which the transformation of matter and energy takes place. By the continuum, the systemic process is upgrading all characteristics of the Nature.

Taken from the living nature and genetic science we have to accept changes which happen only with successful transformation of the genetic code. Unsuccessful creatures do not exist.

¹⁶ With commencement of the »Information society« after 1990 and due to use of modern information technologies human has got wrong habit of pushing button and delete. In the nature, it does not exist. For instance in case of catastrophic accident with nuclear power production facility anywhere on the Earth, the present planet Earth could be changed into an unrecognizable form. In addition, this principle could be applied to synthetic chemical compounds, which never before have been within the nature. The researcher who have invented and innovated synthetic chemical compounds (today they are in millions) has no idea of what such compound could cause within the natural environment. Proof of it is CFC's, which free chlorine ion was destroying the ozone protection band around the planet Earth. In case of our civilization not noticing destroying effect of CFC's on time, today our civilization and other living creatures would not be present. I think it is question of individual social responsibility of each and one human within the global humankind community.



That is why the biosphere had been operating for 2000000000 years before the next generation of aerobic creatures evolved. In the meantime, other parts of the planet Earth were evolving environmental conditions suitable for more complex living creatures. That is why complex creatures like the kingdom of animals and plants commenced only 700 million years ago. Moreover Homo sapiens have “only” 200000 years of history. That is why I am discussing the threat of the climate change system impact to the biosphere of the planet Earth as very dangerous option for extinction of present living creatures including mankind global civilization, in case of significant changes within the quality of the environment – biosphere.

It happened before it may happen again!

It is important to discuss the system – as a complex entity, rather than mental picture in living creatures’ mind - from the operational content. Any system is in stabile mode as long as all its internal systems are in stabile mode. Whenever external reasons or instability of internal system is moved/changed/impacted, or etc., the system as complex entity commences to move. It is not possible to predict the direction of the system movement.

For instance, after “Big bang” (Hawking) had happened, being responsible for our part of the Universe, the transformation of matter and energy resulted with formation of the Milky Way Galaxy, countless star systems and our star Sun system. From commencement of the Big bang the energy and matter transformation resulted in new transformed contents, and it has been simultaneously enriched with information of its abilities, and so on. I think a major part of the information is composed of characteristics of the environment within which various processes were and are going on. Of course, the environment characteristics have also been changing or transforming accordingly.

Finally, some 4560000000 years ago the star Sun system evolved in the planetary systems including our planet Earth. Each part of the system has its own information according to which the evolvments are possible. In my research, I think this possibility is opening the door for researching further contents of the Nature.

The question then arises as to what this “The Information Theory of the Nature” is. It is a system subsumed under a holistic unit of the natural system, including the planet Earth. Nature exists as a system, whether we choose to interact with its mechanism or not. Our civilization has assumed the prerogative to interpret it. There is thus, a dual interpretation of nature. Science understands it as it is, more or less, as a mechanism. Civilization sees nature in a different way. Both these interpretations do influence each other but not in the required holistic manner. Let me put a case of nanotechnologies. Nano researchers from Feynman onward and recently with improved microscope facilities have been researching the atoms. The conclusion is that atoms have self-organization ability. They do not see the nature properly, because they do not see the environmental influences. To know abilities of any atom the research should include temperature and some other characteristics of environment as important part of the information.

If this thinking is applied to our environment then the Universe, and the Earth are holistic units and the biosphere is the living environment/sphere of the planet Earth. The basic relations and operations amongst the earth-nature content are interdependences, interactions, and co-operations.



The Information theory of the Nature was devised as the basic quality of nature of a matter, energy, and information where the information is an integral part of the nature as it is matter and energy. Evolution of matter and energy interconnects with evolution of information. All this should be within an **environment** and under the practice of interdependence, interaction, and cooperation.

The information theory of nature is a case study of system theory/thinking implementation, as contribution towards a better understanding of the nature by humankind. Information should not be misconstrued. It does not mean the process of communication or transmission of messages or a collection of data, its storage/retrieval, or any other use of the word. “Information” as used in the Information Theory of the Nature deals with:

- Information as an integral part of basic environment;
- Information as an integral part of matter and energy;
- Information is not only as a part of the existing energy and matter but also of the evolving ones, whether energy, whether matter whether requisitely holistic unites or contents of them;
- Information, matter, and energy do not exist if they are not integral part of the system/environment/basic environment/universe/cosmos in any dimension;
- Information, energy and matter evolve within the interdependences/interaction and co-operation practices of all levels of systems within basic environment, and make evolution of the Nature in case (requisitely holistic unit);
- Information as a part of »Information Theory of the Nature« is the ability/quality of environment, matter, energy, information, dimensions, particles, rays or any form of matter, energy or natural powers and forces, and yet unknown contents within the Universe, to make impact. This theory is a theoretical approach addressing basic problems in understanding the Nature. It fills in the need for a holistic presentation of the nature.

The Information Theory of the Nature can explain any whole, part, unit, mezzo, micro or macro dimensions in an infinite cosmos. One can understand evolved environment, evolution within environment, energy, matter, dimensions, rays, particles, natural powers, forces and not yet known contents of the Nature regulated by interdependencies, interaction and co-operation practices. The rules do not exist but are the result of a particular case content. We may mention environmental characteristics of the case deciding on the rules – like liquid methane rivers and lakes on the planet Saturn moon – Titan. Using this theory one can understand any processes like transformation of matter energy and information within environment under interdependencies, interaction and co-operation principles up to the present. The solution for a sustainable (development) future of humankind lies in maintaining harmony between nature/biosphere of the planet Earth and all users of it. This is the answer to the future of our civilization. Systems theory, especially dialectical system theory (Mulej) as a science of interdependence methodology through interdisciplinary co-operation is the core of the future.

The Information Theory of the Nature is commencing point of Environmental Sciences to become a chapter at the beginning of the Book of Physics. It is seen and known when heard and understood, but not yet used at scientific and research work as well as practice or applied



research due to need for evolvement of new part of the Mathematics as scientific language of our civilization. The characteristics of the environment make evolvement within the nature possible.

Big bang theory provides answers to almost 99 % of theoretical approach to the beginning of Universe. Figuratively expressed the environment changes our Universe into many other requisitely holistic Universes or one Universe of which our Universe is just a part.

Many more explanations could be elaborated from simple systems as combustion engine, human society, rocket etc to finally largest to us known system The Universe, which could be explained by using system theory, system thinking, analysis and synthesis. The planet Earth as a part of Universe, Milky Way Galaxy, and Solar System represents requisitely holistic unit to hold living nature as it is in our case and the Universe of which we are a part. Understanding its reality is a treasure of Nature given to humanity as path for continuum, survival, and existence.

The Information Theory of the Nature is a missing part needed for the new frontiers of science movement towards sustainable future of humankind. By evolvement of other contents, human society may have an option of sustainable future and large explorations within the Nature. It incorporates present knowledge and opens an option for its confirmation and reintegration. All big achievements such as: Theory of Relativity, Big Bang Theory, Unified Field Theory, Strings Theory, Particles research, nano research, dimensions research, use of geometry and algebraic operations, reconfirmations of present knowledge, and many more possibilities will be hopefully achievements in the future of humankind.



6. The Nature of the Planet Earth

Everything what was born may look like many different or similar things, but it is individual characteristics that make difference. At present humankind global community has 7000000000 + members and all of them are Homo sapiens, but each and one has his/her own characteristics. Therefore our civilization has 7000000000 + individuals. This is important because we have to accept reality that within the basic environment the universe system there are countless planets, but the planet Earth with global humankind community is only one, which we know and live on it.

The Nature of the planet Earth mirrors the nature of the rest of the Universe. Second to that, the planet Earth is a requisitely holistic unit or planet a member of the planets of the star Sun system. It is orbiting the Sun within the distance which allows the environmental conditions needed for life. It is within so called living belt of Solar system. Actually the biosphere environment has got conditions suitable for life. First life has appeared on the Earth around 3.800.000.000 years ago. The anaerobic one cell protozoan were first creatures, which evolved because of suitable environment conditions,

6.1 The Planet Earth System

The Earth planetary system is very robust. The planetary body at present has got an inner core of 1.500 miles in diameter composed of iron and heavy metals, an outer core of 1.400 miles, a lower mantle of 1.400 miles, upper mantle of 400 miles and the crust of 2 – 45 miles in diameter.

On the top of the crust, there are permanent dynamic changes caused by the natural powers by which the Earth's surface has been and is shaped. The atmosphere covers, protects and completes the biosphere of the planet up to 650 miles or 1.000 kilometres, where the Exosphere is ending into the outer space. The main subsystems of the Earth are: its planetary body, its Moon, and its atmosphere. Its planetary body has 8.000 miles or 13.000 kilometres in diameter. The Earth is the fifth planet by diameter at the star Sun planetary system. The largest one is Jupiter with an eleven times longer diameter, and the smallest one is Pluto¹⁷ with around one fifth of the Earth's diameter.

The surface of the Earth together with its atmosphere makes its biosphere, where we live and where the life has been a part of its system for more than 3.8 billion years. At that time in history the first appearance of the microbial life could be placed.

Among the life supporting components of the Earth, oxygen is the most important element. It forms:

- Two inorganic oxides - water and carbon dioxide, which are the life-supporting molecules,
- Atmosphere with oxygen molecules in the air we breathe, and
- The ozone layer as the protection against UV rays.

¹⁷ Data about the new 2 outer celestial bodies are not yet known to me; one missing planet might also have a questionable content within the present status of the Solar system. Pluto has been re-classified and is no longer recognized as a planet.



After the nature has put together such a support within the biosphere system the appearance of life on Earth was just a matter of time.

The external support from the star Sun to the Earth is the flow of light, warmth, particles and powers. It is important support, because due to adequate distance of the planet Earth from the Sun, actually supports life on Earth. The flow of light and warmth from the Sun has different effect to other planets.

The unique composition of the planet Earth and its distance from the Sun are two major qualities that evolved with evolvement of the Solar system, and make the basic possibility for life to appear on the Earth.

The Earth crust surface is at present made of a terrestrial part, which covers around 30 percent of the surface, and ocean/sea waters cover, which takes the remaining 70 percent of the surface. The ratio between oceans and lands was changing with dynamic changes of the planet Earth surface evolvments. The first appearance of the water on the Earth was the deciding factor for the formation of its surface and atmosphere. After cooling down the atmosphere was thick and much lower than now. The primordial atmosphere was oxygen-free. A big change came from the appearance of the first life forms. These were the anaerobic microbial organisms living without oxygen. They were gaining the necessary hydrogen for their synthesis of different organic carbon compounds from dissolved inorganic compounds of carbon. Change of the primordial Earth from its anaerobic to its aerobic stage took hundreds of millions of years. Bacterial life significant contribution was the sink of carbon dioxide, when their dead cells settled as sediment on the bottom of the oceans. There they were transformed into numerous carbon compounds that we see today as fossil fuels. It was the time of the first energy transformation; actually, anaerobic microorganisms transformed sugar molecules to gain two units of energy per molecule.

In the next generation, microbes were able to split water molecules by using the light from the Sun, and used the released hydrogen to reduce the carbon dioxide molecules. By this photosynthesis, a rich biomass was produced. The product of this reaction was the molecular oxygen, but its appearance was poisonous for the existing living creatures. It changed the life critically: the new generation of microbes was able to use oxygen in its oxidation of biomass by respiration. It was the second energy transition on the Earth, because with such a transformation of the sugar molecule they gained 36 energy units or eighteen times more than the anaerobic microbes.

The carbon dioxide was a part of water due to its solubility, while oxygen that was not solvable in water, became an integral part of the atmosphere. The concentration of the oxygen in the atmosphere was increasing and changing, and settled at 21 %, with 78 % of nitrogen, and the remaining 1 % was made of carbon dioxide, methane, and some other gaseous elements.

With appearance of oxygen in the atmosphere, with influence from the Sun radiation the oxygen molecules were split down to the elementary oxygen, which in the upper layers of atmosphere made the three-valence oxygen molecule ozone. With time, the ozone formed an UV-impermeable screen or ozone protection-layer against those rays from the Sun, which was responsible for decomposition of the dioxide molecules – the UV rays. The biosphere on the



Earth responded with evolution of life, its intensification, and transition from water to the Earth's terrestrial parts.

The bacterial life moved to the terrestrial part of the surface, forming on it crust top a carbon-rich layer, which eventually became what we today call soil. The Earth system evolved to the stage when complex life forms were able to appear. It was some 700 millions years ago. Land mammals appeared some 350 million years ago. The human predecessors are dated some 8 millions years ago, and Homo sapiens, our predecessor, evolved some 200000 years ago.

So here we are – after the big-bang and evolvement of one requisitely holistic part of the Universe, we have the Universe, the Milky Way, the Solar system, the planet Earth system, and the life on the surface of its terrestrial and aquatic part as well as within its atmosphere. With the existing input/output effects from superior systems, especially the Solar system, with evolved parts of the Earth system, etc., the climate change system became the provider, maker, holder, and guardian of living conditions within the biosphere.

The climate change system is the internal planet Earth system within the surface of the planet Earth and atmosphere.

6.2 The Nature system and the planet Earth system.

Movement is mayor characteristic of the Universe or the Nature. It is easy to observe when researching the Universe, Galaxies, star systems and planets, and world of atoms and particles. Many different forms or systems of matter, energy, and information could be observed. The Universe is a grand scene very fascinating and less understandable than I would wish. Humankind top understanding for long time or millennia was to observe positions of the stars and to work out horoscope with purpose of predicting the future or something else. The humankind of course, did not accept the truth - the future is unpredictable.

Actually, I think the continuum of movement is there, from smallest particle to largest galaxy and beyond. Circular movement, movement like top, large parts of the universe moving together or apart, particles inter-universe movement and the inter-universe particles movements within requisite holistic units, looking at the world of atoms the movement is there, within the atoms, and in the inter-atoms space as well.

Looking at the Homo sapiens bodies us more or less move, except when we are asleep. Our body system has many different possibilities for movement looking from the exterior viewpoint. However, majority of humankind do not make perception of the internal movement, which commence when successful movement of spermatozoa makes him reach ovum inside the mother's body. From this point of successful movement and conception, new life has its own internal movement. After birth, the internal movement is main characteristic of living and when it stops, it is end of a life. The whole of humankind life is very complex internal and external movement.

Moving means living!

It is not only in living nature but also to the nature as whole and any requisite holistic parts.



The nature of the planet Earth has its internal movement within the planet environments and external movement as a part of the star Sun system both internal and external movements, and the universe movements (Milky Way Galaxy, etc).

So here we are with the planet Earth system.

The planet Earth system is requisitely holistic part of the star Sun system, Milky Way Galaxy system, and the Universe system. The planet Earth system is a very small part of the Universe. However, as planet with environment suitable for living nature, it is home of humankind and countless forms of living nature. From one-cell creatures: viruses, microorganisms, protozoan, zoo and phytoplankton, and others to plants and animals, and on the top of living creatures kingdom *Homo sapiens* is placed.

The planet Earth system – planetary body, atmosphere, and moon - appeared around 4.5 billion years ago (4500000000). At that time the planet was something like a ball of energy and gases with temperature around 7000 degrees Celsius. Within millions of years, the planet was cooling down, and the firm matter was formed within two hundred million years. The oldest rocks on the Earth have been dated at 4.3 billions years ago (4300000000).

The Moon system has been formed as result of catastrophic happenings after collision of the planet Earth with another cosmic body of the size of the planet Mars. As result, the large mass of matter was put into the orbit of the planet Earth, which after certain time shaped the Moon.

The planet Earth system is an inferior system to the Solar System, the Milky Way, and the Universe.

6.3 The Star Sun System

Our Solar system contains nine (eight by new classification) major planets (one planet missing) and along with the tenth and eleventh as newcomers to the family (now asteroids together with Pluto, which used to be a planet), and thousands of comets and minor planets called asteroids. It also contains the Sun, the star around which the planets revolve.

The composition of the Earth, as a planet inside of the Solar System, is “unique” because of the information, matter, and energy at its birth.

All forms existing at the moment of appearance are included within our Earth system, and so are many more other forms of the Universe such as light, particles, rays and matter that over the time from the appearance until now have collided with the planet Earth system.

Major influences on the Earth dynamics come from the permanent energy flux from the Sun, and from collisions with asteroids, which arrive from the outer space. .

6.4 The Climate Change System

The climate change system is internal system of the nature of the planet Earth. It is responsible for biosphere environmental qualities and conditions for the life to continue.



Interdependences, interactions, and co-operations within the planet Earth system of the life, climate change system, and biosphere are dynamic factors for the evolution of the life forms, and the resulting environmental conditions. The primordial Earth, some 4.5 billions years ago, was lifeless and unrecognizable by our civilization standards. The air was oxygen-free and many subsystems of the climate change system known today did not exist. The climate change system itself was evolving according to the components and relations of the system as it does even today.

The living nature is moderator of living conditions and is interdependent, interacting, and co-operating with the climate change system. The rise of the life on the Earth reacted to conditions of the primordial surface water environment, and its physical and other contents. It took the nature of the planet Earth some 0.7 billion years to evolve the life. The first evidence of the life is dated 3.8 billions years ago. From microbial life of primordial time to final evolving of the complex biosphere around 1.2 billion years ago there was the time within which the biosphere evolved. First complex living creatures on the terrestrial environment could be placed at 700 millions years ago.

The first and second biosphere energy transition from the anaerobic to the aerobic energy production by microbial life was responsible for the change of the atmosphere from the oxygen-free to the oxygen-rich one. The oxygen-content was around 40 % and with time it has been diminishing to 21 % as it was at the end of the 19th century.

The oxygen-content in the air was the major improvement of life conditions, which made the difference from the primordial time to the time of biosphere, from 1.2 billions years ago until the present time.

The concentration of the oxygen in the air for living creatures to breathe should not fall below 8 % that is somehow a minimum needed for survival. At present in some heavily populated areas of big cities, the concentration of the oxygen could fall as just above 10 %; I am recommending monitoring of oxygen concentration as a precondition for survival of humans in the fragile and heavy polluted environments (big/mega/poly cities).

Our civilization's first settlements were built some 14000 years ago, because of social life evolvement of pre-antiquity humans.

First settlements on European area were built on swampy areas, for security reason, and population was up to 10.000 people. It was a result of the changed conditions within the biosphere that happened after the last ice period, which ended some 60000 – 16000 years ago. Since then the climate change system conditions on the Earth were almost at the quality of the present time. Of course, changes have existed but not as extreme ones, as the ones coming up now.

The difference between today and 200 years ago is due to the extreme input of our civilization's output into biosphere such as: all sort of waste, and side-effects of nuclear etc. technologies, synthetic chemicals, human population explosion and its consequences; destruction of biosphere resulted from covering the current needs of humans. In short, and I will work out the above-mentioned later on, those are reasons/impacts, which cause the triggering effects and other changes of our civilization on the climate change system, as consequences.



The climate change system is a natural complex entity/system. It consists of several subsystems and is a subsystem, too, of systems such as the planet Earth system, the Solar system, the Milky Way and the Universe. It is very old and has been changing all the time, offering rather stable conditions to the life forms. At present much more extreme changes have been taking place, over the centuries of industrialization and post-industrialization than ever before since the end of last ice age. We humans are not the only cause of these dangerous processes, although an essential one, especially if our decisions and actions are based on a lack of systemic/holistic thinking/behaviour.

The climate change system as an integral part of the planet Earth biosphere system is somehow between its inferior and superior systems; all of them together with the climate change system itself have a number of mutual interdependences, interactions, and co-operations.

As I have mentioned before, the Universe contains all matter and energy, particles, rays, information, dimensions, powers, forces and yet unknown contents. The Universe may have a dramatic influence on the Earth's climate change system, in the case of catastrophic changes affecting the Solar system, and in the case of the Earth's collisions with space body/bodies influencing the Earth's existence.

It happened and may/can happen again. There is e.g. the hypothesis that a collision of the Earth with a cosmic meteorite some 65 millions years ago caused Dinosaurs to get extinct.

The largest and most superior system of the Nature is the Universe. The probability of a destructive interaction of the Earth with the Universe system is very small. Because there is a countless number of star systems and other forms within the Universe, the Earth has a little chance to experience major destruction caused by the Universe system activities. The Earth system is namely just a very small part of it.

The Solar system is a very large system, from our civilization's point of view, but a very small one from the galactic point of view, and even much smaller from the Universe point of view. The Sun and its eight planets make one small sub-system of the Milky Way Galaxy. Actually, the Milky Way Galaxy has almost countless star systems, and our Solar system is just one of them.

The Sun is the central star of the Solar System, and has 99.8 percent of the Solar system mass. It is the centre of its system, and source of all energy, matter, power, and information within it. Of course, it is an inferior system to the Milky Way Galaxy, which is over 100000 billion times bigger in mass as the Solar system.

The Solar system revolves around the centre of the Milky Way Galaxy at a speed of around 250 kilometres per second.

For our Earth planetary system the Sun is the source of everything from birth of the planet onward, and we exist because the Sun provides us energy, warmth, light, and all other important inputs – physical and other components and interdependent, interacting, and co-operating matter, energy, and information. Our planet system is completely dependent on the Sun. Our present time experience is mirroring physical, geographical, and biological etc. statuses at which the planet Earth system is at this very moment.



Of course, the influence from the Solar system is not caused only by the Sun, but also by a number of interdependent, interacting, and co-operating relations with neighbouring planets, planet-like bodies of different size, Moon and other forms of energy, matter, information, and natural powers. The planet Venus is the closest to Sun, and the outer planet is Mars. Together with Mercury, they present terrestrial planets of the Solar system.

The other four planets Jupiter, Saturn, Uranus, and Neptune are gaseous gigantic planets on the outer part of our Solar system. The last planet (not any more a planet but an asteroid) is Pluto, but it is not always the last one, because of its oval-shaped orbit, which places it sometimes before Neptune, but most of the time it is the most distant one from the Sun. Recently two new celestial bodies have been discovered in line from the Sun and after Neptune/Pluto.

The Solar system is stable, and changes in its system qualities are reflect/influence its entire system. The most important parts of the Solar system are the energy flow from the Sun to the planets, and the quality of each planetary system. Not only each planet's composition, but also its distance from the Sun is a deciding factor for the quality of the Solar system. The life stream of light and warmth from the Sun enables life on Earth.

Both the quality of the star Sun system and unique Earth's composition/distance from Sun make interdependent, interacting, and co-operating parts of the life-support system on the Earth.

Understanding of many powers and forces of nature is important. They include gravitational, magnetic, energy, matter, and information transformations, rays, and particles etc., dynamics/movements (like the top, orbital, galactic, and of the Universe), the Solar system, the Sun and planets including our planet the Earth. Synergistically, they make characteristics, interdependences, interactions, and co-operations of the whole system.

The Sun has a diameter that is 109 times bigger than the one of the Earth, and 400 times larger than the one of our Moon. All eight planets and all other forms within the Solar system are orbiting around the Sun. The Sun and all planets move like a top and all together orbit within the Milky Way Galaxy. All this movement should be more researched to allow us to understand the basic powers resulting from interdependences, interactions, and co-operation among parts of the Solar system. The Solar system as well as all other systems is functioning according to their given systems¹⁸/entities of parameters. Our civilization has its chance to explore research and understand the Nature and our existence.

The open question is whether global humankind community interfere with operations of the climate change system and the nature or not. The answer is **yes**.

Our present life style is not in accordance with the nature operational practices.

¹⁸ We say »system« rather than »set«, because in the systems theory a system consists of two sets, mathematically: the set of its elements and the set of relations between them (and with its environment) resulting in synergetic attributes that the entire system has, but its elements alone do not. Hence, speaking of a set would mean the traditional oversight of relations and their crucial importance.



In many fields of activities, we are endangering our existence with opening the possibility to planetary catastrophe. The nuclear technologies are the most dangerous activity. I discussed it many times and on many occasions. My recommendation was “The nuclear research should not come out of research laboratory doors”. It is number one possibility for global humankind community to experience the extinction. The impact of climate change system is number two. On several occasions I stated the following; “The climate change system impact to the biosphere could change geography, biology, and chemistry so much that our planet Earth will not be recognizable for present mankind”. The climate change system did it in the past to caused extinction of many species and practically changed living nature of the Earth. Explosive reproduction of humankind is third most dangerous activity. Intensification of the climate change system impact is result of high increase of the global humankind community due to energy consummation, transport activities, urban life, and total consummation.

Synthetic chemical compounds, particles research, nano technologies, and genetic manipulations in practical use could be next in line. It is most dangerous because the long-term impact of them to the nature is completely unknown.

It is my great pleasure to co-operate with other researchers and please see:

6.5 “Perceptions of Climate Change” by guest authors: Prof. Dr. James Hansen and Dr. Makiko Sato

This past winter, for the second year in a row, seemed pretty extreme in both Europe and the United States. Therefore this is a good time to check quantitatively how seasonal climate change is stacking up against expectations.

People's perception of climate change may be the most important factor determining their willingness to accept the scientific conclusion that humans are causing global warming (or global climate disruption, as you please). It is hard to persuade people that they have lying eyes.

In the paper attached to my congressional testimony in 1988 (1) we asserted that the perceptive person would notice that climate was changing by the early 21st century. I used colored dice to illustrate how the frequency of unusually warm seasons was expected to change.

We considered three scenarios for future greenhouse gas amounts. Figure 1 shows that the real world so far is close to scenario B. Temporary aside: there are two main reasons that greenhouse gas growth moved off the track of scenario A onto scenario B in the early 1990s, as shown in Figure 2: (1) the growth of CFCs (chlorofluorocarbons) was greatly diminished by successive tightening of the Montreal Protocol, (2) the growth of methane slowed sharply.

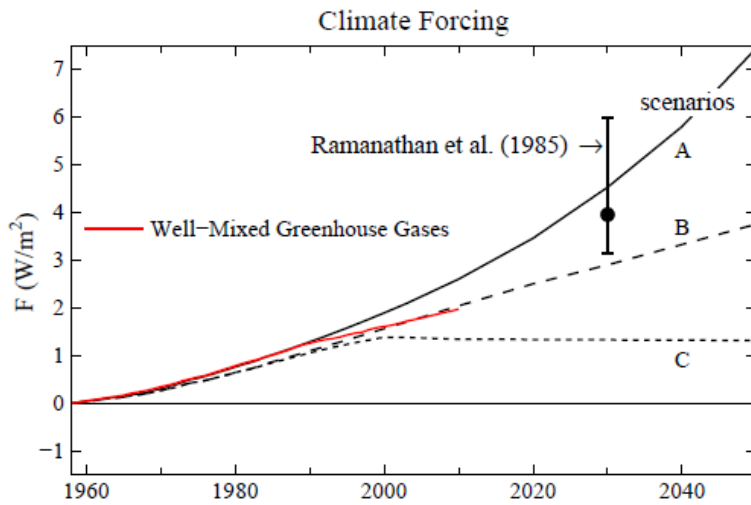


Fig. 1. Update of Fig. 2 of Reference 1, scenarios A, B, and C being climate forcing of greenhouse gases used in climate model simulations. The real world (red curve) has closely followed scenario B.

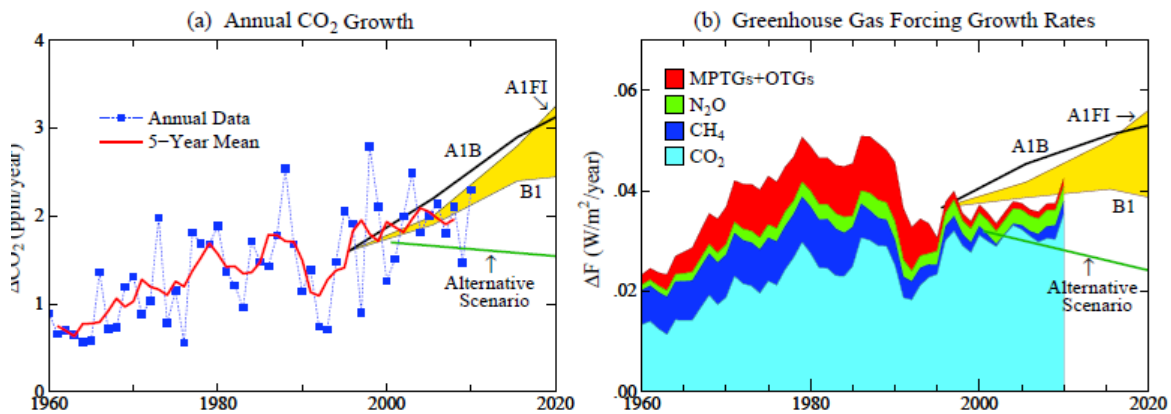


Fig.2. Annual growth of (a) CO₂ and (b) climate forcing by greenhouse gases. The forcing is the 5-year running mean, except final two points, for 2009 and 2010, are 3-year and 1-year means. See reference 2.

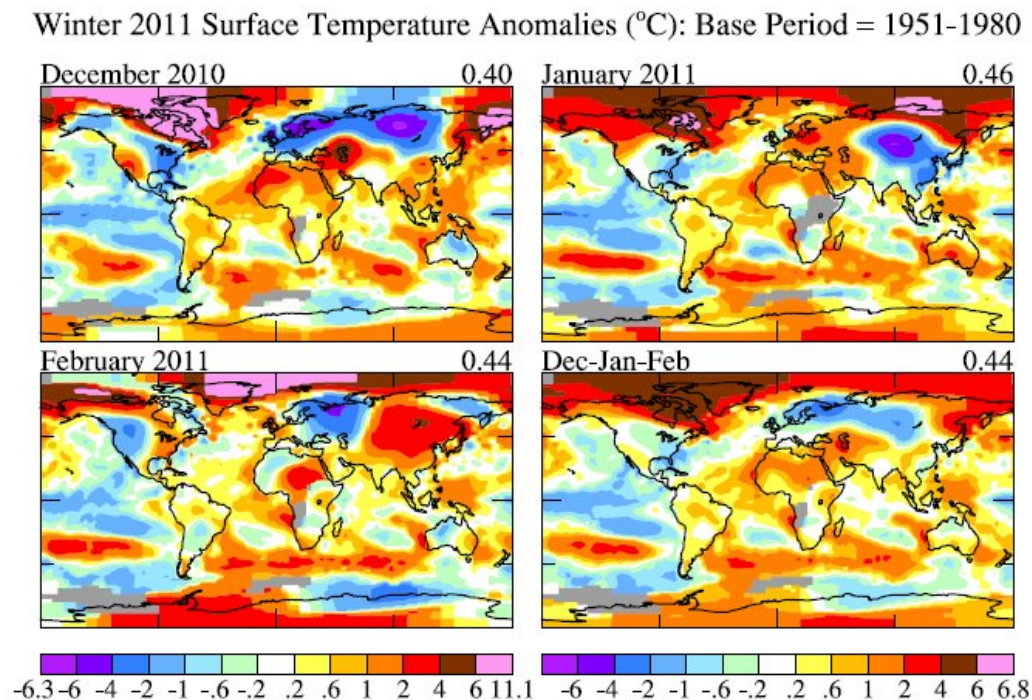


Fig. 3. Surface temperature anomalies in Northern Hemisphere winter 2010-2011 relative to 1951-1980 mean. See reference 3.

Let us start with this past winter, compare it with the last few winters, and then check whether the odds of warm seasons have changed as expected. Figure 3 shows the temperature anomaly for each of the past three months and the seasonal (Dec-Jan-Feb) mean anomaly.

December was very warm in northeast Canada, about 10°C (about 15-20°F) warmer than baby boomers' climatology (1951-1980 mean). It was unusually cold in the eastern United States and especially in northern Eurasia. Hudson Bay and Baffin Bay (between Canada and Greenland) were essentially ice-free, the first recorded time that ice-free conditions lasted so long. Ice-free water is a huge potential source of heat to the atmosphere. When the water is ice-covered the air above the ice can sink to 10 or 20°C below zero, but ice-free water warms the air above. I speculated in a prior post that this energy source might have contributed to causing the long-wave patterns that pushed cold Arctic air into northern Eurasia. However, before being carried away with regional climate prediction, let us compare the last few winters and summers.

Figure 4 shows the seasonal mean temperature anomalies for the prior three Northern Hemisphere winters and the mean for the past decade. Note that the Northern Hemisphere temperature anomaly pattern in 2010 (Dec 2009, Jan-Feb 2010) was very similar to 2011, including the unusually warm Hudson Bay region. The similarity occurred despite the opposite phases of the Southern Oscillation in the equatorial Pacific Ocean, 2010 having an El Niño and 2011 having a La Niña. However the strong patterns are averaged out in the mean anomaly for the first decade of this century. The decadal mean has widespread warming of about 1°C, but greater warming in the Arctic and less warming in the southern and western United States.



Figure 5 shows seasonal temperature anomalies for the last three Northern Hemisphere summers and the mean anomaly for the past decade. The United States was about half a degree Celsius (about 1°F) warmer in summers of the past decade compared to 1951-1980. Europe was 1-2°C warmer, in what seems to be downwind extension of large warming in northern Africa.

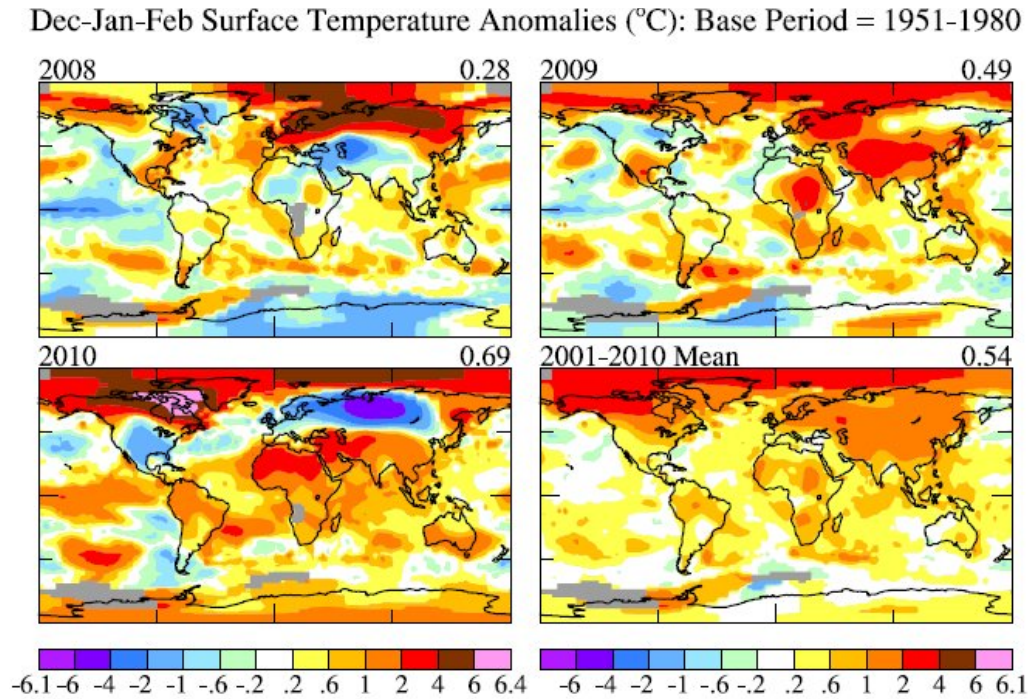


Fig. 4. Surface temperature anomalies in the prior three Northern Hemisphere winters and the mean anomaly for the past decade. See reference 3.



Jun-Jul-Aug Surface Temperature Anomalies (°C): Base Period = 1951-1980

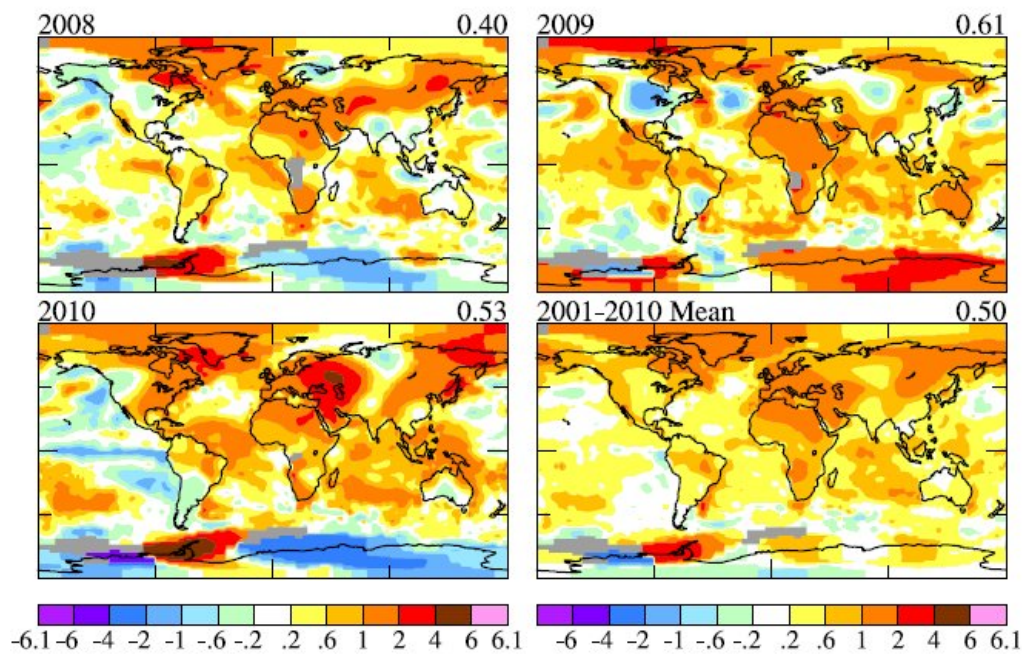


Fig. 5. Surface temperature anomalies in the last three Northern Hemisphere summers and the mean anomaly for the past decade. See reference 3.

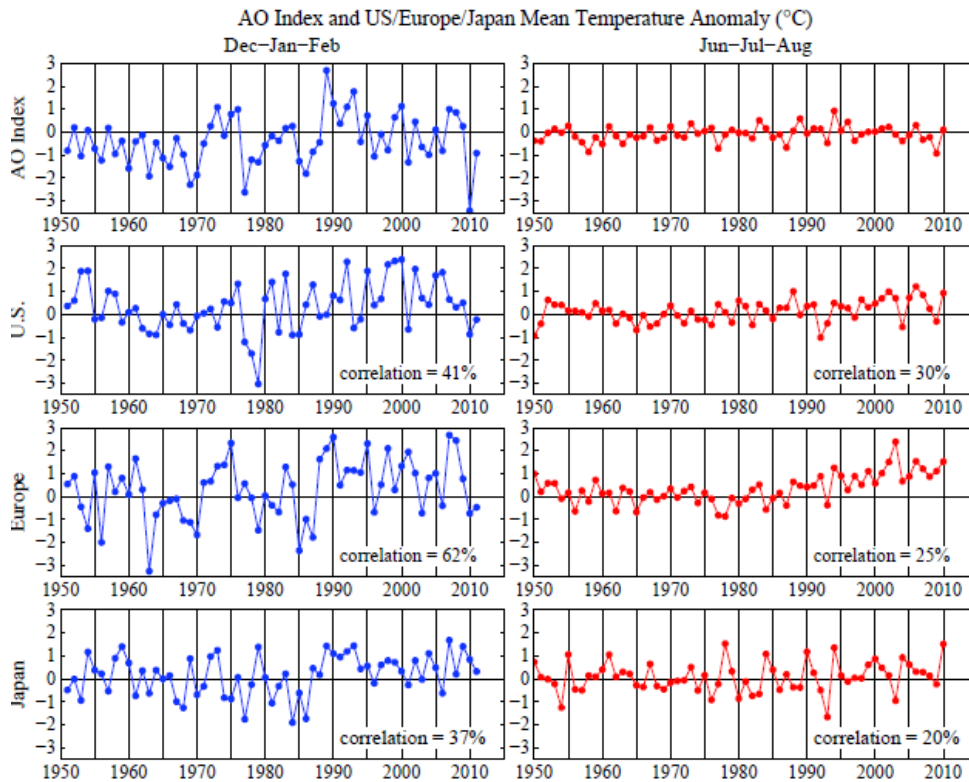


Fig. 6. Arctic oscillation index (top row) for Dec-Jan-Feb and Jun-Jul-Aug, and corresponding seasonal mean temperature anomalies in the United States, Europe and Japan. See reference 3.

Before betting any money on seasonal predictions, let us look at one more piece of data. Figure 6 shows the Arctic oscillation index for Dec-Jan-Feb and Jun-Jul-Aug. When the AO index is negative Arctic surface pressure is high, which tends to cause cold air outbreaks, pushing Arctic air into middle latitudes. The AO index has high correlation (62%) with European winter temperature, and weaker but significant correlations for the United States (41%) and Japan (37%). The correlations are much weaker in the summer, as expected given the weaker latitudinal temperature gradient.

Both the United States and Europe were colder than the 1951-1980 mean during each of the last two winters. Nevertheless, note that, despite all the bellyaching that we heard from Europe, it was only a bit colder than climatology. There were many winters that were much colder in 1951-1980, and even a few in the 1980s. Memories seem to be short. Of the last 10 winters 8 of 10 have been warmer than the 1951-1980 mean in the United States, 8 of 10 in Japan, and 6 of 10 in Europe. In the summer, it is 8 of 10 in the United States, 8 of 10 in Japan, and 10 of 10 in Europe. However let us still hold off on any betting until we check on our climate dice of the 1980s.

In reference (1), in approximation of categories used by the then United States Weather Service, we defined the 10 warmest summers of the 30 in 1951-1980 as "hot", the 10 coolest as "cold", and the middle 10 as "normal". Our climate simulations indicated that for greenhouse gas scenario B the frequency of "hot" summers would increase to about 60% in



the first decade of the 21st century and 70% in the second decade. In other words, instead of two sides of the die being red, it was expected to become four red sides at about the present time.

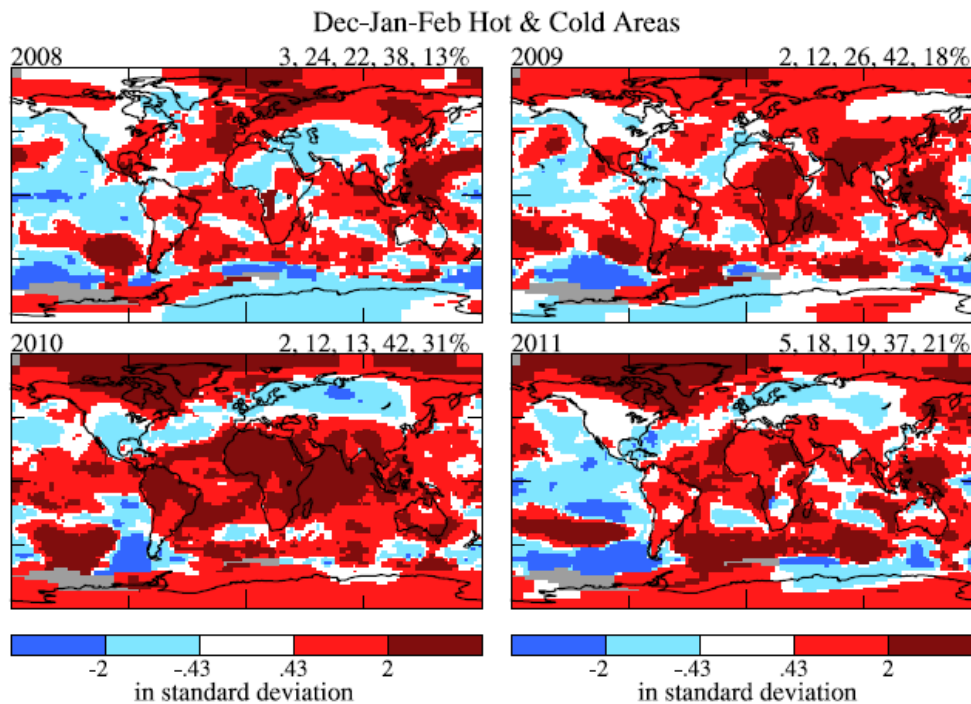


Fig. 7. Dec-Jan-Feb "hot" and "cold" areas during the past four years, with hot and cold defined by the 1951-1980 climatology. Dark blue and black are areas of extreme cold and heat, extremes of a magnitude that occurred 2-3% of the time in the period of climatology. See reference 1.

Now we can check the degree to which the real world has lived up to this expectation. The answer will vary from one place to another, so let us make a global map for this past winter. Each grid box will be colored red, white, or blue, depending on how the local temperature this past winter compared with the categories established by the 1951-1980 climatology.

Figure 7 shows the result for the last four winters (summers in the Southern Hemisphere). To make the maps even more useful we use dark blue and dark red to show those places in which the temperature fell in the extreme (>2 standard deviations) category that occurred only a few percent of the time in the period of climatology¹. The extreme cases are important because they are the ones that have the greatest practical implications – particularly regarding the nature. Species are adapted to climate of the past, so a change to more extreme climates can be detrimental, especially if it occurs so rapidly that species cannot migrate to stay within tolerable climatic conditions.

The numbers on the top of the maps are the percent of the area falling in the five categories: very cold, cold, normal, hot, very hot. In the period of climatology, those numbers averaged 2%, 31%, 33%, 31%, 2%, rounded to the nearest percent.



Figure 7 reveals, for example, that the past two winters in Northern Europe both fell in the category of "cold" winters, but not extreme cold. The area hot or very hot (51-73%) far exceeded the area with cold or very cold conditions in all four years (14-27%).

Figure 8 shows results for Jun-Jul-Aug for each of the past four years. In both Jun-Jul-Aug and Dec-Jan-Feb, it is apparent that the area falling in either the hot or the very hot category totals 64-78% in agreement with our 1988 climate simulations.

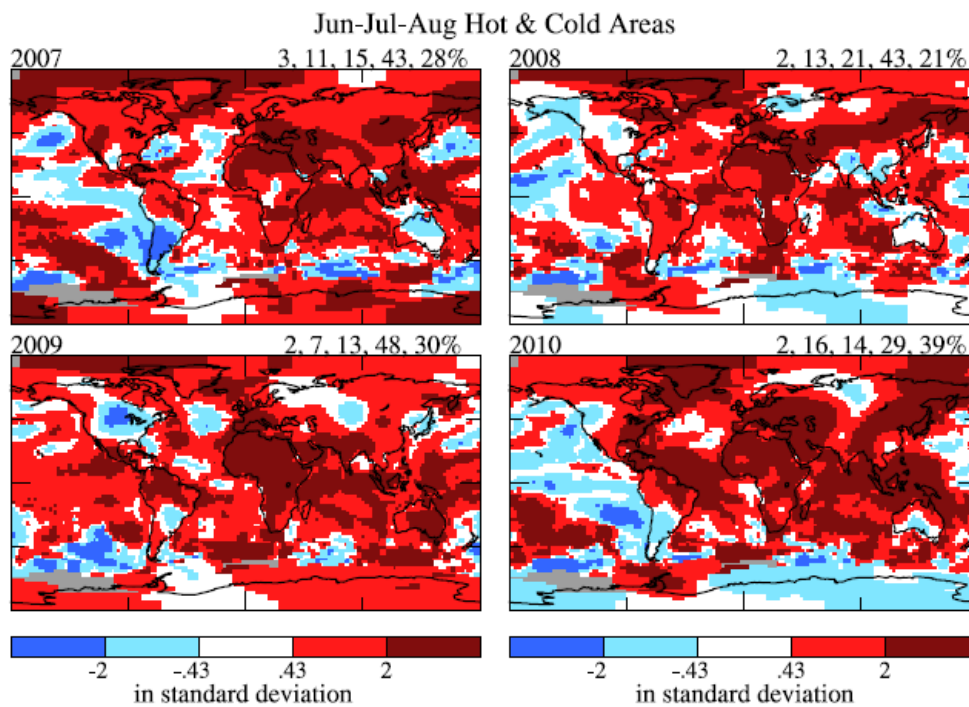


Fig. 8. Jun-Jul-Aug "hot" and "cold" areas during the past four years, with hot and cold defined by the 1951-1980 climatology. Dark blue and black are areas of extreme cold and heat, extremes of a magnitude that occurred 2-3% of the time in the period of climatology. See reference 1.

The perceptive person who is old enough should be able to recognize that the frequency of unusually mild winters is now much greater than it was in the period 1951-1980. However, mild winters may not have much practical impact. Therefore, a return to one or two colder than average winters may affect the public's perception of climate change. On the other hand, the huge increase in the area with extremely hot summers, from 2-3% in 1951-1980 to as much as 30-40 percent in recent years and most of the land area in 2010. If people cannot recognize that summers are becoming extreme they may need to have their senses examined or their memories. Perhaps the people who do not recognize climate change are living in air-conditioned environments, which are restricted mainly to one species.

As for specific areas affected most, we would not expect the climate model employed in 1988, which had coarse resolution and a simple representation of the ocean, to do a good job of predicting the spatial distribution of the largest warming signal. Yet Plate 2 of reference 1, showing a map of simulated early 21st century temperature change divided by the standard deviation, compares very well with Figures 7 and 8, the signal being most apparent in the



tropical ocean, sea ice regions, northern and central Africa, and the Amazon region. The model responded in that way because the ocean mixed layer is thinnest at low latitudes, and thus warms most rapidly there, and warming is amplified in regions where sea ice is lost.

O.K., now let us see what bets we can make, starting with next winter: are Europe and the United States going to be unusually cold again? Sea ice cover is very low now, as low as it was in the period of satellite data. If low sea ice cover has caused the climate disruption of recent winters, as some scientists have asserted, that should hold again next winter, shouldn't it? Moreover, I suggested that the ice-free Hudson and Baffin Bays were related to cold Europe. However, were the long waves (the jet stream waggles) where they were because Hudson Bay was ice-free, or was?

Hudson Bay ice-free because the chaotic jet stream waggles happened to be where they were, causing southerly winds over Hudson Bay? Given the high degree of chaos in the AO index (see Fig. 15 in reference 3), I would not bet anything on Europe or United States winter temperature. On the long run the tendency, as verified by Figure 6 above, is toward winters that are warmer than climatology, so that is the direction I would lean, but I usually only bet on sure things, or on almost sure things that people find surprising.

One sure bet is that this decade will be the warmest in history. Yes, some scientists assert that there is decadal variability and the next decade or two could be cooler. How do we know they are wrong? Because, as we show in reference 4, the planet is now out of balance by about $\frac{3}{4}$ of a watt per square meter of Earth's surface averaged over the solar cycle. It may not sound like much, but that is a lot of energy (in an interesting unit suggested in a colleague's paper, Sarah Purkey and Greg Johnson?), the $\frac{3}{4}$ W/m² corresponds, assuming a global populations of 7 billion, to every man, woman, and child on the planet running simultaneously 40 industrial strength 1400 watt hair dryers 24 hours a day 365 days a year). This energy is enough to cause the ocean to slowly warm and ice to melt all over the planet.

Sometimes it is interesting to make a bet that looks like it is high risk, but really is not. Such a bet can be offered at this point. The NOAA web pages giving weekly ENSO updates (http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf) predict a return to ENSO-neutral conditions by mid-summer with some models suggesting a modest El Nino to follow. We have been checking these forecasts weekly for the past several years, and have noted that the models almost invariably are biased toward weak changes. Based on subsurface ocean temperatures, the way these have progressed the past several months, and comparisons with development of prior El Ninos, we believe that the system is moving toward a strong El Nino starting this summer. It is not a sure bet, but it is probable.

Finally, we can mention one other high probability bet, relevant to a Congressional hearing later this week. Dr. J. Scott Armstrong, a marketing professor at the Wharton School, University of Pennsylvania will testify about climate change to a committee of the House of Representatives. Armstrong, we are told, has made a bet that a prediction of no temperature change over a 10-year period starting in 2007 will prove more accurate than predictions of global warming. Observations (Figure 21 of Reference 3) show a linear warming rate over the past 50 years of 0.17°C per decade. Our climate model slows this down to about 0.15°C for the near future because of the change in GHG growth shown in Figure 2(b) above. That bet,



warming of 0.15°C/decade would have a high probability of winning over a bet of no temperature change.

James Hansen and Makiko Sato

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I am sure you have heard of Prof. Dr. James Hansen from Goddard Institute and Columbia University, and his colleagues among with Makiko Sato. I was happy to receive their accord to publish “Perceptions of climate change” in my book. I think it contributes to the quality of the book.

Before going to “The Global Mankind community” I would like to mention the presentation on the 2nd International Congress – Protection of the Life and Environment in the Process of Global Changes in the World, in High Tatras of Slovakia, Europe, May 1997, Ecimovic, Kulic, Gantar, Stuhler, and Vezjak. It was one of first interdisciplinary research presentation in the world. We presented threats for humanity with nuclear technologies, climate change system impact and others issues. Now, fourteen years latter, I think, we did it without any assistance to global humankind community. Our discussion was lost along with many millions of discussions without effect.



7. The Global Humankind Community

The global humankind community is 7000000000 + individual representatives of humankind: babies, children, youth, man and women including old people. I am now 70 years old and I remember what I thought when I was 20. I did not think that I would make it 70.

This part of the book was prepared from the Nobel Prize book »The Three Applications of the System Thinking«, ISBN 978-961-92786-0-4, 2009, T. Ecimovic, trilogy “The Sustainable Future of Mankind”: please see at www.institut-climatechange.si and presentation “The Philosophy of the Nature”, Ecimovic, 2011, for Lomonosov University, Moscow, Russia, May 2011.

It is a new approach to the challenging questions of the global humankind community. It presents hypothetical and real issues of the philosophy and search for the knowledge and understanding of the nature and meaning of the life and universe.

The vision of the sustainable future of mankind has a magic power, because it presents the Nature and humankind not as separate issues, systems, requisitely holistic approach, but it lets us know how we have come to the present, what the present is, and what shall we will be in the future. Do not forget, we may research and learn about past, we may understand present, but future is not predictable.

Calling global humankind community a system, in my opinion is appropriate. The Global Humankind Community System is interdependence, interaction, and co-operation of 7000000000 + individual representatives of Homo sapiens species.

According to system theory, operational research, system thinking and complex problem solving understanding and/or controlling of the system per parts is not very helpful, because as a whole a system has attributes that differ essentially from attributes of each one of its parts alone.

Synergies emerging from their attributes provide to the new whole/system new attributes. Therefore, the truth will be easier to discover, and difficulties and evolvment easier to control, if the feature/event/process is considered as holistically as possible rather than per single parts. This is called systemic or systems thinking. A total holism of human behaviour, i.e. monitoring, perception, thinking, emotional and spiritual life, decision making and action, and a total wholeness of insights and outcomes, is usually impossible to attain, but a single specialization – a single viewpoint of profession – limits humans to fictitious holism providing for fictitious wholeness (Mulej 2009).

This fact makes us apply the Mulej/Kajzer (1998) law of requisite holism as the suitable one. In the case of the global mankind community system this would mean the understanding that synergies of insights from physics, chemistry, biology, history, technology, economy and several more disciplines and practices are needed. One would chose and collect professions and viewpoints that one would consider essential and interdependent for mutual completing up by differences.



Following the ancient Greek philosophy, one would link them based on their interdependence or – in the Greek wording – dialectics. A dialectical system would show up (Mulej, 1974, see Mulej 2008). In this case, a system is not meant to be a complex feature, but a mental picture about it, which we introduce in order to attain the requisite holism of human behaviour and requisite wholeness of its outcomes.

A systemic approach to the global humankind community system must consider “The Age of Globalization”. The present status of our civilization, unnatural life of humans in poly/mega and similar urban centres, management of technologies without sustainability, lack of individual and corporate social responsibility¹⁹, uncontrollable explosion of human population, short- and often medium- and even long-term ('side'-)effects of synthetic chemicals, modern technologies, weapons, combustion engines, transport system, nuclear technologies, industrial and agricultural production, national and international political distribution of power and administration, and their influences on the scientific global, national and local communities. They cause a gap between needs and results of the cohabitation of Homo-sapiens-civilization with the nature on the planet Earth.

This gap threatens this civilization to disappear.

This gap surfaces as the climate change system and global mankind community impacts, and consequences are: strong winds, large droughts and floods, tsunamis, earthquakes, large air pollutions by industrial, city life and transport system emissions, changes in local climatic patterns, global warming, depletion of the ozone layer, pollution of all three basic environments of the biosphere: land, water and air.

They are due to huge misunderstanding of the climate change system by the population in local communities around the Globe.

Simple language for simple people and understandable explanations are needed for sustainable future of humankind or harmony of humankind civilization with the nature on the planet Earth.

It is as it is; I am merely trying to present the contemporary scientific approach to the present most important issue of humankind.

Whether we shall understand the climate change system or not has a crucial importance for the local community life, and gives questionable chances to the long-term of survival of humankind – it requires sustainable future. Sustainability of local communities leads to the sustainable future of global human civilization²⁰.

¹⁹ Social responsibility is an attribute of humans and their organizations. It prevents or diminishes, at least, the danger of humans' abuse of their influence leading to damage experienced by their co-workers, other business or personal partners, broader society or nature on which the human existence or quality of life, at least, depend. This is a short summary of definitions in international official documents. Other references see in social responsibility an upgrading of the innovation effort/support called improvement or total quality management or business excellence. Further references see it closely linked with systemic behaviour; yet further ones link it with efforts aimed at peace in the world (Hrast et al., ed., 2006, 2007, 2008, etc.). The current dangerous state of climate change system results to an essential extent from a lack of responsible behaviour of humans over centuries of industrialization and all times until today.

²⁰ For details see our publications: »Our Common Enemy (The Climate Change System Threat)« by Ecimovic et al, 2006, and recent books: »The Sustainable (Development) Future of Mankind« by Ecimovic et al, 2007, »Sustainable



Present status at the Biosphere of the planet Earth, living conditions and daily events or living of Homo Sapiens present civilization and the rest of the living creatures are showing signs of adaptation to the changing living conditions resulting from changes in the planet Earth's Biosphere environment.

After 1960s the visible changes have become more than just cyclic events within the Solar system and the planet Earth system. Most acute issues have been changes within the weather patterns and most significant change was commencement of the ozone layer destruction because of the chlorofluorocarbons CFC's introduction to the atmosphere by our civilization.

Humankind's²¹ local communities include variety of many different contents of the human life styles, etc. A major part of it has connections with origin of the people living within the local community, and with the natural characteristics of their environment, within which the local community lies. Geography, biology, physics, chemistry, and history cover in general the main deciding contents.

Common thinking and understanding are day-by-day life issues, local events and communal life stories. All of us live in a local community, but very seldom, we understand individuality of the local community. Countless local communities of the humans on the planet Earth are countless individual approaches of the humans to make living. Beside the family, the local community is the basic unit of the present human civilization.

It is very difficult not to see similarity with star systems, planets, galaxies and other energy/matter forms within the known Universe.

As we seldom have opportunities to see the individuality of the local community of humankind on the planet Earth, it is therefore more difficult or even impossible to understand individuality of other planets and the planet Earth. To the countless number of the planets within the Milky Way Galaxy we have to add another even more countless number of the planets within the rest of the Universe.

To make it more complex, I have to say, that what we understand the Universe is a very small part of it, and even less do we know how small part of it is our Universe in reality.

The Nature²², the origin of the planet Earth, the origin of humans, etc, are parts of large content we call »The Nature«. It is hard to answer to all questions of the Nature. However some of them need to be answered for the sake of philosophy and understanding of the life and other issues connected with it.

Future, Requisite Holism, and Social Responsibility« by Bozicnik, Ecimovic and Mulej, 2008; "The Sustainable Future of Mankind III", Ecimovic, Esposito, Mulej, and Haw, 2010; and "The Three Applications of the System Thinking", Ecimovic, 2010, all are displayed at: www.institut-climatechange.si

²¹ From the book »The Sustainable Future of Mankind III«, ISBN 978-961-92786-2-8, 2010, Ecimovic at all please see at: www.institut-climatechange.si .

²² From the book »The Sustainable Future of Mankind III«, and partly from the books »The Sustainable (Development) Future of Mankind«, Ecimovic et al, 2007, and digital book »Sustainable Future, Requisite Holism, and Social Responsibility (Against the current abuse of free market society)« edited by Bozicnik, S., Ecimovic, T., and Mulej, M., 2008, all displayed at: www.institut-climatechange.si



The present science has to undergo future evolvement to be able to answer the basic questions about the Nature. That is why I have putted my recent research in this book in order to put on records new theories and possibilities for tomorrow. Tomorrow, of course, I expect better environment for humankind and sustainable future²³ for our descendants.

7.1 Discussion about Time

Here we have to rethink/discuss our human achievement called the TIME. We humans have a long history of use of the time as practiced. At present, the time is a very important dimension of our living. Practically it is very difficult to imagine our living without the time practically in use.

When looking from the Nature's viewpoint, we may see it does not use the time. **The Nature is always in the present.** We may discuss it as the Nature is taking as much time as needed for a certain process. Moreover, due to its systemic abilities the Nature evolves in only one direction – **“the multidimensional evolvement ahead”**. Direction of the evolvement is not known, but it is result of interdependences, interaction, and co-operation in case.

I think the TIME is our civilization imaginative dimension, which is very useful to our living, thinking, discussing, researching, etc, but the Nature does not have the time as its dimension. Processes in the nature are having their evolvement according to the direction of the evolvement and the information, which is assisting it, and it exist only at present.

Due to its systemic quality and human understanding of it by the requisite holism principle of the human approach (Mulej, M., Kajzer, S., 1998), based on the concept of the “dialectical system” as a network of all essential viewpoints by Mulej, M., (1974), the system qualities, and environment within which the requisite holism and wholeness of the nature exist THE PRESENT is viable (to our understanding) or not as a continuum, but it has constant continuum be it understandable or not.

7.2 Sustainable Development²⁴

Thinking theory, system thinking, system analysis and synthesis offer new thinking techniques to assist scientific, common, and whatsoever thinking patterns of our civilization, to restore natural thinking and acting towards a noble and a prestigious target of *sustainable future*²⁵ of humankind.

With the commencement of awakening of humankind in 1960s on needed quality of environment, as basis for life of humankind and all creatures on the planet Earth, it is also the commencement of sustainable development concept/strategy/vision.

²³ The sustainable future of humankind is harmony of our civilization with the nature of the planet Earth.

²⁴ Prepared from trilogy »Sustainable Future of Mankind«, Ecimovic and co-authors, 2007 – 2010.

²⁵ Sustainable Future is harmony of our civilization with the Nature (Ecimovic numerous statements).



First compliments are reserved for pioneers and among them The Club of Rome²⁶, with its first report and publication “The Limits to Growth”. Reports followed and awakening of global society commenced.

Stockholm -72 – UN Conference on the Environment in Stockholm/Sweden, 1972, achievement was establishment of UNEP – United Nations Environmental Program in Nairobi/Kenya. More research and reports followed and it took humanity 20 years to prepare global conference on sustainable development – Rio 1992.

1987-term sustainable development was introduced by report “Our Common Future” or “G. H. Bruntland Report” from The World Commission on Environment and Development to the General Assembly of the United Nations. “Our Common Future” report had strong impact to global society.

At Common Concerns report stated: “Those who are poor and hungry will often destroy their immediate environment in order to survive: They will cut down forest; their livestock will overgraze grassland; they will overuse marginal land; and in growing numbers they will crowd into congested cities. The cumulative effect of these changes is so far-reaching as to make poverty itself a major global scourge”.

“Failure to manage the environment and sustain development threatens to overwhelm all countries. Environment and development challenges are not separate challenges; they are inexorably linked. Development cannot subsist in a deteriorating resource base; the environment cannot be protected when growth leaves out of account the costs of environmental destruction. These problems cannot be treated separately by fragmented institutions and policies. They are linked in a complex system of causes and effects.”

Those statements were overlooked by coming generations. The spirit of complexity was just talks, reality of issues was neglected. Environmental quality of Earth Biosphere was and is (2011) neglected. Interdependences, interaction and co-operation of all matter, energy, information, particles, rays, powers and forces and yet not known contents of Nature were overpowered by needs of individuals, national elites, security needs, money reproduction, bureaucracies, military needs, wars, riots, genocides etc up till now (2011).

At “Towards Sustainable Development” in Our Common Future, the definition of it was stated as **“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”**. It is very noble, humanitarian, cosmopolitan, global goal, which after it had been invented was generally misused by countless politicians, bureaucrats and people of individual feelings and not humanitarian quality, knowledge or ethics’.

To continue with “Our Common Future” a nice statement was “Many of us live beyond the world’s ecological means, for instance in our patterns of energy use. Perceived needs are socially

²⁶ The Club of Rome a nongovernmental and informal organization that earned a worldwide reputation thanks to its research project - reports to the Club of Rome with expertise on global studies. It has been established in 1968 by Aurelio Peccei, founder and first president. They established Standing Committee of thirty European scientists and the membership was limited to 100 members. With co-operation on the National Associations basis from 1987 onwards (at present there is about 30 of them), they assist The Club of Rome to fulfil basic goal - Global Studies – issues, to work out solutions for global problems, and to draw attention of world public to them.



and culturally determined, and sustainable development requires the promotion of values that encourage consumption standards that are within the bounds of the ecologically possible and to which all can reasonably aspire”. Many means individuals, communities, countries, and we do not need to write more on this. The system characteristics of humankind are forgotten today!

“The world must quickly design strategies that will allow nations to move from their present, often destructive, processes of growth and development onto sustainable development paths”. This content was also completely neglected!

“Critical objectives for environment and development policies that follow from concept of sustainable development include:

- Reviving growth;
- Changing the quality of growth;
- Meeting the essential needs for jobs, food, energy, water, and sanitation;
- Ensuring a sustainable level of population;
- Conserving and enhancing the resource base;
- Reorienting technology and managing risk; and
- Merging environment and economics in decision making”.

Even today, objectives stand for criteria, and have not been ever taken into consideration by politicians, bureaucracies and nations agendas.

Most significant was statement on “The Urban Challenge” – “In 1940, only one person in eight lived in an urban centre, while about one in 100 lived in city with a million or more inhabitants (a “million city”)”

- “By 1960, more than one in five persons lived in an urban centre, and one in 16 in a “million city”. By 1980, nearly one in three persons was an urban dweller and one in 10 a “million city” resident”.

Hon. Tom McMillan, Minister of Environment, stated at WCED Public Hearing, Ottawa, 26th -27th May 1986 “The challenge ahead is for us to transcend the self-interest of our respective nation-states so to embrace a broader self-interest the survival of the human species in a threatened world”.

Dr. Gro Harlem Brundtland talking on report stated “This commission’s report, Our Common Future, contains a message of hope and opportunity”.

In 20 years after Our Common Future report was accepted, what is result of it? Very small or nothing!

Second UN Conference on the Environment and Development CED-2, Rio de Janeiro 1992 or Rio Summit was attended by representatives from 179 countries. A huge document was approved; Agenda for Change and Agenda 21 were adopted. A number of documents were approved, but never implemented.

Finally, 10 years after Rio, in Johannesburg, South Africa, at World Summit on Sustainable Development failure of action was accepted by public of course.



The reason in my opinion was in wrong handling of Our Common Future report and its possible global impact to society.

UN at that time did wrong baby sitting of the report, and it became agenda from UN to people, instead of agenda from UN to its **member states**. Member states never put in action sustainable development agenda due to national priorities (wealth of national elite and other national state priorities).

In the meantime United Nations due to poor leadership and political mishap of member nations on one hand and global human society on the other hand were not ready for sustainable development.

The role of UN was not adjusted to needs for challenges of time - end of second millennia and beginning of third one. Restructuring of UN under leadership of that time was impossible. Common practice was and is for individuals: politicians, bureaucrats, national elites, governments, media, show people, religious leaders, local community leaders etc., to meet their needs and needs of their family for wealth and employment, and after that, to look for humanitarian purposes. On top of it due to election practices, there has never been time for humanitarian results. In practice, they never took care of building new profile of human for the third millennium, and with new education, ethics and profile with humanitarian values to be able to meet challenges of nature, as they are per now. Homo urbanus took over civilization and did not take over long-term responsibility but only short individual needs.

There is a nice saying: “We are the only reason our ancestors existed. Our children are hope for touching the future. Let our children’s children be the reason we act”.²⁷

At present sustainable development and more sustainability has become popular term for politicians and politicians-like²⁸ people, who wish to make impression on listeners and public. It is a habit to mention sustainable development, global warming, and climate change as important contents of present time, but without understanding them in reality. After “Katrina” unfortunate happenings in USA, President G. Bush acted with no understanding of anything²⁹. He as president of USA should have prevented tragedies occurring there after his taking over, and should not have supported/initiated national and international tragedies from natural ones to political, wars and riots. The action for mitigating New Orleans “Katrina” tragedy should have been taken well in advance. After tragedy – the large New Orleans region should have been declared unfit for humans to live there, because it had been unfit before and still was after “Katrina”. After “Katrina” USA Government should have declared and made clear statement on unfitness of the region for humans to live there. Scientists understand and are familiar with risks and hazards of the lands such as New Orleans and alike. Society should take over positive issues, and government should prevent events that could be prevented.

²⁷ Prof. Dr. Warren Flint, Five E's Unlimited, rwflint@eeeeee.net, and www.eeeee.net.

²⁸ Politicians like are politicians, bureaucrats, individual leaders from industry and commerce, educators, researchers, military leaders, religious leaders etc., people of influence but without humanitarian values, education, and ethics needed for global leadership.

²⁹ It was known threat for New Orleans – 2001 Scientific American. Also Prof. Dr. Timi Ecimovic stated in 1998 at UN SD conference »New Orleans area should not be inhabited at all. Let it be Historical city and nothing else. « »Katrina« was one of disasters and future ones will definitely destroy New Orleans!



Society as it is in New Orleans, has been taking advantage from tax payers' money and questionable government policy, not only because of "Katrina", but floods and other related happenings demand a great financial input by government every year.

Sustainable development as leading global society policy is questionable from many contents of present practices.

At time of awakening, it was excellent, but did not change with challenges of present and past short-term time values. The problems of sustainability of humankind and Earth are much more complex as it was understood during end of 20th century.

The first part of the sustainable development – sustainability is much more important and has value for future of humankind. Second part "development" is misused term from industrial revolution and economics, and has nothing to do with Nature of the planet Earth. Development could be of product, construction, operating made systems, repairs, machines, armaments, etc., and it is a part of human society of post-industrial era. The nature has no development what so ever and nature system works on contents and interdependences, interactions, and co-operation relations.³⁰

7.3 The Sustainable Future of Mankind

With introduction of modern tools for thinking and researching of complex issues as human society is and many natural contents of the nature of the planet Earth are, Information and Environment Theories of the Nature, System thinking, analysis, synthesis and system theory, on top of many excellent tools used up till now, humanity has more possibilities for better tomorrow.

What is needed is New Approach³¹ as introduction of global society system relations, values, ethics, contents and mechanisms, which should assist transcendence to sustainable future of Earth global society.

What we find necessary for survival of humankind, is to introduce sustainable future of humankind as harmony of local and global human society with the other to us yet not fully known face/contents of the nature on the planet Earth.

It would be easy to write many pages on sustainable development concept, but the purpose of this book is not to do it, but to make transcend from sustainable development to sustainable future as societal technique needed for survival of humankind.

The follow up from sustainable development should be devised with all possible co-operation of humankind to sustainable future, and with mitigations of the climate change system impact to biosphere of the planet Earth.³² The goal of sustainable future is most complex issue, which

³⁰ System Thinking and Climate Change System – Against a big »Tragedy of Commons« of all of us, 2002, Ecimovic. Majur, Mulej, The Information Theory of Nature, and, 2006, Ecimovic, and The Three Applications of the System Thinking, Ecimovic, 2009 with the Environment Theory of the Nature are opening discussions for understanding present by our civilization, and this book.

³¹ New Approach as needs for restructuring of global society has been introduced by Prof. Dr. Slavko Kulic, IOM, from Zagreb, Croatia, but it is still within science and is waiting for better time to be understood and used.

³² Please see complementary book »Our common Enemy«, at www.institut-climatechange.si.



could be undertaken with consent of all humankind and dedication for fulfilment of its content. Let us see what sustainable future concept is.

Indicative description is possible only by short definition: **sustainable future of humankind is harmony of the humankind system/civilization/global community with system of nature/biosphere of the planet Earth system.**

It is a short description of a very complicated and complex content of present global human society and its basis – the biosphere of the planet Earth system.

I think up until now good work of many humans towards sustainable development should be transcended to more complex sustainable future concept.

Sustainable future concept includes:

- Redirection of scientific work towards researching systems of the nature of the planet Earth, Solar system, Milky Way, stars and galaxies of the Cosmos/Universe and or the basic environment Cosmos/Universe as stated after introduction of the Information and Environment Theories of the Nature.³³
- Redirection of the climate change system research towards researching of the climate change system as a part of the planet Earth biosphere, and interdependences, interaction and co-operation within system itself and other systems of the nature of the planet Earth.
- Transcend of present education system towards education for understanding and use of human abilities, thinking processes as major tool for better work and future. Ethics, human values, tolerance, past and present achievements, knowing heritage, and many more should become a part of education system. Not to mention life long education, long distance learning and new methods of knowledge transfer allowed by new communication means/techniques.
- Transcend from Homo urbanus³⁴ and Homo Slumus to Homo of sustainable future with new approach to life on the long-term values and holistic system thinking foundations.
- Establishment of global humankind community or society with direct democracy, World parliament, Constitution of the Federation of the Earth, and World government.
- Transcend of United Nations towards their integration with global humankind community needs for problem solving in co-operation with global governing institutions.
- Decommission of national governments and bureaucracies towards meeting needs for new global human system/civilization/society.
- Rethinking of military and security needs and establishment of responsible attitude of humans within global human society.
- Rethinking of present living style practice, techniques, and technologies in use towards sustainable ones. Wars, transport, use of nuclear power and technologies, construction, land use, water use, air use, communications, energy, conservation practices, long-term impacts of present to future possibilities, and many more should be looked at and proposed solution reviewed.

³³ The Information Theory of Nature, Ecimovic, 2006, and the Environment Theory of the Nature, Ecimovic, 2009 at The book The Three Applications of the System Thinking, please see at www.institut-climatechange.si

³⁴ Homo Urbanus introduced during 2006 and Homo Slumus introduced during 2009 are people living within urban centres or slums of the towns, mega, poly and large cities, where the environment has most fragile effects on the humankind.



- Rethinking of present research³⁵ and industrial production practices of producing without knowing long term impacts over the biosphere of the planet Earth,
- Mitigation of the climate change system impact and its consequences in the biosphere as risk for present practices of humans on Earth, and present short and long term living practice changes.
- Building up the new Homo sapiens (Homo of Sustainable Future) for the third millennium in the education and knowledge needed for common performances under challenges of present and possible future evolvments.
- Stop wars and riots. Stop practices that harm human society and its chances for survival. Build up respect, peace, morality and wisdom philosophy, transcend from the present financial and money system, which have become our civilization *Monster*, to new more equitable system, transcend present media and free time practices and their influences on the global human society, and research long term impact of those on humans.
- And many more changes, which should be worked out in co-operation of humans with abilities for it.

Of course it is an optimistic scenario, which I am supporting and initiating its enhancement and long-term realization.

The path is to work with local communities and with sustainable future of local communities to enhance global society sustainable future or harmony with nature. The basis from Our Common Future, Rio Summit as Agenda for Change and Agenda 21 processes etc., New Approach, Our Common Enemy – The Climate Change System Threat and many more achievements of present and past humans should anchor new approach for global sustainable human society. Major goal is education for new profile of humankind's individual-knowledgeable and thinking persons. It is our needed transcend from present to future.

Of course, people should not put heads into sand and dismiss gender equality and major role of mother as first and most important educationist of baby and children. Our prime target should be education of women for meeting demands of new challenges for better build up of ethics and knowledge of our children. It is full employment for them and many of present complex issues are result of needs for financial, food, cloth, medical, shelter, and education securities of present society. It is important to recognize contents needed for transcend to future human of the third millennium.

Many excellent achievements from the past and present as heritage of humanity should be rethought and put into new frame of needs for the third millennium and present challenges coming from the difference between the global human society and nature. Our construction practice is not meant for the present disastrous conditions. Wind could reach a speed of 500 kilometres and more. The power of wind could increase much more, with lifting soil particles due to our practice in agriculture etc. Floods and droughts will reduce food production possibilities and new techniques should be invented for covering the demands for food and other fundamental needs to be secured. Earthquakes, volcano eruptions, tsunamis and larger floods will increase damages over human achievements and the nature of the planet Earth (as it happened in Japan in 2011, and could happen anywhere and at any time again). People may learn from the nature, and other planets in our Solar system on environment or living conditions

³⁵ Any scientific research activities should be reviewed for long-term effect on the nature and over the sustainable future of humankind.



needed for life of human and other living creatures' societies. Learning from research of the nature could be a short cut to new solutions for sustainable future of humankind.

Seeking sustainable (development) future or harmony with the Nature is a path for survival of humankind. Present achievements have to be re-examined with aim of possible evolvments of present society towards sustainable future society. The target is very complex and far from being achieved by present practice of our society, with narrow thinking and acting for benefits of national elites, top sportsmen, artists and showmen.

Our mega cities have reached the peak of non human environment in which humans live on human (good citizens and elite) style and non human style for unlucky ones that live in slums (at present there are 2000000000 + people living in slums). Our civilization has reached the status where the lands are no more abundant, water is restricted, and the air is exceedingly polluted.

Our living environment is rapidly changing, and the climate change system is threatening to change it from manageable one to unmanageable one.

Our top international governing body The United Nations have been transformed from human society assistant to assistant of "money" democracies of "big" nations the USA³⁶, G7/25, etc. At present the UN in New York is mega millions dollars business for the USA.

Present leadership has put the UN in the role of obedient servant of the "developed world", multinational corporations and globalization, with no rights for other nations and peoples of under-developed world. The UN Council for Human Rights is missing basic understanding of what is what. The UN should establish the Council for The Nature Rights for protection against attacks of human society (what 17 % of sealed land area in Europe is absolute proof of that).

To provide solutions, one has to re-examine the relevant system. Research is being conducted on a massive scale to understand systems operating within our biosphere. The "climate change system" has been introduced. This leads to studies of the system operating in the environment. Consequently, the Information and Environment Theories of Nature have been invented. To explain the systemic background of nature three operative but "non-scientific" words are needed – interdependencies, interactions and cooperation³⁷.

If this thinking is applied to our environment then the Universe, and the Earth are holistic units and the biosphere is the living environment/sphere of the planet Earth. The basic relations amongst the earth-nature factors are interdependences, interactions and co-operations.

Redirection of scientific research, applied research, and theoretical work is hardly possible, as long as one-sided businesspersons, (their) politicians and bureaucracies are handling resources: they learned how to rule, but not how to make a holistic rather than narrow-minded progress in sciences and technologies of the planet Earth systems.

³⁶ Please see complementary book "Our Common Enemy – The Climate Change System Threat", Ecimovic at all., 2006 displayed at coming chapters or at www.institut-climatechange.si

³⁷ Interdependences, interaction, and cooperation as part of the Nature have been introduced by Ecimovic/Mayur/Mulej at "The System Thinking and the Climate Change System", 2002, displayed at www.institut-climatechange.si



How can one explain the tremendous, but biased, development of armaments, chemical synthetic products, 1000000000+ and more combustion engine motor vehicles, and many more combustion engines, used in aircrafts, ships, boats and agricultural machines, marketing and profit-making oriented products, GMO/GMP, transport system, promotion of “globalization” as a tool for making money, while scientists are not paid to do their basic research work, and must neglect the research needed for understanding issues of the biosphere system, which is threatening our civilization with reactions of the climate change system and the whole Biosphere to human actions?

The pending big “tragedy of the commons” of all of us
is overseen, that is how. It results from human lack of holism behaviour.

It is also a question of present humankind leadership. We humans we have been accustomed to great leaders and their leadership. Whether good or bad it is another “kettle or fish”. However at present we are experiencing novelty of leadership without human leader, because we entrusted leadership to the money.

7.4 Money Leadership

Money (Ecimovic et al, 2003) as a Homo sapiens’ invention/innovation has its origin in ancient history. People needed system of money for payment of goods and services, and to replacement of bartering. The eastern cultures were more advanced than the western. Chinese developed coins and coins-like money during the second millennium before Christ, and India followed. The first paper money was invented in China during the first millennium after Christ. Marco Polo, 1254 – 1324, reported about the use of paper money after visiting China. The first coins known in the Western world were produced in Lydia well before the Christ age, a kingdom in the western Turkey, thus its king guaranteed uniform value. Paper money was invented in the Western world much later; we know today, it was developed in the 18th century (The Bank of England established 1694, and first paper money in 18th century, Bank of England 50.00 pounds note), and was commonly in use by the end of 19th century and 20th century.. At the beginning of 20th century, the money system was a nice and very helpful servant/assistant to humankind.

From a nice assistant/servant to the master – the money system needed only half a century. By the end of the Second World War in 1945, and within the following five years assisted by the USA administration, Marshal Plan and development of society – the money evolved from servant/assistant to the master of our civilisation.

From master to monster – at the beginning of the third millennium our civilisation adopted a secondary role in society after “the master money”, which transformed itself from master to “monster”. Today “monster money” is deciding on right or wrong, dependence or independence, war or peace, values of services and commodities, people, nature, environment, and, sadly, even the scientific achievements. In the last hundred years an intensive knowledge gain of our civilisation was driven by development of better and more effective armaments for Homo sapiens’ destruction/killing/protection – FROM WHOM? The present wars always result in financial gain of the nation who wins the war.



7.5 Requisite Holistic/Systemic Thinking/Behavior – Basic Principles Applied to the issues of the Global Mankind Community³⁸

System thinking, synthesis, analysis, complex problem solving, case study approach, as well as the traditional science and research and learning, are prerequisites for opening of the Nature's knowledge box.

This is a crucial goal for research and success of our civilization. Preconditions for sustainable future are directly related to human ability to support supra, multi, and interdisciplinary research applied toward this purpose.

History and status of the system could be known, the near future also, in case of continuity, but predicting the future could be done only in the case of a stable status of the system. The plane Earth system had over 10000 years of stability, but no more now, due to destabilization of the climate change system.

It has been triggered by impact of our civilization and natural responses to that effect: once the system is destabilized, it is quite impossible to predict any relevant information on future evolvments, and it is situation with our Biosphere.

The described facts, though, do not mean that there is no impact of us humans over the climate change system. We do have an impact for sure, and its contents depend a lot on our own thinking/behaviour. Our one-sidedness is quite natural and equally dangerous at the same time, potentially leading to our own extinction. We should better add something to our behaviour, which is called holistic/systemic thinking/behaviour. It is briefed in the Table as follows:

Table: The Basic Seven Groups of Terms of Systems / Systemic / Holistic versus Non-systemic Thinking³⁹

Systems / Systemic / Holistic Thinking	Unsystemic, Traditional Thinking
Interdependence/s, Relation/s, Openness, Interconnectedness	Independence, One-way-Dependence, Closeness
Complexity (plus complicatedness)	Simplicity, or Complicatedness only
Attractor/s	No influential force/s, but isolation
Emergence	No process of making new attributes
Synergy, System, Synthesis	No new attributes resulting from relations between elements
Whole, holism, big picture	Parts and partial attributes only
Networking, Interaction, Interplay	No mutual influences

The difference between the human's traditional thinking and the systemic thinking could be a corner stone for sustainable future of humankind.

7.6 The Globalization

³⁸ From teaching of Prof. Emeritus Dr. Dr. Matjaz Mulej, University Maribor, Slovenia.

³⁹ See M. Mulej's The Dialectical Systems Theory, presented also in the book "System Thinking and Climate Change System" displayed at www.institut-climatechange.si



Present the Globalization could be described as »Globalization is amalgamation of national economies into united world system based on rapid capital movement, new informational openness of the world, technological revolution, adherence of the developed industrialized countries to liberalization of the movement of goods and capital, communicational integration, planetary scientific revolution, international social movements, new means of transportation, telecommunication technologies and internationalized education«. ⁴⁰ I know there are many more definitions but I do agree with presented one.

Globalization has opened new ages of global humankind community as set up of Homo sapiens social creature on the planet Earth. The biosphere, which is small part of the planet Earth system, and it system itself has limited capacities. It has purpose of being environment for living nature of countless creatures, All of them share basic environments: land, water and air and there is no room for exclusivity of any kind.

The history of humankind is experiencing a sort of special role of humankind as “only” intelligent being on the planet Earth, etc. Actually, I think it is wrong impression at present interpretation of the history, which should be corrected and put humankind into the frame of the biosphere system, the planet Earth system, and the nature as holistically as possible.

⁴⁰ At page 220 of »Global Studies Encyclopedia« ISBN 5-05-005719-1, 2003.



8.0 Conclusions and Recommendations

After approximately 200000 years of humankind life at the biosphere, food was still abundant (in 1960s), and water was abundant (in 1960s), and the air is abundant (at the beginning of the third millennium), and space looks like being abundant. However at the end of the second millennium, the food was no more abundant, the water was no more abundant, the air was no more abundant and only space still looked like abundant, which in fact is neither the case any more. Is the end of our civilization approaching?

From the natural sciences point of view: yes, it is. However, any culture in the biology of the biosphere has its time of birth, childhood, adulthood, old ages, and history, anyway.

It was a too pessimistic statement, but the question is how truthful it was.

From the holistic viewpoint I may discuss it as follows:

The novelty to be attained – and to be made innovation – could be the ability of the current Homo sapiens to think, understand, and learn, how to *requisitely holistically* manage our own civilization affairs, e.g. provide to all humans shelter, food, water, air, and space for living. This task can be done better, if the systems thinking is used, but rather the Dialectical Systems Theory addressing the human attribute and interdisciplinary cooperation than those systems theories that focus on precise description of a feature from a single viewpoint.

Due to an exaggerated growth of the needs of our civilization (drinking water, industrial consumption of water, etc.), and demand for agriculture and food production, the water sources in the nature are becoming insufficient. Many innovations were used for solving this problem, of which many have had an impact on the biosphere systems. Let us mention here the exaggerated use of fresh river/lakes waters, resulting in the destruction of underground deposits and lakes of water, and combined with a lack of understanding the physics of the underground water deposits systems, etc.

At present, we face large deficit of fresh water sources, and quality of present sources is questionable, due to pollution by synthetic chemical compounds and their long-term effect. Recently, the influence of female hormones and hormone-like substances has also become more and more important. Today we do not have clean fresh water supply, but fresh water supply, of water quality within the limits of allowed level of intoxication by synthetic chemical compounds and other pollutants. From water supply viewpoint our future does not look nice.

Our civilization's settlements of near past and present (over-concentration of people and self-creation of the fragile environment – mega/poly-cities etc.) has caused the pollution of all waters in such regions, including areas as far as such polluted waters travel. Actually, the pollution has been a combined effect of pollution from city life (countless toxic substances – natural and synthetic chemical products, etc.) ending in the waters from individual kitchen outflows and sinks, toilets and sewage systems, and from the “natural” river flows. Secondly, the common agriculture intoxicates lands, and underground waters, and further waters



connected with intoxicated lands and underground waters. Finally, all this is ending into the coastal sea and ocean waters, which are in different stages of pollution/intoxication.

Our civilization has used/uses rivers as sewerage transport system. To achieve the combined effects of the protection of human settlements, citizens' properties, and civilizations achievements against the natural river water floods, huge hydro constructions were introduced.

Actually, by our civilization's standards, we have straightened the natural river flows, and by doing this, we destroyed the natural/biological river waters "filtering" systems. We achieved a fast running of the river waters, and only this, because we did not protect civilization settlements and achievements against floods. In the long-term the floods are still there, but with a much more damaging effect. A majority of the rivers need eco-remediation of their natural abilities to host life and other qualities destroyed by our civilization.

A further topic with a comparable destiny tackles estuaries and coastal waters, which in many cases were reconstructed into businesses, settlements, and tourist resorts with poor natural biosphere characteristics. They are opening new frontiers for pollution of coastal waters and therefore the ocean/sea waters are getting more and more pollution by synthetic chemical compounds and other pollutants.

At present majority of human population of our civilization has settlement at coastal lands. The pollution of coastal waters is taking place, and soon we shall be able to read results of our continuous action damaging the quality of sea and ocean waters. They will be unpleasant.

With our civilization constructions and developments, more and more land is changing natural characteristics. At present in Europe land use distribution is 47 percent agriculture, 36 percent forestry and 17 percent constructions and developments or sealed⁴¹ land, taken from the Nature/Biosphere.

The data briefed here make us conclude that many individuals and organizations need to learn and apply system/holistic, actually a requisitely holistic thinking/behaviour. Both the past and present experiences of our civilization's impact on a large number of natural systems are calling for nature that is more effective, space, and environment protection from members of our civilization. In reality, we need diffusion of the requisitely holistic thinking for a broader impact towards better and more suitable behaviour, in order to attain our civilization's long-term responsibility and preserve our nature of our Earth/Biosphere rather than to suffer a global tragedy of our commons.

The climate change system operates under preconditions given by the dynamic evolvement of physics, geography, and biology of the Earth and its environment. The humans, with their life practice over the last 300 years of industrial and post-industrial civilization, have been proving their ability to influence constructively and destructively their natural environment, and are going beyond the border of a sustainable life and its long-term influence on the biosphere of the planet Earth. Our findings exposed in our book "System Thinking and Climate Change System" demonstrate that the human impacts on the planet Earth's biosphere

⁴¹ Sealing of lands is process of putting human eco-sphere in human rather than natural order, or constructing and building living environments for humans and livestock, constructing infrastructure, industry and other facilities, churches and religious centres, education and sport facilities etc.



system are both individual and organizational, and their consequences are individual, local, organizational, regional, national, international, continental, global, and perhaps even universal. Therefore, the selected problem is how to attain a better and systemic long-term responsibility of humans to humans, including the one towards the nature. The selected viewpoint considers the potential political measures toward this responsibility. It would be proper to think that the Age of Globalization is asking for a new approach⁴².

The climate change system as an integral part of the Earth biosphere is not its creator, but its provider, maker, holder and guardian of the living conditions. Humans have to find a new path towards sustainability or sustainable future, which will provide for more holistic mutual relationship of this civilization and the planet Earth in the newly evolved conditions. The sustainable future of humankind could be defined by “harmony of the present civilization with the nature of the planet Earth”⁴³.

Philosophy, knowledge creators and its users, sciences, basic and applied research professionals, development specialists, society, and all governing, economic, national, international institutions/subjects, etc. need to accept a broader – requisitely holistic – view at the given evolvments in our biosphere, and to respond adequately to their new challenges.

The present pollution on the global scale (synthetic chemicals, nuclear etc. technologies, CFCs and similar substances, pesticides, genetic modifications, female hormone-like substances from our civilization’s synthetic chemical production and medication, technologies impact – combustion engines and others, transport equipment, armaments and other war equipments, PCBs with impact on gene structure, etc.) reflects samples of our civilization’s short-term and narrow-minded behaviour.

What we need for our sustainable future is our long-term social responsibility together with individual social responsibility of each and one, for our civilization’s impact within the biosphere - it affects us via nature.

Here we have to distinguish the impacts of the ruler of our civilization – money or profit motive – from the understanding of it and the actual damages done by by-products caused by the lack of knowledge and holism. In many cases of global pollution the profit motive of our civilization was the main reason for large pollution – PCBs, CFCs, pesticides, plastics, etc. – which were and are produced, promoted, and marketed as improvements, but have resulted in damages in our own living space or environment. Cases include the population’s explosive reproduction, and pollution of the atmosphere.

We need research, understanding and values/culture/ethic/norms supporting the long-term responsibility of our civilization in order to stop the irresponsible behaviour of the present rulers in economies and societies, the humans. Our civilization’s products such as the one-sided profit system, which causes a failure of understanding of the long-term responsibility, and hence causes irresponsibility, are detrimental to our-selves, at least in a longer term.

The present status of the biosphere, nature, space and the environment, as well as the scientific

⁴² New approach has been researched by Prof. Dr. Slavko Kulic, IOM, from Zagreb, Croatia, and his research has been done many years ago, but it is still waiting for its implementation.

⁴³ Taken from the book “The Sustainable (Development) Future of Mankind”, Ecimovic et al., ISBN 978-961-91826-2-8, 2007, displayed at www.institut-climatechange.si



and research knowledge available to humankind, but not applied on a requisitely holistic basis of behaviour, and our social system, are driving our civilization into a dead alley - the short-term and narrow-minded views are favoured too much. Individual, regional, national and international interests do not permit humankind to take a new – requisitely holistic – approach to survival by their social, financial, political, and bureaucratic pressures, war/redistribution rather than evolution-oriented philosophy, and lack of respect between people.

We, the people of the Earth, have to recognize the need for action towards the establishment of an honest and requisitely holistic world constitution, world parliament, and world government as a possibility for our survival, with responsibility to co-ordinate social issues, and to harmonize the needs of the entire humankind, and the nature, space, and environment capabilities, needs, and possibilities. Age of globalization is asking for new – requisitely holistic – approaches and behaviour.

Co-ordination of important issues for the Earth/Biosphere by a united single government could respond to research results by practical application of them and requisitely holistic and honest rather than one-sided and biased relationship between our civilization and the Biosphere. At least we may have proper management of important issues with more or less good possibility for success. Global direct democracy (but not money democracy) could be proper recommendation for entering age of globalization with a sustainable future of humankind by global governance.

The present practice on the Earth such as:

- The destruction of nearly all waters with synthetic chemicals, bio and air (rain-induced) pollution,
- The destruction of air by the land, sea, and air traffic,
- The destruction by the results of war actions,
- The destruction of the ozone layer,
- Destruction of the soil fertility by the agriculture practice, including erosion and desertification,
- Global warming and other impacts from the climate change system,
- The explosive reproduction of mankind,
- Diminishing motives for hard work and creation on the part of the affluent minority of population, because affluence has always caused the cult of laziness and hence destruction, and
- Others, not mentioned, but not less important practices of global humankind community under present leadership.

All of these and similar attributes should be parts, which have to undergo transition, changes, researching, learning and requisitely holistic approaches for a better tomorrow of all and survival of the current civilization.

The given practice cannot be dealt with by simply taking narrow-minded and short-term oriented individual, local or national interests into account and meet them in mutual isolation. The crucial ones should be a major responsibility of the world government.

The climate change system, which provides, makes, holds, and guards the living conditions in our biosphere, needs special scientific research, and world governing action. Nature, space, and



environment protection by and from members of our civilization, which should take care of the biosphere, need special scientific research and world governing action, too.

Both groups of topics are two global systems reacting to the human one-sidedness by causing global entropy tendencies, which require a global level of the requisite holism in humankind's dealing with them. The necessary scientific and applied research to cope with the above issues cannot be provided based on our civilization's current scientific and research practice and capacities, due to the engagement of scientists with armaments/war and other misuse/abuse efficiency development, and the demands of bureaucracy.

Therefore, a new approach is needed for a redirection of scientific work towards the needed knowledge and values capable of saving the nature, science, and the environment including the climate change system – for humankind to survive.

Scientific work, as a basic source of knowledge, needs special co-ordination at the world-wide level and should be an integral part of the world governance, but a requisitely holistic rather than a biased one. We need independent scientists, who work because of their scientific thinking/acting and practicing ability, and not because of need for daily/monthly/annual salary given to them by bureaucracy (democratic profit-based/dependent societal system), or narrow-minded and short-term focused marketing/profit oriented economy. The money system today has become a master of its own, a monster which rules the entire civilization. It would be nice to put it back, in the frame where it belongs – the servant of humankind. Now, profit is killing profit by causing side effects having crucial impacts, including humankind's cost covered by company taxes or piled up to be covered in near future in huge sums and tough consequences.

It is obvious that corporate social responsibility and individual social responsibility of each and one are not a part of present mankind ethics, but declarations for promotion purposes only, mostly. When and if the corporate social responsibility and the individual social responsibility of humans will be a part of each and one representative of our global mankind community, the sustainable future of mankind will have better chances to prevail.

To be able to understand the need for world governance, humans should understand the systems within which we exist, and systems that we consist of and that we create. It is important due to the known fact that any system in nature will remain as it is, as long as all systems and relations within it are in a similar mode. Together they make a living system that is trying to be a viable system. When any major or minor part of the system moves, changes, and the whole system will commence to move, change. It is not possible to predict in which direction the system will move, change. This is what is happening with the climate change system. It is maybe the answer to what human society is facing now.

Otherwise, the climate change system ultimately will change living conditions within the biosphere and nature of the planet Earth so much that our civilization will end.

The discussion present a contemporary sciences approach to the present the *Nature, energy, drinking water, food, credit and societal crisis* of mankind at 2009/2010/2011. The present civilization or our global mankind community is facing the largest complex societal crisis, which is also closely inter-related with the impact of the climate change system or evolving planet Earth Biosphere »crisis«.



The impact of the climate change system may in the end change: biology, geography and living conditions within the biosphere, from suitable ones of the last 12000 years, to environment not suitable for Homo sapiens to live.

The individual social responsibility (ISR) is a part of our society with much more importance as we are thinking at present. The possibility for survival is closely connected with social technology/technique of the »Sustainable Future of Mankind« or harmony of our civilization with the Nature of the planet Earth⁴⁴. The individual social responsibility will have to play a more important part in future, for new great achievement of our civilization to overcome the crisis of living conditions within the biosphere of the planet Earth and present credit, energy, drinking water, food, and credit crisis of our global humankind community.

The sustainable future of mankind or harmony of our civilization with the nature of the planet Earth is an option for mankind to survive approaching impact of the climate change system at the biosphere of the planet Earth.

The question, which we are putting forward, is the sustainable future of global humankind community. The integrated complex system thinking style is needed for analyzing it. Globalization age has its complex issues as they are, regardless humankind does see them or not. Otherwise, very complex issue of the mankind problems of 2008/2009/2010/2011 should be put into the frame of living space/environment of humans – the biosphere, taking into account the simultaneous problems evolving within the biosphere, plus their synergies.

To be ready for changes, and mitigations due to the climate change system affects, all of us single representatives of humankind must learn more about the basics of the biosphere and the Nature.

Life, even survival of us, the modern civilization, depends on conditions provided by the **Nature** in which we human all live, and by the climate change system as an integral part of it.

The Nature, Cosmos/Universe, Milky Way, Solar System, Earth, Biosphere, climate and climate change systems, terrestrial, water and air environments are **no simple systems** (features, entities, and processes), but very complex and complicated ones.

The sustainable future or harmony of global humankind society with the Nature of the planet Earth, and its coexistence with other creatures in nature as a part of the Earth's biosphere is the solution, to the best of our knowledge, which should be adopted as the vision for our survival.

We need a society wide global approach, and not the dilution of scarce financial means, for ***it is impossible to buy the survival of humankind with a financial approach however great.***

People, values and knowledge have been making an epic song of our civilization, which has been going on since humans have existed. And so has other nature, including **whole** Universe; Milky Way; The Solar System; The planet Earth; Biosphere; etc down to fundamental particles – quarks, protons, neutrons, electrons, relativity theory, and other theories of the Nature, quantum

⁴⁴ Please see: Ecimovic et al: The Sustainable (Development) Future of Mankind, 2007, displayed at www.institut-climatechange.si; and Bozicnik, Ecimovic, Mulej et al: Sustainable Future, Requisite Holism, and Social Responsibility, 2008, available at IRDO.



mechanics, atom structural understandings, and discovery of expected “divine particle”. We people are a part of nature, although this has been admitted less over the last three centuries than ever before.

The climate change system would ultimately change living conditions within the biosphere and geography of the Earth so much that our civilization will end.

Therefore, I am presenting the climate change system as common enemy of our civilization, and sustainable future concept as a path for survival or future of our civilization, and I am

Recommending⁴⁵

***One planet, one government* as first recommendation. Of course, The Constitution of the planet Earth Federation is first and the planet Earth Parliament and Government follow in line, after ratification of The Constitution of the planet Earth Federation.**

Secondly, recommendation is a new approach to the *social order*, which has to reflect the present experience, and the establishment of a *new contract for humankind* living on the planet Earth. The goal is to prevent explosion of humankind reproduction, enforce ethics and respect amongst peoples of the Earth, enforces (a globally holistic!) law and order, and with skilful governing, allow the coming generations to live and have sustainable future⁴⁶ on the planet Earth.

Third recommendation is *redirections of scientific work* from innovations of war armaments techniques and technologies for destruction, too narrowly market and money-oriented synthetic chemicals technologies, too narrowly market and money-oriented energy technologies, too narrowly market and money-oriented genetic manipulation techniques, societal management based on money monster - the master practices, etc., to discovering viable global systems of nature, space, the environment and universe/cosmos, as essential elements of knowledge needed for survival and sustainable future of global mankind community or harmony of our civilization with the Nature.

In conclusion: “Be the change you want to see in the world” (Gandhi).

⁴⁵ Text has been taken from The Recommendations written at the book Our Common Enemy (The Climate Change System Threat).

⁴⁶ Sustainable future is harmony of humankind and the Nature/Biosphere of planet Earth.



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