

Knowledge Distribution in Paradigm Shift

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Abstract

The evolutionary model of modern societies that promotes growth is built on supernatural and superhuman powers. Economic growth cannot be sustained on a planet whose resources are limited; therefore, the social principle leads humankind into such a deep global crisis that requires the reassessment of the essence of civilisation. The only way to solve the crisis is a paradigm shift; we would need to accomplish a qualitative development and transformation, and fundamentally change the interaction between social and economic systems and their physical and spiritual relations to nature. Our knowledge has to respect every

forms of life, and serve creative cooperation. We would need to use our knowledge in an intelligent way; we would need to perceive intelligent knowledge whose essence is that we are able to recognise social, economic and environmental changes, the direction of the Universe and the Earth's evolution and efficiently adapt to all of them.

keywords: knowledge, power, authority, paradigm shift, world ages, sustainable development, responsibility, freedom

1. Introduction

Within the limits of the universe and the evolution of life on Earth, humankind have formed and realised its “own development” by establishing its “own world”, whose determining environment, physical conditions and limits are marked by the planet whose natural resources are restricted. Despite its creativity humankind, has such internal limitations that prevent them from reaching the possible perfection of their existence. People are limited in a sense that they cannot recognise the nature of their real limits: selfishness, lust for power and its healthy borders. They are unable to recognise the intellectual constraints of their traditional and modern myths, dogma.

“Perhaps the only limits to the human mind are those we believe in.” [17]. Edgar Mitchell astronaut was one of the founders of the Institute of Noetic Sciences which was founded after Mitchell returned from space, where – as all other astronauts – he experienced the contradiction between

infinity and constraints and the possibility of a new era of humankind (1973). Our knowledge and our belief in knowledge may appear as a constraint as it may preclude us from gaining and perceiving new knowledge or understanding new perspectives.

For humankind, the use of knowledge as a tool of power and authority instead of using it as a tool of creativity and an aid to retain life may be a fatal error [2]. In history, everything happened in cycles, which is also reflected by the title of Paul Kennedy's book called: "The Rise and Fall of the Great Powers" (1987) [20]. Jared Diamond also gave a similar title for his book, which is: "The Rise and Fall of the Third Chimpanzee" (1992) [10]. His new book's title is even more distressing as it is called: "Collapse" (2005). And also James Lovelock's last book is entitled: "The Revenge of Gaia" (2006) [27]. These are all scientific writings that are dealing with the fate of humanity.

The cyclic development of natural systems have a decisive feature: an intense development is always followed by a quick collapse and this process keeps repeating over and over again. However, humans by their virtue of aptitudes would be able to apply such a self-regulation that would prohibit the collapse and generate a dynamic balance orbit instead. Self-regulation and self-control requires such knowledge and wisdom that is able to preserve the balance between natural resources and human demands. Throughout history, this value system sometimes worked as a social principle. Traditionally indigenous cultures were able to live in a sustainable way for a longer period of time. They were able to live in balance with their environment (like the nomadic people of Ladakh) [32].

After the Industrial Revolution economic growth became dominant in the lives of modern societies. From that point on the state of social, economic and natural systems gradually got farther from dynamic balance. The global crisis that evolved by the end of the last century became so serious in these days that there is no possibility to restore the dynamic equilibrium. The collapse will either be fatal or a new equilibrium state will evolve and the life of humanity will continue to develop and evolve [27]. The new equilibrium state will be a totally different quality a new world age, a new paradigm.

2. The essence of paradigm shift

The utmost crisis of human history developed during the last few decades of the 20th century. This crisis is complex, as it involves environmental, economic and social crisis as well. To discover the deepest roots of global crisis, humans have to reassess the whole history of its civilisation, the conditions of its existence and the significance of its being.

Only such a distant approach can reveal the correspondence and the concatenation that engendered the crisis. Retrospective analysis looking back only a few decades give only a relative evaluation of the period after the Industrial Revolution, which is not appropriate for real solutions. Therefore we have to reassess our history from the farthest possible approach. The limits of our approach would not be the lack of historical evidence or sources but rather the lack of the domain of the conceptual system. No correct historical overview can be based on the content of such concepts that are accepted by modern science and whose uses are based on

consensus. Our modern understanding cannot trace back thousands or ten thousands of years. A radical paradigm shift is needed for that.

Complex global crisis is a result of the so called “developmental process” of modern societies. By now it is clear that if the phenomena called “development” leads to collapse then the conceptual system is incorrect. Therefore, it is obvious that other concepts and both their methods of realisation and their tools, related to the developmental model are also inappropriate. If we analyse the phenomena further it becomes obvious that the fundamental problem is the different understanding of the conceptual system as everything that comes to fruition in the social-economic sphere of life appears as a thought at first, and then the content value of the concept manifests in physical reality. Einstein expressed his thoughts on this as follows: “Inhalt erlangen die Begriffe erst dadurch, daß sie – wenn auch noch so mittelbar – mit den Sinneserlebnissen verknüpft sind. Diese Verknüpfung aber kann keine logische Untersuchung aufdecken; sie kann nur erlebt werden. Und doch bestimmt gerade diese Verknüpfung den Erkenntniswert der Begriffssysteme.” [13].

We have to reappraise the real content of those concepts that form the frame of our current conceptions, the ones that are accepted by our social consensus. The paradigmatic interpretation of concepts and the reappraise of concept relations reveal the root of the problems. This is essential in order to find the efficient solution. We interpret the concept of paradigm according to Thomas Kuhn: paradigm is such a model of thinking (an abstraction), that is not only a simple present-day theory, but it is a value system that represents the

whole world view in which it exists, from everyday events, problems and phenomena to the formulation and perception of the true nature of our world [23]. The value system that it conveys is deeply rooted, obvious and unquestionable, therefore it determines the way people think, evaluate certain events in life and make decisions and also determines the social-economic changes and plans of development. Paradigms are self-sustaining hypotheses that reflect and explain reality until experiences as anomalies seem to contradict them and therefore confute the validity of the extant paradigm. These world ages alter or change only if a contradiction or insecurity is revealed. “[...] the emergence of new theories is generally preceded by a period of pronounced professional insecurity. As one might expect, that insecurity is generated by the persistent failure of the puzzles of normal science to come out as they should.” [23].

Despite of the several decades of their existence and the countless attempts to offer solutions for them, global problems seem to deepen rapidly as no models of devices or their assigned tools were efficient. The following statement is attributed to Albert Einstein again: “The significant problems we face today cannot be solved at the same level of thinking we were at when we created them.” From all what we have concluded we are convinced that reappraisal has to be done on the widest possible scale of space and time, and then we have to evaluate and analyse present and determine the framework of future changes according to the new laws. The Universe and the evolutionary progress of life on earth provides a sufficient basis, a principle as it is free of political restraints, stock market interests and social trends.

Our starting point could be the fact that the essence of civilization is to satisfy all needs of communities and each of their members'. This covers all physical and spiritual needs of every individual within the community. Nature is the source of all material needs. Food, shelters, settlements and the growing of crops all require nature and its resources as their basis. In this respect the process of production and consumption is only a way of converting nature and making it merchantable in order to consume and finally exhaust it. By the end of the process nature appears as only a waste landfill site and a rendering plant. This process is nothing else than the sales and merchandising of nature. However using nature was and is still necessary, as despite of all controversies, this process brings the development of humankind about. Production secures that safety that happened to flourish and settle ancient civilizations. Kenneth Clark formulated this in the following way: "Of course, civilisation requires a modicum of material prosperity – enough to provide a little leisure. But, far more it requires confidence – confidence in the society in which one lives, belief in its philosophy, belief in its laws, and confidence in one's own mental powers." [7]

During our history humans took possession of all earthy resources and parallel to this gained a wider knowledge and created more intensive methods of production in order to guarantee their physical security and widen their knowledge and authority. But equilibrium between human necessities and nature can only be sustained if the proper knowledge and technology is applied. The lack of equilibrium causes the global problems. More and more functional disorders characterise the social-economic systems if they are not harmonious, not compatible with nature. Therefore the basis

of the following overview is provided by this system of relations. We need to highlight those features of the society's general way of thinking that reveal how the given society formulates its attitude towards nature, as the given technology and the society's world view and scale of values provide the relation systems of nature, society and economy. The philosophy that forms, shapes and determines the relationship between humans and nature is also part of the knowledge.

The essence of the new paradigm is to substitute and supply the natural controlling by creating a new, logic- and ethic-based controlling system. The roots of the problems of today's world, loaded with social, economic and environmental crises, are very complex and intricate. The main reason seems to be that people are unable to recognise their own status and relational network in our world. Moreover, they do not realise their own personal responsibility in this complex system.

3. Paradigms

Karl Polányi's work entitled "Primitive, archaic and modern economies" provides the basis of our following analysis [34]. The book analyse the way how society and economy embedded in each other and as a result became interdependent from each other. We use, extend and further develop this embeddedness of human systems as a method of our analyses. Our other important source for the analyses is Ervin László's work entitled: "The Choice: Evolution or Extinction?" [24]. His work provides a model of how organic systems develop.

Throughout history, the relation between society and economy, their self-identification and their relation with

nature vitally changed in the different eras. The hierarchy of the systems also changed. The real or putative existence of their relations vitally determines human history.

If we analyse the history of Western civilisation based on these ideas, then we can distinguish the following world ages, paradigms:

I. World age as paradigm:

Age of Communities living in Nature
(prehistoric era)

II. World age as paradigm:

Age of Economy embedded in Societies living in Nature

(from the Agricultural Revolution until the Industrial Revolution)

III. World age as paradigm:

Age of Societies embedded Economy living in “underling” Nature

(from the Industrial Revolution until the Revolution of Information)

(Source: “World Ages as Paradigms” (edited by HAJNAL K. 2006, based on [34] and [24])

Scientific revolutions detach the different world ages from each other, as paradigms came into existence because of the influences of scientific-technological revolutions. The essence of scientific revolutions is that its contributors begin to think in a different way. The results of scientific-technological revolutions interact and generate changes that way.

3.1. Age of Communities living in Nature

Human race (*Homo Sapiens*) is an extraordinary being of the biosphere on planet Earth, but the same physical and biological laws apply to them as to other species. Human genes correspond with the genes of the two other chimpanzee species in 95-98% [11]. This means that humans are in the same natural position and has the very same “natural rights” as any other being in the biosphere. Therefore observing their position on a strictly “ecological base” we can state that nature secures only their reproduction and subsistence, and every natural laws apply to them as well.

The population of prehistoric communities had been controlled by the system of natural conditions. The biosphere is a dynamic system of equilibrium, where the number of individuals in a population is determined by the available resources of nature; therefore complex feedback systems secure the dynamics of their reproduction.

About five-hundred-thousand years ago, human’s nourishment was based on gathered berries and hunted small-sized animals (20%) that were prepared by their stone tools [11]. On a community level they could achieve their reproduction and subsistence by 4-5 hours of daily activity. Human life was secure only in a community, within which individual achievements did not have much significance. The concept of “individual freedom” was unknown, but they did not use the concept of “individual responsibility” either. In those days human’s physical security was at a low level, a high rate of mortality characterised these communities.

Prehistoric people could not maintain a permanent effect on nature. They did not bring any changes as their knowledge and technology was not sufficient enough to do that. However these ancient cultures did have intelligence and fantasy. The unconscious activities of these people did not differ from modern peoples'. For archaic communities, nature appeared as a "cosmic sacredness" [14]. Humans embedded in nature, and formed a harmonious unity. This was – for good and all – the "era of ecological innocence".

3.2. Age of Economy embedded in Societies living in Nature

Settling and agriculture meant the beginning of civilisations; they brought vital changes in the history of humankind. Humans had their mental capabilities hundreds of thousands years before so we can assume that probably the climate change after the ice-age provided such conditions that were sufficient to began civilizing. The climate got gentle and stable, this allowed humans to perceive experiences and gradually transform them into knowledge. It cannot be a mere coincidence that historical climate change and Agricultural Revolution happened at the same time. Agriculture took over the position of the hunter-gatherer lifestyle. The easy and adventurous lifestyle was taken over by a physically more difficult, exhausting, bound and located work that required people to take on responsibility and also resulted in poorer variety of nourishment. This historical change is quite contradictory and yet unexplained. We assume that the physical, mental and spiritual changes of human existence all happened at the same time and that resulted in the human requisite of settling and working in agriculture.

In the biosphere only humans have the ability to raise the security level of its physical existence by such conscious activities as production. This of course also raises their power, which later orders the whole community into a hierarchy. The division of labour always reflects the hierarchy of those who have the authority (leaders and led ones; landowners and cultivators, later slaves). It seems to be logical that the first division of labour and the process of Agricultural Revolution had been driven by a lust for power. The production of food surplus meant power or even authority over those who were unable to gather and hunt as much food as they produced, even though their products contained less nutritional value.

Looking at it from another perspective the emergence of humans with knowledge and power appoint the time of human encroachment in the natural order of the biosphere. Agriculture means the most proximate relation of humans with nature, where the objects of the work are fertile grounds, plants and animals, and where even the products are directly (or sometimes indirectly) living matters, nutrition that feed living organisms: humans and livestock.

But humans with their production activities altered that law of the biosphere that says: the number of individuals of a population is determined by the available resources of their surrounding environment, of nature. They produced food surplus artificially, by investing some extra energy. From that time on, the intensity of production and its technology became the principle of civilization. The more humans are able to produce the greater their population can grow. The number of population will rise until people can boost food production.

This basic correspondence is of course affected by several other agents as well, so delays may also characterise it.

Boosting the intensity of production became such a principle of our civilization, that our culture still considers the hunter-gatherer lifestyle as primitive. People aspire to reach high security and they still have an enormous lust for power. These forced people to transform an increasing proportion of nature and create soil and cultural landscapes. With this act humans contravened another law of the biosphere; natural diversity – which bears the natural evolution of the biosphere. Because of this violation the planet's ecological stability is in peril.

The fight for security encouraged people to seek for more authority, which meant more production and storing products that had to be protected; therefore they had to prepare military forces and weapons. The development of agricultural revolution was very slow; therefore its carrying capacity was also very low. The slowly growing number of population however required the use of more lands. Several interventions had to be done, such as cutting down forests, draining marshlands, purchasing virgin lands from nature, and all of these significantly transformed natural vegetation covers. The growing number of population forced people to fight for natural resources intensively, which indeed used further resources. A vicious circle evolved gradually: fights for resources were frequent and wars took a great proportion of the resources that they were so keen to protect. The most important characteristic of this world age is that economy operated so that it was embedded in society [34].

Society determined the position of economy that melted into the life of the society, and market mechanisms were also in a subordinate position, they were not present in politics, society or culture. Patterns of profit did not play an important role. In this paradigm, being rich meant that one had lands of fertile soil, woods and green fields, with livestock and people (peasants or slaves) working for them. Land – a piece of nature – could not be sold or bought; it was inherited or got it as a vassal on loan from the landlord. Richness was a real physical entity, which could not be mobilised and did not have an actual value or price at the market.

Work is such a type of human activities that cannot be detached from life. It is a method of securing living conditions and it ties people and improves the community cohesion. The other basis of work is the social structure in which the peasant or the slave owed crops to the landlord. Work was defined by social regulations, it rarely had market price or value, and labour market did not exist. The same characterised the role of money within this paradigm. Money did not have its own conception at market; it worked as a transmitting tool of goods and services, but in many cases it was not necessary to use it as at that time bartering was a common practice in trading. The greatest evidence of the subordinate role of economy is that 95% of all production had been done for self-sufficiency. Production was done locally, just as markets that were held on-the-spot.

The development of economy was very slow during those 10-12 thousand years that passed between the Agricultural Revolution and the Industrial Revolution. During this period the growth of population was relatively low; by the beginning

of the Industrial Revolution it was around 770 million. Incredible epidemics, devastating wars, famine and the inquisition caused significant losses.

The world view of the era of “economy embedded in societies” was solely a spiritual-religious one. The Neolithic and the Christian ethos did not differ in a sense that both accepted the existence of a transcendental, metaphysical sphere which is beyond the physical, material entity of our world. This transcendental sphere had a dominant role in everyday matters and in such issues as life and death. In every early cultures humans were the “created” ones who maintained a close relationship with their “creator” and with his created world, with nature. This gave a serious mental and spiritual sensation of security for the men of the era. Their physical existence was in constant danger because of the epidemics, wars and famine but their inner, spiritual harmony was secured. Their relation towards nature was also a kind of spiritual respect as they saw holy will in the powers of nature; humans have accepted their subordinate position.

The cognition of the world and themselves was an important goal in the life of every individual. In this paradigm humans were motivated by descriptive and explanatory cognitions. The series of geographical discoveries are a manifestation of that motivation. Another goal of the physical expansion was ideological, as they wanted to spread their religious values and thirdly they also wanted to discover new resources.

The evolving local (rarely also regional) environmental, economic and social problems were seldom irreversible (like desertification). These problems often weakened economy

and society but in those years there had still been wide uninhabited territories whose conquest and emigration solved most of the emerging problems. New resources were gained by colonization.

3.3. Age of Societies embedded Economy living in “underling” Nature

The industrial and ideological revolution of the late-Middle Ages ongoing in the Western part of Europe brought about fundamental changes within the relations of nature, society and economy. Instead of the old feudal social structures, new societies evolved that were lead by economic principles.

The paradigm shift was brought about by those changes in the world view that are known as enlightenment in cultural history. The development of science took epoch-making steps when it created a new ethos based on scientific observations. Copernicus (1543), Kepler (1609) and Newton (1665) founded a scientifically explainable ethos by the laws of motion (of planets). The cosmos of Descartes (1637) is a material unity that is everlasting, but they have all accepted the existence of God as being the “absolute perfection”. The necessity for developing the methodology of scientific perception and specifying its goals appeared in those centuries. The premier task of science was to rule over nature. According to Francis Bacon, we can rule nature only if we perceive it by its laws [2]. “Scientia est potentia” meaning “knowledge is power” was said by Francis Bacon in his “Meditationes Sacrae” (1597). According to Bacon the rise of humankind could be expected from the fast growth of

scientific and technological cognitions. This is what philosophy was supposed to support [2].

Science therefore attempted to rule nature during that era. By the development and application of scientific methodology the metaphysical sphere of the world was pushed into the background. Humans first eased, later lost their spiritual relations with nature and the supernatural world, and turned towards their material level. Physical security and guaranteeing comfort became fundamental goals. Among these correspondences we have to mention the Jewish-Christian culture's myth: the book of Genesis ends with the creation of men. This suggests that the goal of the creation was men, and therefore their task is to rule. Until the end of the Middle Ages, Christian people considered themselves a part of the Created World, but from the beginning of the Renaissance they considered themselves to be the centre of the world. This approach got stronger during the period of Enlightenment. We also have to mention the Christian protestant ethics, which propagated diligent work, practising self-restraint, low consumption and high storage among its believers, which was a necessary precondition of the development of capitalism [38].

The scientific ideologies of the modern Western societies made humans the leaders of the world. The desecrated nature became a tool, an object a subordinate environment, a commodity, a set of resources and a waste landfill. Nature lost its spiritual quality and became an enemy that had to be defeated, exploited, used and ruled over. Nature became cultivated land, such commodity that had no real value; its

prices had always depended on the prevailing market conditions, it could have been sold, bought or rented.

With these changes economy and richness began to become independent from the location. Work also transformed. It also became more objective, became a commodity that could be produced and whose value was determined by the labour market's supply and demand law. The work that was done for a wage alienated people, it did not contribute to the development and evolving of personalities. Work gradually lost its sense of community, encouraging the development of alienation and the feeling of loneliness [35]. Within this structure a person is only an actor at the labour- and the consumption market. His value is determined by his current marketable knowledge and solvency within the functions of supply and demand. As a result of this the individual's personality distorts and his personal relations are formed according to the same model.

Money as a commodity reflects wealth and richness in a virtual way. At the beginning the crop and product based wealth was substituted by precious metals, later these became money made of paper, then stocks, drafts, cheques and bill of credits. In our globalised economy it is only an electronic sign, a combination of numbers in our computer or on our plastic card. It has its own institutions, commerce and market that are also influenced by the prevailing conditions of the supply and demand system.

Progressing as a straightaway belief in development is the ruling order of values. The traditional myths of wisdom had disappeared; the thinking and the values of masses are driven

by new myths that are not formed by the laws of the universe but by the laws of the market: the myth of consumption, travelling and information and recently the myth of appearance form them. Instead of self-knowledge, self-recognition, self-actualisation and even self-redemption, the marketable pattern of “self-falsification” rules the market [18].

The essence of economical changes of the industrial revolution was mechanization. People began to use fossil energy sources, produced artificial materials, and developed corporations. Machines operated by fossil energy sources were producing more efficiently than ever before. This was true for both industrial and agricultural production and also for transport.

The growth of economy was so vast that it quickly outgrew the old social frameworks and its subordinate position. As it developed it ruled society and nature over [34]. In a capitalist social structure the role of economic systems became dominant, and most of parliamentary politics were performed by economic policy. Industrial production was characterised by an accelerating growth. The free usage and expansion of the reality of profit and thrift encouraged a gradually flaring degree of production and consumption in market economies. Economy operated by distinctive laws of market determined almost every feature on social activities.

This period of our history is characterised by a constant – sometimes even exponential – growth, as this structure can operate until it is growing. Growth covers all segments:

productivity, production, consumption and even scale, size and speed.

As a result of production and strengthening security the number of population is exponentially rising. In this paradigm two Population Bombs have already taken place: first at the time of the Industrial Revolution, then during the second half of the 20th century. The population bomb reacts on the rise of the production and efficiency which manifests in an interaction. This process happened on the Earth differently in space and time.

The paradigm starting from the Industrial Revolution brought such a high level of security in the lives of people living in developed, Western countries that created democracy; such a form and degree of freedom that has never before been and never will be experienced ever after. This affluence is the privilege of only 20% of world population. These people possess 80% of the world's resources...

As a result of intensive development the current levels of production and consumption are way above security needs, therefore market relations are highly manipulated. As Lebow explained it [26]: "Our enormously productive economy demands that we make consumption our way of life, that we convert the buying and use of goods into rituals, that we seek our spiritual satisfaction, our ego satisfaction, in consumption. [...] We need things consumed, burned up, worn out, replaced, and discarded at an ever increasing pace." [26]. Durning made the following remark about this: "Most citizen of western nations have responded to Lebow's call, and the rest of the world appears intent on following." [12].

Politics, media and mass cultural trends should be blamed for the flourishing of consumption rituals. Almost all activities of society are to serve this challenge. According to Frédéric Beigbeder former advertising executive: “Pour réduire l’humanité en esclavage, la publicité a choisi le profil bas, la souplesse, la persuasion. Nous vivons dans le premier système de domination de l’homme par l’homme contre lequel même la liberté est impuissante. Au contraire, il mise tout sur la liberté, c’est là sa plus grande trouvaille.”[5].

Parallel with population growth the process of modern urbanisation accelerated. After the Industrial Revolution the processes of concentration and deconcentration (desurbanisation) whose background was provided by economic growth, happened in different cycles. Accelerating urbanisation compressed a growing proportion of population in cities. While in 1900 only about 10% of world population lived in cities, nowadays this ratio is 50%, though in Western countries it is already above 80% [36]. During urbanisation the population of cities were divided based on their power and financial position. Nowadays almost one billion people live in slums [36]. In cities the number of people living in poverty and being unemployed is growing. Social alienation and the ratio of deviances are rising and as a result of greater consumption, environmental pollution is escalating and the decline of the biosphere is accelerating. Citizens detach themselves from nature more and more, and dully believe that it is possible to live independently from nature. This process of gradual splitting can be recognised in reality, in space and also within the way of thinking.

The accelerating rhythm of consumption society has a negative impact on the mental and spiritual health of human beings. The alienated, emptied and manipulated men accept as a displacement activity the pleasure provided by consumption, speeding and gaining information but also ingest alcohol and different drugs. They also secure their comfort and growing consumption even by workaholic behaviour. Displacement activities however become greater, more frequent and faster than before and as members of a squandering society in the end they are unable to assign the term “enough”, “high degree” or define the actual borders of consumption [12]. Such traditional communities like the ones villages used to have also loosened as stability of those societies were demolished by the splitting of big families. Individuals became defenceless and experienced humiliation. A dangerous consequence of all these is that these people can easily be manipulated. Usually politics, adverts and media use them for their own purposes. As Beigbeder also remarks: “Dans ma profession, personne ne souhaite votre bonheur, parce que les gens heureux ne consomment pas.” [5] p. The contradiction of the real need and demand for living the totality of human existence and the demand generated and manipulated by the market lies in the background of the phenomenon.

By the last decades of the 20th century globalisation evolved as an interaction of the development of production powers and the emergence of global information systems and international institutions. Globalisation means the ability of handling difficulties in order to let the resources flow free and also means the cumulative interdependency of the participants of world economy [9].

The borders of free mobility were broadened by the development of technology, internet services and also by the neoliberal economic philosophy, which – with deregulations and privatisation – strictly limited the role of national governments in economic decisions. As a result of these processes a great number of national economies lost a big proportion of their independence and importance and therefore authority of global capital grew. More and more scientists agree that only multinational corporations and certain banks play a determinant role in world economics which are deeply affected by stock exchanges [22]. Globalisation is not a new world age; it is just a more intensive manifestation of the paradigm, “Societies embedded Economy”, a form that covers all aspects of human existence. It is the most effective and greatest colonization of human history.

The conditions of global mobility are ensured by the development of newscasts and transportation and our quasi-conquest of space and time. Products money and humans move almost without any constraints or limits in the world. Local and global phenomena get a new content: locality can always be mobilised, natural resources, production, consumption and decisions can always be placed anywhere in the world within a few hours or days. Meanwhile at a certain moment in time the very same phenomenon is truly happening locally: living, producing and consuming can only happen within a certain space [3]; [39]. Therefore the concept of glocality appeared which refers to the system of correspondence within an interaction. Within the glocal space and time system everything is related to everything. A locally

happened event can begin a globally effecting series of events, and a global phenomenon certainly has a concrete local effect as well.

The changes of natural systems, biosphere and the human systems living together within it are not linear, in fact they are rather chaotic [25]. Any changes within the complex system may have such consequences that cannot be exactly or anyhow forecasted. The responsibility of human planning is therefore highly important. During the history of humanity, decisions were determined by the short and medium-term interests of a small authoritarian group of people. During history several civilisations disappeared as a negative consequence of decisions concerning society, economy and the natural environment. Decisions concerned local or regional societies so far. But in the times of globalisation these decisions may determine the future of humankind as a whole. The global crisis that evolved during the last decades of the previous century is a consequence of the following: economic growth is unsustainable at a planet where the amount of resources are limited [29]; [30]; [31]. The resolution of this crisis requires global responsibility that establishes global consciousness whose direction leads towards the common thrive, happiness and consummation of people living within nature. The complex global social economic and environmental crisis signs the end of a once glorious era. The tragic crash means a complete transformation.

3.4. Age of economy embedded in societies living in Nature

By the time of globalization, humankind has totally occupied the Earth and brought it into use. It is impossible for humans to further expand their activities on this planet, and the opportunities for the economy to obtain natural resources is more and more limited. The 1972 computer model, “The Limits to Growth”, has already indicated that this expansion strategy cannot be sustainable. The same results have been verified by later models [29]; [30]; [31]. Steady economic growth causes serious environmental damage, social and economic tensions and conflicts that threaten the safe future of humanity. This perception has led to the concept of sustainable development, which by now has been recognised as international politics. According to the United Nations Conference on Environment & Development’s Agenda 21 document: “The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.” [1]. The concept and aims of sustainable development has been confirmed by other United Nations conferences and by the Millennium Development Goals (New York, 1997; Johannesburg 2002). Later on innumerable national action plans and local and regional programs emerged but despite of them the state of the world is steadily deteriorating and gradually moving away from sustainability [16].

4. Development as evolution

Understanding the concept and duly interpreting the principles of development is of vital importance for humanity.

According to the general concept of development, it means a change and a certain fulfilment, leading towards a more complete, sophisticated and complex qualitative state, intricate systems of complex structure and multifaceted and differentiated characteristics [16].

If we continue analysing the problems, we have to realize that Western societies equated the concept of development with the concept of growth. This cannot be continuously sustainable on a physically limited planet [29].

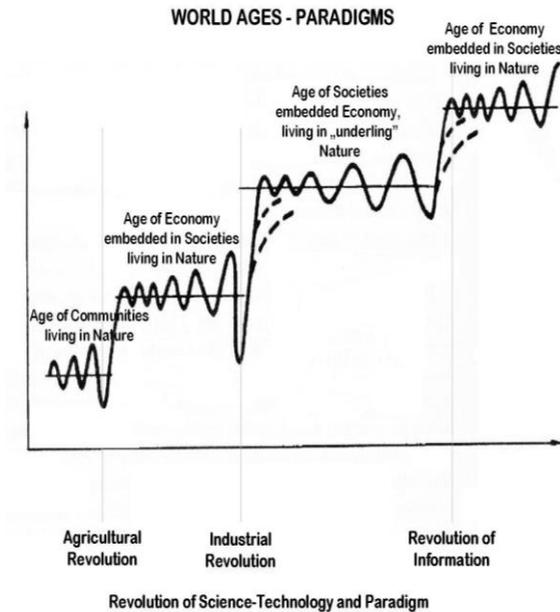
Development is statutory, uneven in space and time, still continuous, therefore constant, and following a certain direction. It is not essentially a linear process but it is certainly irreversible. The main characteristic of such a natural development as self-organization is self-sufficiency, when the interaction between living beings and their inanimate environment generates the changes. These changes constitute development as an adaptation or as a manifestation of learning. [16].

The biosphere, its subsystems and all its elements are open systems which have energy and information flows with their biotic and abiotic environment. As a consequence, it is possible to accomplish a high level of coordination and cooperation at that stage. The primary form of relationship in biosphere is cooperation [15]; [19]; [28]. Competition ensures natural selection and points towards a dynamic equilibrium in the system. Selection favours those species that are able to share resources and cooperate effectively. The preservation and survival of species requires increasing efficiency and

economy throughout evolution. This aim is an important motive for evolution [6].

Co-evolution is the most important law in the case of humans. Living beings live in interactions with their environment so they evolve in parallel. The most complex system of all is biosphere. For humans, biosphere is habitat and home that provides all sine qua non of the survival of human civilization. The main requirement of intelligent adaptation is to realize the fact that co-evolution determines the models of the human systems' development. Similar principles should be used in development planning, so that it will fit the cosmic and terrestrial evolution in a harmonic and compatible way [16].

We have to acknowledge the fact that the geo-biosphere provides the basis of existence, on which all human systems and human existence depend. A logical consequence of this dependence is that all social-economic systems are only subsystems within the whole.



1. figure: World Ages as Paradigms

Source: edited by Hajnal, K. 2006, based on [34] and [24]

As Figure 1. also shows, by accepting this law, we are able to identify different periods, “world ages”. Throughout history, the relationship and hierarchy of nature and human systems have changed and created distinguishable paradigms. The current crisis can also be understood as if the power of economy has overwhelmed society and nature [34]. We can accomplish sustainable development only if the whole structure is changed. We have to control economy within the systems of society. Economy has to serve and satisfy all real needs of every social layer [16].

The driving force of evolution lies within the internal inclination of smaller evolutionary systems to fit in the whole system, into the whole process of evolution [8]. This “harmonizing” form of relationship proves the subordinate status of social-economic systems, and the fact that these systems are operated by the same driving force. So the concept of co-evolution also applies to human systems.

Compatibility perfectly expresses this phenomenon: when there is similarity, sufficiency and adequacy amongst biosphere, societies and economy. The essence of harmony is that human systems work on the same basis on the same structural model as biosphere [16].

5. An extended interpretation of sustainable development

As a subsystem of biosphere, humanity can develop in a secure way only if it evolves according to the development directions and operation models of biosphere. It has to be compatible and harmoniously fit to the biosphere, so that it does not cause irreversible damages and is able to provide resources that satisfy all the reasonable human needs on a long-term basis.

Accomplishing sustainable development has an important precondition. Such a logic- and ethic-based control system should be established to encourage a dynamic equilibrium and enduring harmony between the planet’s natural resources and human needs. The ecological principles of sustainable

development integrate with the moral rules of social symbiosis and with the principles of justice and equity.

In the evolution of the biosphere, human society is a somewhat higher, more complex level of organization that is partly determined and controlled by its own laws. Biological constraints mark the limits to which humanity's social-cultural evolution can expand. A further question is to what extent can humanity understand and accomplish co-evolution [16].

Some further principles of sustainable development are identical with the laws of organization and operation of biosphere: locality, cyclicity, biodiversity and the proper balance of cooperation and competition. These principles can be ensured in a complex and effective way by a local-regional "local economy". This form meets the requirements of the universal principle of energy and information efficiency.

A local economy is operating only on a small scale. By processing local resources, it satisfies local needs, based on the principle of local responsibility. The greater part of consumer needs, such as food, are supplied by the local market. This system is easy to survey, it is trustful, flexible, healthy because it provides fresh food, and environmentally friendly as it does not involve unnecessary transportation or storage. It is also very economical because it does not require such complicated bureaucratic methods and financial processes as big suppliers, and it is fair as the products are directly delivered to the consumers. Local economies support the protection of local resources and population; they preserve local knowledge; they retain the local population of rural

regions; they responsibly protect the local environment and they provide the basis of country tourism. A local economy is not at the mercy of global market or politics; it is quite self-sufficient and therefore independent. The majority of these principles are also valid for industrial activities [16].

On the basis of a wider sense of democracy, this economy secures a responsible decision-making option. Subsidiarity can only be accomplished effectively if the members of the society have that knowledge that is needed in deciding upon local issues. This can be achieved by continuous self-education and learning. And it seems that an active accomplishment also provides new job opportunities.

A responsible local economy is using such alternative technologies by which it works in an effective, environmentally friendly and economical way. Just like nature it aspires to work with the best possible efficiency that is based on the principle of “zero emission” [33]. As a result of recent technological research, extremely efficient, material and energy saving alternative technologies can be used [16].

Settlements have to be planned in a way that they will be habitable and functional. The development of physically and mentally healthy towns and villages has to be promoted by establishing settlement structures and functioning systems which use natural resources in an effective way. Cooperation between the inhabitants and political and economic leaders of a healthy and aesthetic settlement plays an important role in the effective functioning of a settlement.

Intelligent development has to be safe, so in order to accomplish that on the long run it has to be compatible with the biosphere. The way biosphere operates is just perfect. The way the Earth and the nature evolve is the perfect and safest method. There is no way for improvement. Nature cannot be developed. Any intervention would only constrain its self-creating, self-controlling abilities, its freedom. Human interventions should be limited to a minimal degree and our civilization should be operated and controlled by the laws of nature [21].

The concept of sustainable development should be understood and interpreted on a holistic scale from a system perspective. Society has to integrate its “own creation”, economy into nature, by the laws of the universe. Biosphere is the fundament of the new paradigm, whose scale is the local level on which the global network of our civilization is built. At that local level, own responsibility of individuals can usually be traced, so its main resource is the local community whose most important tool is its local economy [16].

6. Summary

The current global crisis is a complex social, economic and environmental crisis. It began at the time of civilisation therefore it may be particularly dangerous for the future of humankind. It is astonishing that we call the end game of humanity; civilisation. This period is only a couple of ten thousand years from the several hundreds of thousands of years of human history.

Its main reason is that the human race is seeking for power with its knowledge; humans want to rule nature, space, weather, life and also powerless masses. Knowledge, power, authority and freedom can be fatal if responsibility is not taken. Responsibility is valid for everything; it is common and individual at the same time.

By the aid of the tools of knowledge and technology the Homo sapiens living in the biosphere had modified the borders of the laws of biosphere according to its own authoritarian interests and comfort demands. It created artificial subsystems whose organisation and operation is not compatible and not harmonious with the subsisting main system and the direction of its modifications did not follow the evolution of biosphere either. Human subsystems do not orient towards the laws of a co-evolving system, the cancellation of natural feedback did not follow the new controlling system that is based on a logic and ethics. This is why global crisis emerged. In order to solve the crisis we would need to fundamentally reassess the meaning and possibilities of human existence in biosphere, and formulate the necessary changes in that respect. A radical and immediate paradigm shift is needed.

In the globalised world at “nobody’s land”, borders have actually disappeared and the world and the opportunities within it have become unlimited [3], just like its risks [4]. The unlimited opportunities of the world are open to all participants of economy, having appropriate income and capital.

The abolition of borders and the possibility and reality of freedom is a huge experience and a great result in human

history. Without responsibility, freedom and living without limits and borders brings numerous risks about, both in individuals' and communities' lives. In human history so far it has never been possible to experience this state of mind. Freedom can only ensure the well-being and safety of people together with responsibility. Therefore a new level of individual and communal responsibility has to be developed and experienced. At the beginning of the learning process, responsibility will seem to be a border, as it is not a "natural" characteristic of humankind. When people become free they experience an unlimited world, they lose their sense of reality and morality [37]. Therefore different types of limits would need to be established, like judicial, economic and ethical limits. To achieve this people would need to undertake responsibility and be able to decide responsibly. This requires the knowledge of a systematic approach and a harmonious personality.

Globalisation created a borderless world at physical level. There is a need for ethical boundaries. Throughout history, humans have developed such self-controlling systems that are supposing one another and this way ensure its and the communities safety. Rationality and ethics not only suppose one another but also strengthen each other. Respecting every manifestation of life and human dignity by everybody is valid everywhere at all times.

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