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A NEW APPROACH ON THE MEANING OF THE GLOBAL CRISES AND ITS POSSIBLE SOLUTION

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Abstract *In this work the discussion is around the vacuity of the term globalization as a support to justify the misunderstanding of the real meaning of the complex dynamics of the world wide social network and the lack at many level of the knowledge of the physical phenomena occurring in the economic flux at macro and micro scale dimension. The importance to take into account the dissipative thermodynamics model to solve the problems of the civilization evolutions trends is also underlined. The democracy of the energy distribution at any scale is presented.*

Key words: globalization, social network, dissipative thermodynamics model, civilization evolutions, the democracy of the energy distribution.

Introduction

Many of the actual problems of the so called world-wide crisis are incorrectly based on the financial failure of the bank system especially in the USA. Many of the high risk financial products are going under judgment and from every part of the globe the political class it is claimed to rewrite the regulations for the control of the financial market. As usual in human activities the reliability must be given to some-one and the majority of people are involved in the attribution of the guilty to the executive management at the level of high chief executive class. This is still once again the short memory, or better, the ignorance based chain of moral justification for the lack of the real content of the actual global situation coming out from the analysis of what really is still going on into the structure of the actual world.

Once again the entire world is waiting to escape from the "global crisis" to start again, in a more or less conventional way, to build up the road towards the utopia of the continuous development measured by the mythical GNP macroeconomic parameters. Few, almost nobody, are prepared to read in depth the meaning of the several signals given by the actual situation to us and to our "winner-western" way of life.

It is really long to enumerate how many scientist and authors give us other references to understand that we must deal with a planet with a *limited*

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quantity of resources and a specific *carrying capacity* and that those terms are defined by complex structure of physical conceptual studies, based on the reality of the nature that is, by definition, the real leading system of our existence on this little fragile, marvelous grain of power dispersed in one, just one, of the infinitive galaxy existent in the huge universe outside there and still, for the great part, out of our comprehension.

The aptitude of the human mind to trait the arguments in schematic, non osmotic way, approaching the problems separately, as we can; the complexity of our life is a big subject producing big problems in the interpretation of the reality and make influence on our way to make prevision on what will be the future. The majority of the economical items and especially the prevision on the market behavior are based on wrong, non connected line of a reasoning and all the analysis are post-event interpretations of what happens in some place or some office in the mind of someone, somewhere. Huge amount of economic and business analysts use impressive mathematical model and computer systems to predict what will be in that day the behavior of an individual or a group of decision makers.

But how many of those that are our life steersman captains are really in the position to know which is the flux of the energy between systems in interaction and can give us some results?

Are they able to really understand the meaning of the cybernetics in the dynamics of the existent systems in which the nature appear under our eyes?

It is the economy (oikos=home nomos=rules) the right definition of this discipline?

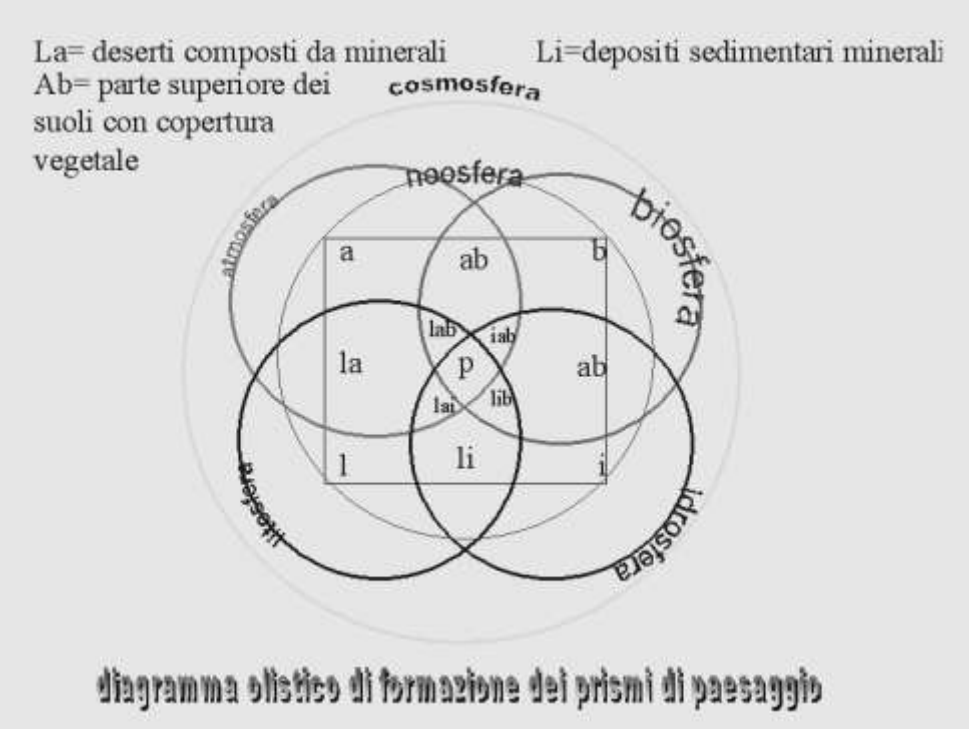
It is still acceptable to think about the economy in classical sense as a science? Due to the fact that the definition of the economy is based on the study of the correlation between good/price/value, the absence of the energetic consideration does not give this discipline the right angle of view to take into the right account the energy flux between the complex indivisible system of the planet inside the complex hierarchy of the entire structure of the universe as a whole. It is possible to summarize those reflections in the following thesis:

1) The goods have the value as cost of the entire ecological cycle or better the entire eco-spherical cycle;

2) To produce/to consume more than the base system allows us cause the lack of information and produce irreversible alterations to the system itself;

3) The existence of the human race depends on the compatibility with the base system.

What we need is to understand that new discipline must be developed and that the right name is Economological-physics; i.e. the conjunction of the econo - physic and economic ecology or ecological economy and new management approach must be methodologically applied: a Holistic management approach.



Discussion

The modified holistic diagram fig.1 (1, 2) shown to us very simply by the spherical illustration of the physical-chemical systems, that they are the fundamental component of the planetary reality. From the diagram it also possible to understand which are the cybernetics to obtain the explanation for the origin and the interaction between any geo-sphere and give us the opportunity to create the pathway to calculate the energy flux and balance in between any sphere and into the system itself (see fig 1).

By the analysis of the holistic diagram it is possible to come-back, with the support of the scientific demonstration, to the Aristotle philosophy based on the intuition on which are the fundamental components of the creation. As a matter of fact the lithosphere, the atmosphere, the hydrosphere and the biosphere are the four circles of interaction that if studied using an integrated systemic approach give us the cohmprension about the genesys of all

the evinronments and all their correlation giving the vision of the complete cybernetic of functioning of the entire as a whole and indivisible that is the reality in which we live.

The whole cosmosphere, howewer, is the system that interacts with the planet and the living matter and it is on those basis that it is possible to explain the mayority of the eziological phenomenology that represent and make the charaterization of the house on which we live. In all the systems now we can observe the pervasive permeation of the presence of the man influence and moreover of the presence of the man thought in positive and unfortunatly also in negative way in any system or subsystem that we can take into consideration: this is the noun-sphere (noos= thought).

It is so fig.1 possible to see from this fundamental diagram how and wath give the exstraordinary "scenography" of the hystory on our planet earth. Studying a diagram like this-one it is possible to understand the connection between any physical form and any shape of thought that could be translated in social activityes connected by cybernetic, often, unknown that give origin to efect, also chaotic, on the social systems today presents on the planet.

The resources, the yearning of ther power, the desire of richness, the dissipative energetic systems are going to give as a result the genesys of the exploitation and the systems disequilibrium that give origin to the radical ideology and systems of government that several time along history has done as results death and distruction.

Any system has a proper content of **energy** and a charateristic dynamics and the whole itself has it's own total energy content and receive energy from the outside space; this quantity is partially turned into **power** that is the effectiveness of action or the capability of action in human affairs.

Power is defined more precisely in terms of measurable units as the flow rate of useful energy. In the affairs of forest, seas, cities, and human beings, the potential energy sources that are available flow through each process, doing and driving useful work of one of the types mentioned.

The availability of power sources determines the amount of work activity that can exist, and control of these power flows determines the power in the man's affairs and is relative influence on nature. Having in mind the previous statement it is clear the importance to determine the **energy content** and the **excange of energy** between the systems. Particurarly it is important to take into account the importance of the **dissipative thermodynamic processes**.

In 1976 Ilya Prigogine, Nobel prize laureate for Chemistry in 1977, elaborated "The Theory of Dissipative Systems", with which he became one of the pioneers in the field of self-organization studies (3). The theory stipulates that order will appear spontaneously in systems that evolve far from

thermodynamic equilibrium. This order appears as a result of a self-organization process that is strongly dependent on the energy fluxes present in the domain where this order, or structure, appears. This new 'entity' acquires new and specific physical and 'behavioral' properties.

Thus, besides the link between **energy** and **matter** established previously by Einstein, Prigogine's theory makes a new and more subtle connection between **energy** and **structure**.

Tree-like ramified structures, as well as self-similar and fractal objects found in Nature are examples of practical manifestations illustrating the dynamic interaction between energy and matter (4). Bejan's constructivist theory (5) formalized the relation between structure and the energy flux that keeps the dissipative system far from thermodynamic equilibrium, defining several notable laws regarding allometry (6), with a high degree of universality (7).

The structure of such a system is conserved for as long as the energy flow is maintained within certain operational limits. Exceedingly large variations above or under this operational range trigger specific restructuring mechanisms (phase transitions, bifurcations), which can be carried out in a very fast and abrupt discharge, or slowly, during a time interval.

The lack of knowledge about the above mentioned phenomena could not bring to a real science that can give us the rules to live in dynamic equilibrium on this planet. The phenomena of the Vernadskij modified diagram (fig. 1) can be measured by pathways of power which form systems that can be diagramed with energy flow diagrams. The economic, political, and social power flows are just as measurable as those of the simple physical and chemical world. Relative magnitudes of processes are comparable on kcal/m^2 day basis.

The basic energy laws of conservation, degradation, maximum power selection, proportionality of flux and forces, and solar budget provide hard facts of life for survival in the biosphere. The demands of man and his machines for high energy of concentrated type contrast with the broad diluted field of incoming light energy from the sun. The surge of industrial and population growth is derived from fossil fuels now being consumed at accelerating rates.

The relative magnitudes of these power flows, while only a fraction the whole existing biosphere is sufficiently large to change and disturb the earlier checks and balances of the earth system wherever they are concentrated. These disturbances are due to the form of energy known as **Entropy**.

"For several billion years time the inevitable entropy will distinguish the sun, after hundred billion years the other stars of our galaxy will die.

The whole universe will plunge into darkness and death, everything until God will arose it from the dead if there were a reason better than the previous one".

All our work started with the energy concepts. Based on thermodynamics laws we were trying to adopt and show their influence on the basic concept of society. We were explaining four laws in order to understand energy concepts.

0. Foundation Law: Temperature is scalar measure and it is basic measurement of all thermodynamics systems and it is necessary for thermodynamics equilibrium. Zero law of thermodynamics asserts that more than one system left without outer interventions will aim to reach equilibrium: thermal, chemical, mechanical for a certain period of time.

1. First Law: Energy can't be created from nothingness and cannot be destroyed. Energy can only be transferred from one form to another. Equivalent definition would be: It is impossible to make the machine (perpetual motion) where energy would be created from nothing. Performance is desired output from required input.

2. Second Law: The process in which thermal energy would be transferred from body of law temperature to the high temperature is impossible without interventions. Alternatively, there is talk about loss of energy because of irreversibility of the process. In real process it means that in order to reach the beginning process we have to invest energy. **That irreversibility is measured by entropy.**

3. Third Law: It is not possible with the counted number of processes to reach the temperature of system equivalent 0 K. All entropy is the same on 0 K and equal to 0.

It is clear from the above mentioned laws that **entropy** is a useful property and serves as valuable tool in the understanding of engineering devices, as well as social structures at any level of the biospherical activity. But this does not mean that we know and understand entropy as well. Because we do not, in fact, we cannot even give a complete, adequate answer to the question what entropy is. Equally, we cannot completely define the energy either, unless it did not interfere with our understanding of an energy transformation and the conservation of energy. Certainly, entropy is not a household word like energy. The entropy can be viewed as a measure of molecular disorder, or molecular randomness or moreover the quantity of energy transformed in heat and no more available.

As a system becomes more disordered, the positions of the molecules become less predictable and the entropy increases. It is the same for any organized group of elements of a complex system, even in the case of a social one. Thus, it is not surprising that the entropy of a substance is lower than the

solid phase and it is higher in the gas phase. The concept of entropy can also be applied to other areas. **The entropy can be viewed as a measure of disorder organization is a system.** Likewise, entropy generation can be viewed as a measure of disorder or disorganization generated during a process.

The concept of entropy is not used in daily life nearly as extensively as the concept of energy, even though entropy is readily applicable to various aspects of daily life. The extension of the entropy concept to the technical fields is not a novel idea. Efficient people lead low-entropy (highly organized) they even everything (minimum uncertainty) and it takes minimum energy. For example a library with a good shelving and indexing system can be viewed as a low entropy library because of the high level of organization (high level of energy spent in the work of the archivist). Likewise, a library with a poor shelving and indexing system can be viewed as a high-entropy library and this is because of the high level of disorganization. A library with no indexing system is like no library, since a book has no value if it cannot be found.

The world in which we leave is possible if energy flux is divided equally between ourselves. As people, nations and countries equilibrium, or the state of equality into division energy is only possible if we have understanding about the same process deep inside ourselves and if we have healthy brains realizing that with every concept, thoughts and work we change the world surrounding us. It is necessary to understand that there is a force above us that can give as an illusion of ruling the world with laws, concepts, procedures, but this is completely inadequate.

The more rules we create there will be more people who will object to them because they do not have a deeply understanding of them. We should understand that our society is not a closed system that we have to continuously import energy into our system but also take care of the society as a whole. If we insert energy in our system taking the other people's right to live or to survive it is not any better that killing to survive.

Without free access to energy people do not have any kind of power to control their own destiny; to break the chain of inequality and poverty and to take the power to control our own destiny. Any individual must have access to a portion of the available energy and to control this portion. From this statement we could draw the real meaning of a real applied democratic system. With no access to a critical threshold of energy an individual must dedicate great part of his (daily activity) life to survive: find out a shelter, food, water.

If an individual could come to have a minimum production capacity to have access to energy, in that moment he could reach the level of having a "minimum of quality of life" that means to have alphabetization, hygiene, security, safety and longer life expectancy (9).

As some famous professor said about the American society… *"Women who are marked as low moral women; they sell their body to survive and are rejected by the American society. The scientists who are employed in high technical institutions creating weapons which would kill thousands of people or already have been created and killed thousands of people have been positioned in top morality people in the American society"*…. Which is even worse, using energy for their space travels to control the whole future universe fight and spending billions of dollars which is energy taken from all of us, while 15 million children are dying from hunger, those cannot be called humans. Ii is the fight, fight and fight only they are left with (8).

Many people accept the opinion that humankind is the fruit of the continuing development as evolutionary result is not less mystic then any theological doctrine which asserts the opposite. Materialists would accept that every organism consists of DNA as a result of nature fight, destroyed others to survive. Self realization in the fight.

But there is The Holy Spirit as well which gives to dead matter self consciousness and awareness of existence. And to close the circle and get full meaning of the thought, how to accept natural essence of self existing and get scientific connection, and verbally reject every idealism and implicit conclusions that at the basis of human-world or universe is not only dead matter and forms of its organization.

Where are we as human society? Care of the entire society is care of each individual, if somebody dies just because he hasn't got enough food or medical care; a part of each human is going to die as well. We are dying as human beings because we have done nothing to stop it.

Simple understanding of this situations pyramid can be positioned upside down using the brunt. But Dammy's laws can show us that even in the entire society, change is possible if actions are continuous and if we stop the ball, implementing procedures, standards, trainings… etc, it does not mean that we can be successful. But in the infinite numbers of steps we can try. Unified microcosms and macrocosms is the main aim of all of us.

To better understand the meaning of the importance to change our structure of interpreting the economical universe that influences our physical world, we can observe the **diagram of the entropic endurance of the historical civilizations**. In this representation we try to give evidence about the fact that the historical periods at macro-scale are linkable to the amount of energy available for a given structure of a society. More precisely the source of energy is proportionally related to the endurance of the society and the entropy produced in the elapsed time of existence of that society.

The higher the content of energy per unit of mass of matter available in a given period the faster the entropic fence of existence of that structure of civilization is reached. The More complex the society became, more entropy is produced, the faster is the consumption rate of the source of the available energy. When approaching any entropic fence, the transformation of the society was more abruptly leading to the dissolution of a real way of life. The worst situation coming out from the entropic diagram of the society endurance is, in the situation where the shorter the time of existence of a given civilization was, the greater was the energy available.

From the figure 2 it is possible to synoptically observe the difference of energy density (content) for many of the materials mentioned in the diagram of entropic endurance of the civilization and drawing the correct fact that at a given time the material available offers a lower quantity of energy and for that lower speed of evolution of the society much it is the energy available more free seem to be the opportunity to use the given **energy de-spite the entropy.**

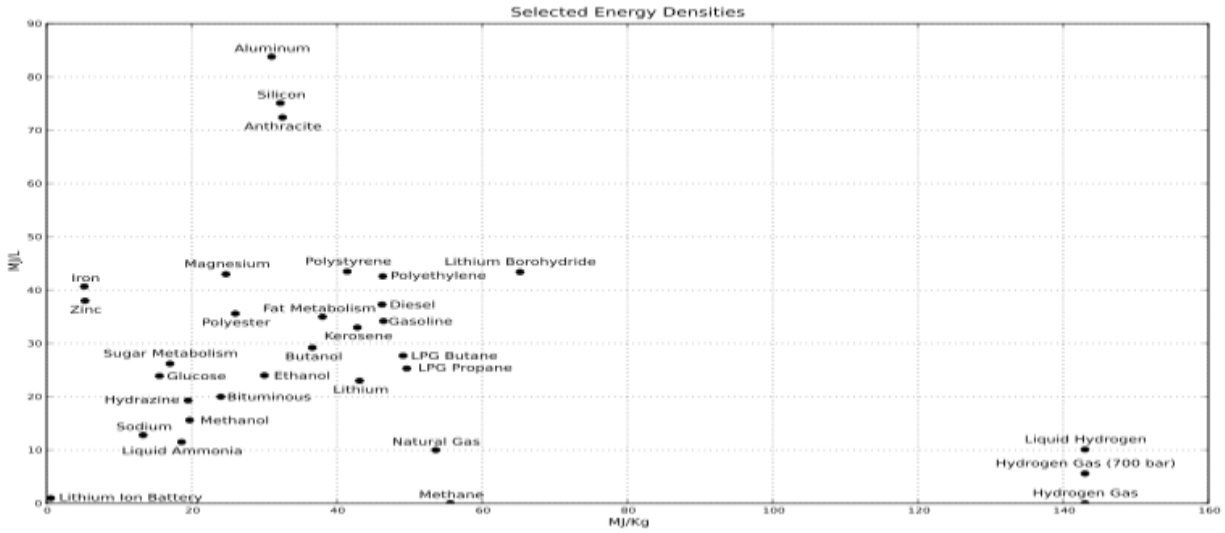


Fig.2 energy density content of some materials

The actual situation of the "global society" is clearly visible from the image of the plan sphere in which different colors are assigned for the quantity of energy consumption in all the parts of the globe; darker the color greater the energy consume, darker the color greater the entropy produced but what it is more important due to the first law of thermodynamic is the fact that if some structure consumes much energy in some other part must be greater the disorder and lower the energy available. This is obvious in the following case: Africa de-spite the highest level of

content of resources it is clear that she must be the lowest producer of consumption of energy and is the greatest entropic continent of the world.

Fig 3

The diagram of the entropic endurance of a civilization gives us another important piece of information, bearing in mind the problem of shortening of the actual principal energy reservoir for the present structure of the world that is the whole fossil fuel and taking into account the Hubbert diagram (see fig. 4) regarding the availability of oil we can see that in equilibrated vision in a very short time we must resolve the passage of a new entropic fence chancing completely the energy source for all over the world life(see fig. 4).

In 30-50 years from now our modern word must change the way to produce and to have the flux of free movement of billion of people based on the concept of the availability of fossil fuels.

The world crisis of 2009 - 2010 which is still running is not derived from the unreliability of the financial products issued on the marked by the banking system but from the very rapid loss of economical capability of thousands of people, due to the enormous increase of the oil cost that is going to produce a chain reaction given the lack of possibility to pay the debits for a very large part of the population in the structural market of the capitalist world: the USA.

In the October of 2008 the oil arrived to be priced at 147 US dollar per barrel the speculation realized on the oil market had terrible effects on the balance of the cost for all the productive system of the world. In this way, the possibility for many people to pay the loan rate for the home or for other goods was the result of an abrupt increase of the life-cost.

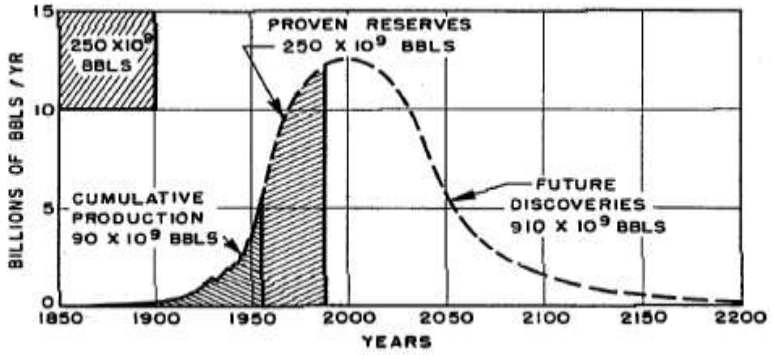


Fig.4 Hubbert diagram (9)

So the fall of the financial speculative world based on the subprime products based on the real-estate marked in United States was only a result to the lack of access to the energy source for many of the chains parts of the production system. The lack of the competitive capability of the USA marked, that for the first time in her recent history the US was confronted with lack of the resources necessary for the production systems, despite to the giant increasing of the less energy consumers system of the CINDIA that moreover was the trainers for the demand on oil production to sustain the industrial activity in this way giving the opportunity for the speculative games. From the loss of an enormous quantity of money in the stocks exchange dynamics, we have been arrived to have the great difficulty for the majority of the industry to remain on the market and the loss of millions of work places.

The perverse spiral was completed in this way and ii is still running due to the rigidity of the capitalist economical system and lack of international regulation. The real fact was that the descending part of the Hubbert curves was not reached yet and the speculation on oil was stopped and the dynamics of the productive system are now slowly going on, ones again. This clearly means that as we have energy at our disposal at reasonably costs we can try to start up again in the old way of economical cycles.

So, the crucial parameters that we must understand are..: what is our future direction and how we can find out the energy needs for the mankind, and moreover, how this energy distribution could be ethical and equally distributed, and most important how we can respect the natural laws of the planet.

As we can see from the diagram of the endurance of the society, the rule of the inverse correlation between the level of energy content and the endurance of a society is respected once again.

From the industrial revolution where we can pose the time of increasing use of energy from fossil fuels, only 170 years have passed over.

The problem now is the energy stored into the arsenal of atomic weapons. Using Carl Sagan (see the insert 4) equation on the probability of existence of society into the universe we can understand that, due to the f_l factor of the capability of an evolved society to destroy herself in the competition for controlling power on a planet, the possibility of existence of more than one evolved society at the same time in the universe and to reach the target to communicate and interact is very poor.

The crucial importance of the energy source is also demonstrated by the incredible choice of the President of the United States, Barrack Obama (February 2010) to start a new program of nuclear energy power station after 30 years and after having criticized Bush policy on nuclear energy during his election run. The importance of being as independent from the oil cost as possible is now very clear and this is the reason why a President could take the decision to contradict himself by starting a program to increase the production of energy from other sources than fossils fuel a soon as possible.

But this it is not enough! Due to the clear role of the our principal source of energy, the oil, we can have a good analysis about the crazy way of the trend of the price on the market between the 2007-2008 and the direct influence on the financial speculations on the future products and the relative chain reaction on the entire financial system.

Surprisingly, the system brings also to an over-production in China with the resulting impact on the price of the row materials due to the increasing of the demand. Those are all the ingredients for an energetic shock. All over the world, the attention was drawn by the financial cracks of many bank's institutions in USA and in Europe too.

So, we are dealing with parallel crises with the role of oil price trend to be occult. It is important not to forget those situations because we are still preparing for a new more important crisis now.

Many factors are playing a role on the actual situation but the important ones are on the future speculations that are a very similar to a casino's games, and due to the actual rules of the so called market, those subjects are able to influence the decision of the nations and of the great oil companies to change their project regarding the "alternative" energy that the managers of the companies called "beyond petroleum" projects. As the price of petroleum is going down, all the old style use is starting again. So, in few months we are passing through the super-inflation to the deflation.

The Saudi Arabia minister of petroleum gives us a good warning:"as we have the petroleum price too low, we are preparing the seeds of the next inflation and new volatility of the market.

If we leave the planning of the future, we are focused only on the contingent of the present to survive, and the punishment will arrive under the form of new scarcity and a new increasing run".

From all this information it is clear that we must change the economical model and the entire framework on which classical economy is based. The Happiness economy could be at one point the start up to renewal of all the macro-economical parameters on which we ruled our life until now (10).

Conclusions

New approaches based on a holistic management approach (11) are necessary to treat the complicated and complex system ruled by the energy flux and the availability of a critical level of this energy of the biosphere for each individual. Understanding holistic management is not such an easy thing.

Understanding the basic concepts of life is not easy as well. Taking into account basic concepts of organizations we have to continuously develop our firms and society and have leaders with a vision. But as people with a vision we sometimes forget that our multicultural society is depending exclusively on ourselves because God creates history not only through leading people but through every human being.

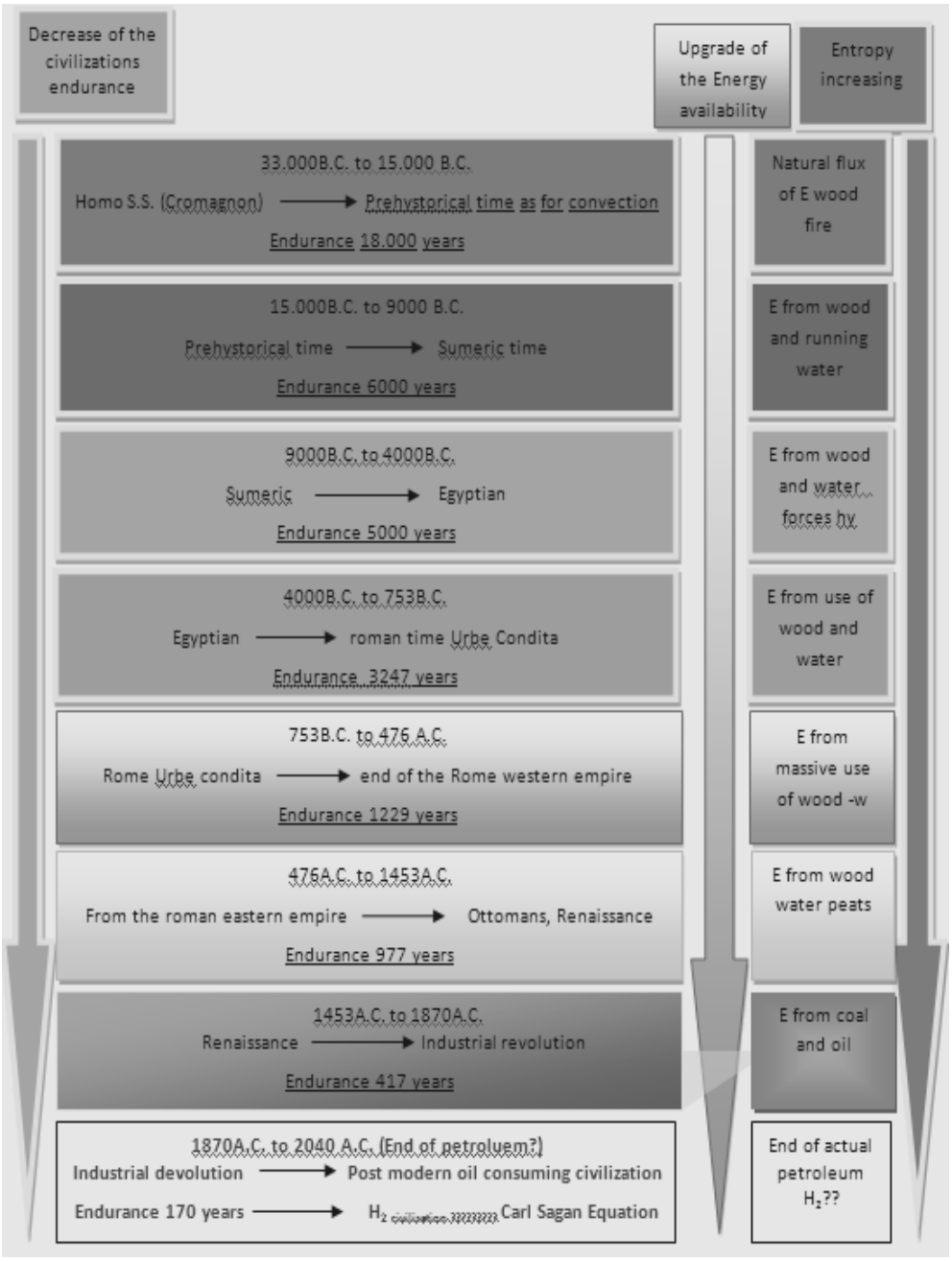
The problem with our "global society" is a problem of lack of vision and the speed of the mass of information that is the real factor inserted in the global world ($I=MC^2$ where I means information; M it is the mass of information; C it is the speed of flux. It is possible to see the analogy with the famous formula of Albert Einstein).

Lead by people with no vision and influenced by superficial information not interconnected running very speed and in enormous amount, we are deeply in an energy imbalanced state. Consistent numbers of the healthy people are without employment and the energy which could be positively orientated to create a society with chance for all of us is disappearing. But before anything else we must reject our selfish requirement to rule or to dominate over the others.

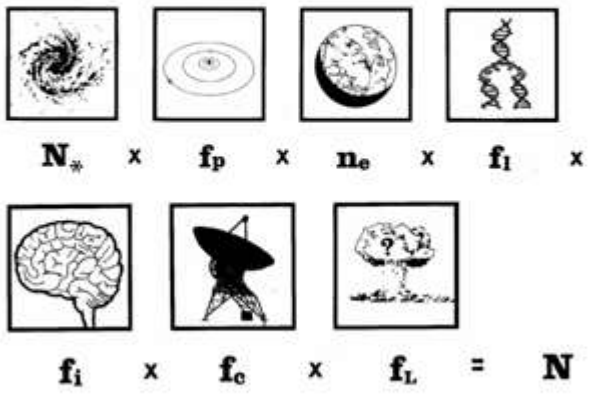
Example-Food production: The majority of food is imported from other countries. Leading with our selfish needs people who made decisions would not like to reject their millions of $, wealth, position in society, just because other thousands of families could produce and live well on that production for their own society. All in all, holistic management is more than natural deriving from humanist concept and approach on the world; it is lead by the clarity of the best western people thoughts. It is necessary to have the idea of changing and understanding our working environment and society as integral concepts. You have overcome the obstacles of the other closed society,

taking into consideration and approving that the care for our society is the only vision which we must have as an ordinary people, managers or scientists.

Diagram of entropic endurance of civilization depending on Energy



Insert 4, Carl Sagan equation to discuss the probability of the existence other civilizations in the universe and the probability to meat one each other.



Carl Sagan, Cosmos, LosAngeles, 1978

We need to change urgently our parameters to measure the economical growth for peoples and nations. GNP and the others parameters for the macro-economical survey are dangerous; the cycles of the raw materials are dangerous.

We must find out and measure the macro-eco-nomo-logical parameters using instruments like the **Human development Index or the Gross Happiness Index.**

The zero growth **do not must be a problem.** Our target must be the level of energy that we can give to the people and how the individual could have access to this energy. Those are not dreams even in France the President Nicolas Sarcoxie seriously had instituted a commission of international experts to study new parameters on which we can base the measurement the wellness of the peoples**.**

We need to pass to a new slow economy based on the physical laws given by the nature to us! (12). to do that we need to use a global brain to give us the opportunity to create the new way of life on the planet (13).

All those fact need to use the powerful tools of the complexity science to give new point of view on the way how the reality of the universe it is really going on (14).

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