

---

## **HARMONY AND ETHICS OF SUSTAINABILITY CONTRARY TO PATHOLOGICAL DEVELOPMENT – A WAY TO REDUCE RISKS TO LIFESUPPORT SYSTEMS AND HUMAN HEALTH**

*Marija Todorović*

*Faculty of Agriculture, University of Belgrade, POBox 127, 11000  
Belgrade, Yugoslavia, Phone 381 11199621, Fax. 381 11193659*

Distribution of nonrenewable<sup>1</sup> energy and raw materials resources, around the world, is characterized by the non-uniformity, resources availability - by the non-equableness and their exploitation by the irreversibility of waste processing and non-controlled squandering of nonrenewable energy's and raw material's resources, without which the human civilization survival is impossible. In addition, life support resources of oxygen and water a vulnerable global heritage on the Earth in past, today became under siege and progressive degradation.

The enormous increase of the most developed nation's productivity and economic growth is based on technologies and resources exhaustion. Conventional business and policies approaches to major global problems are making the world unsustainable, permanently increasing risks to human health and life-support systems. There is urgent need for searching economic possibilities, appropriate policies and market incentives, for sustainable management of natural resources. Development of renewable energy sources (RES) and renewable materials sources (RMS) shall contribute saving natural resources, opening huge opportunities of economic and social relevance and making the world less unsustainable. The balance has to be obtained between the developing countries reduction of their population growth rates and developed countries drastical reduction of consumption, waste and destruction of natural resources.

It is now the Earth and Humankind as a whole at a critical point in environmental and economic policy making, to promote and implement renewable energy and materials sources, and environmental technologies - processes that will minimize pollutants and recycle wastes, whenever it is possible. To find how difficult this task is and how many and complex constrains are to be faced with, shall be stressed that the main results of enormous technical and technological development are destroyed environment, exhausted resources, but its main and the most profitable products are killing tools and wars.

Contrary to the pathological development, sustainable, non-pathological technical and technological development has to be founded, its merits, constrains and limits recognized, criteria and indicators defined and exercised. Development of a community, village, of a town, region, country, land, and generally the worldwide development, shall be

---

<sup>1</sup> All natural resources are, in theory, renewable but over widely different time scales. Natural resources which renewal due to geological processes take place on a long time scale we regard as non-renewable.

---

nonpathological, when everything within it is devoted to the benefit of people and to the praise of humanness. Nonpathological development is development which respects all Man's and Women's needs as personalities - material and spiritual, emotional; a freedom of their own will, their right to live, to work, to dress, to have home; their needs for goodness, love, cordiality, their sense and striving for beauty, mercy, aspiration to creativity. There is no hierarchy of priorities among these series of needs. Those cruciality is equal, and without either one of numbered above, we cannot find neither the harmony nor sustainability.

Attention has been drawn to the key role of interdisciplinarity and harmony in sustainability study and on the crucial need to establish inherent spiritual-material values for definition of relevant indicators and criteria as well as related methodological content itself. It has to be basis for further deeper, creative, interdisciplinary communication among experts in research and education and basis for ethical and moral performance of relevant knowledge management. Inter- and -multidisciplinarity in sustainability phenomena mutual study is necessary to increase understanding of biophysical and physical priorities. Determination of hierarchy of subsystem's sustainability and relevant criteria definition taking in account direct interaction, indirect and cross interaction as well as possible impact of harmony on the sustainability barriers, their identification and solutions. Dialogue and cooperation between communities and countries and between different economic sectors, as well as greater efforts in research technology and development, are the tools to overcome the major challenges to humanity and to ensure sustainability for current and future generations. Sustainability is, above all, a mental question and reflects our understanding of hierarchy of needs and of who is responsible for whom and for what in making sure that the world functions in a productive, effective and sustainable way. Sustainable development can be reliable if it is based on a system of real human and ethical values. Such values system has to contain common elements, which apply to every social, cultural and economic situation. Putting sustainability principles into effect requires ethical actions on all parts: people, community, industry and all levels of governments.

The most of civilians deaths during, and even one year after NATO aggression on Yugoslavia were from tiny anti-personnel weapons, far worse than land-mines, because they are designed specifically to kill and maim, and have no effects on trucks, buildings, etc. These criminal devices, which have a failure-to-explode rate of 20-30% according to the manufacturer, Honeywell, are rationally designed tools for murdering civilians by delayed action. Particular states or groups of states set themselves up as the authoritative judges of the world common good, in disregard of the views of others, and are in fact a menace to international order, and thus to effective action in this field. Illustrative in similar sense is a list of top 30 firms in the world, regarding the reputation, success and effectiveness in knowledge management. The prevalent activity and kind of products, of several among them, are destructive and killing technologies, weapons and worldwide wars "marketing and management". Thus, praxis of knowledge management is not always inherently ethical. If, "knowledge management" acts as a shell through which an organization increases exclusively its profit and monetary capital, then the non-ethical - pathological destructive businesses ranked so high on this list of the most successful firms in knowledge management performance, is not surprising.

We conclude by stressing the importance of the worldwide commitments to ethical principles. However, ethical statements are only collections of words and phrases until they become consistent behavioral guides to actual decisions. Moreover, they do not define or predict outcomes. They only condition how decisions are approached and made. There is a

---

fundamental difference between decisions and approaches grounded in discretionary pursuit of self-interest, and those informed by a commitment to ethical standards. Only by implementing ethically sanctioned approaches, at each level and in each domain, will the Mankind be able to effectively understand the nature content of the new sustainability challenges it faces. In the history of Mankind the religious, academic and scholar authorities have recognized the main guidelines related to sustainability. Explicit characterization of the sustainability concept is defined with the relevant criteria and indicators, which are to reflect not only the material, energy resources and environment capacity, but also human physical and mental health and cultural, moral and ethically spiritual praise.

Development and uptake of renewable energy sources (RES) technologies can contribute to the development of sustainable agricultural production and food chain, as well as to improve living, health and education conditions world-wide. Emphasizing the sustainable development, health security, environment and social sustainability and RES development and implementation are inextricably linked, this paper examines the state of the art of RES technologies and importance of RMS for sustainable development. Sustainability definitions and possible ways for its establishment have been analyzed concerning positive and negative impact of global proliferation of information technologies. Attention has been drawn on the key role of interdisciplinarity and harmony in sustainability study and on the crucial need to establish inherent spiritual-material values as basic for definition of relevant indicators and criteria as well as related methodological content itself. It has to be basis for further establishment of deeper, creative, interdisciplinary communication among experts in research and education and basis for ethical and moral performance of relevant knowledge management. In addition, presented are philosophy and topics, as well as the experience of conducting the International education and training workshop - program on the information & technology transfer on RES for sustainable agriculture, food chain, development and HFA.

#### Pathological technological and technical development

The rate of resources exhaustion is in rapid growth, not only as a consequence of immoderate and regarding many aspects pathological technical and technological development, but also as a result of wars and other destructive activities conducted around the world. Eighty days of the most powerful and high-technologically “sophisticated” bombing in this century, conducted two years ago by NATO over Yugoslavia and repeatedly, periodically nearly daily bombing routines over Iraq as well as occasionally over other, more or less poor and weak countries around the World, have clear consequence - destruction of energy and life support systems resources.

By the unscrupulous race of the world monetary capital's and military force's holders, using different means, are permanently forcing foreign and own nations to increase production and consumption. There is no doubt that to the small, but certain and very distinct group of people this brings significant gains in money, convertible later in increase of their political and military power. Based on superior technical and technological development, monetary capital and military strength are in use today, without control, more and more often, to war worldwide. Such technical development may be described as pathological, carcinogen, and consequently should be recognized as ill, stopped and cured. If not, the net result will be an unsustainable rate of usage of the Earth resources and further irreversible degradation of its

---

environment and life support systems. It is difficult to believe that warfare in the regions within energy sources lines is a mere coincidence.

### Sustainable resources and technologies

The most important issues for the sustainability of our future are related to water, soil, air purity and living space, raw materials - minerals and metals, and energy sources. There is no doubt that fossil fuels will continue to be the key to satisfy energy needs until well into the next century. Some of fossil fuels can be directly replaced by biofuels. This fact explains the very distinct importance of agriculture and forestry biomass production and their sustainability.

On the long run, the most important options to delay fossil energy resources total exhaustion, to reduce pollution and to control climate change for all regions beside biomass, are other renewable energy sources (RES) and low-carbon energy technologies combined with major improvements in end-use efficiencies. Beside solar and other renewable energy sources (wind, geothermal, biomass, etc.), clean energies crucial for sustainable energy development are fuel cells, highly efficient, electro-chemical devices used to convert hydrogen, methane, and methanol into electricity through reaction with oxygen. Currently, prototype and early commercial fuel cells are being used to provide power for remote industrial enterprises, and experimentation has begun on using fuel cells in buses, automobiles, and locomotives. Although fuel cells have existed since the nineteenth century, it was not until the space age that technology matured as a practical alternative for electricity production.

Improvements in energy efficiency and development of advanced technologies for alternative renewable fuels will greatly reduce emissions of greenhouse gases, particularly carbon dioxide. Very important are needs for further efficiency improvements in energy supply and in energy demand. Further advances are needed and expectable also in renewable energy sources technologies. New breakthroughs in efficiency of energy conversion and transfer, can be expected through miniaturization. Process intensification is a measure of the amount of productivity that can be accomplished per unit volume. It occurs because miniaturization significantly reduces the resistances to heat and mass transfer. Furthermore, combination of many components and functions integrated into one miniature system, additionally increases efficiency. Manufacturing processes developed in the frame of microelectronics component production have been recognized as an innovative conceptual model to construct miniature mechanical systems able to operate effective and efficient while making enormous reduction in material and work use. Miniaturization opens revolutionary changes in energy conversion and transfer. Regarding prospect for new technologies further development and implementation, it is necessary to be aware that there is an important geological dimension of any major decision to plan broader installation of new systems - it is the geological availability of relevant materials resources.

Concerns on the exploitation of natural resources under intensified technical and economical development, as well as under monetary and military power and terrorism exercising at the expense of environmental quality and life support systems, are in increase and the goal of growing importance is to reach sustainability. Having in mind outlined facts and evidence on pathological aspects of technological and economical development, it is necessary to stress, that there is *ONE WAY TO REACH SUSTAINABLE DEVELOPMENT - IT IS A WAY VIA HARMONY*. The contrary idea - *TO WAR FOR ENERGY SOURCES*,

---

*WATER AND RAW MATERIALS*, shows that prosperity based on spreading conflicts, wars, terrorism, more generally evil and destruction to other, is leading to more extreme oppositions and heavier conflicts, to entropically unavoidable explosion of the WB`s monetary sustainability.

Since the times of antiquity, the discussion of harmony was based on a fruitful understanding and profound inter-connection of the flows, relations, forms, quality and other fundamental categories of human experience. It was always a sign of the human spirit's singular maturity and readiness to confront the most difficult problems. Approaching harmony new culture of ethics of sustainability can be created. *Studying harmony, we have to gather as the inheritors of the great ideas of our predecessors so as to survey tradition in a new way, to acquire an awareness through the science of harmony, that opens other horizons in the broadening of knowledge inherently ecological and sustainable - ethical.*