

## HUMAN CAPITAL IN ECO-ECONOMY AND SUSTAINABLE DEVELOPMENT OF ROMANIA

Ion PETRESCU<sup>1</sup>

**Abstract:** *The current modern civilization and, in this context, the Romanian one, faces a great challenge in finding the most effective and practical methods of implying the human capital in the process of ensuring the eco-economic progress and the sustainable development one in which people to live in communion with nature.*

*In our communication we aim to analyze issues related to human capital involvement in eco-economy and sustainable development of Romania, based on the assessment of the impact of these preoccupations in economic, socio-cultural, and environmental fields.*

*The research was conducted in four segments, with the participation of 422 Romanian managers, 10 from each county. The segments are: (1) the place and the role of human capital in the eco-economy and sustainable development; (2) the analysis of the main coordinates of Romanian eco-economy and sustainable development; (3) the implementation of the eco-management and the management of sustainable development; (4) making the managers aware of the activity and the advantages of promoting a responsible attitude towards eco-economics and sustainable development.*

**Keywords:** human capital, eco-economy, sustainable development, social economy, eco-efficiency.

**JEL Classification:** O15, Q01, Q57

---

<sup>1</sup> Prof. PhD, dr. H.C., Lucian Blaga University, Sibiu, ionpetrescu238@gmail.com

## ***1. Introduction***

We live in a world where things are still unsettled in their natural breeding stock; there are still people who cannot cope with injustice and hardness of life.

In these conditions, hope for more and better can be found in human capital.

Therefore, in Romania as well as in the rest of the world, the issue of knowing the human capital, the ways and means of its modeling in order to optimize its creative potential tend to occupy a priority place in the assembly of the concerns of science and practice.

A major area in the strategy of human capital represents its involvement in the vast and complex process of eco-economics and sustainable development, in which human capital is no longer solely as a resource, but also as subject and object, as generator and beneficiary of the profound changes involved by eco-economy and sustainable development of the country.

As a result, in these conditions, the problem of employment, of creating highly qualified work forces, characterized by skills and specific abilities is not only a requirement but also an economic, social, political and cultural priority.

The main objective of our communication is emphasizing the importance of human capital in the eco-economy and sustainable development of Romania. Through our work, we try to stress that the essence and value of human capital are produced by every individual mind power, which once modelled can create knowledge, information, creativity, innovation and competitive advantage.

## ***2. The place and the role of human capital in the eco-economy and sustainable development***

### ***2.1. Human capital, active, creative and coordinating element of the eco-economy and sustainable development***

Most of the specialists define the human capital as the assembly of abilities of the individuals that are specific to them and maintain in every social environment with the possibility of being valorized on the work market. A definition of human capital is found in the Dictionary of Economy

formulated as it follows: (1) the stock of professional knowledge, skills, abilities and health that can lead a person to increasing his/her creative capacities and, implicitly, the revenues wished to be obtained in the future; (2) people's capacity to produce efficiently material goods and services.

Under the aspect of types of human capital, first we encounter the human capital specific to the company, which consists in the abilities and knowledge that are relevant within the company. At the company level, human capital is regarded as a component of the intellectual capital. Secondly, the human capital specific to the industrial branch consists in knowledge resulting from the experience specific to an industry having an effect over increasing the economy and the economic performances. Thirdly, the human capital specific to the individual refers to the knowledge applicable to a vast variety of companies and industries. It includes the managerial and entrepreneurial experience, the level of academic education and of professional training, the age of the individual and the income of the family. Under the aspect of component, the concept of human capital is formed by the educational capital, respectively the abilities gained by the individuals in the school training process as well as outside school and the biologic capital, meaning the physical abilities of the individuals frequently presented as health status.

The connection between the human capital and eco-economy and sustainable development, in the conditions in which the economic context is characterized by instability, crisis and competitive pressures, is confirmed by the position of the human capital which turns into an essential factor that leads to eco-economic increasing and sustainable development, at social and communitarian level as well as at an individual level.

In direct connection with the human capital, the importance of the educational systems is emphasized through adaptation at the imperatives of the economical and spiritual changes of the society. All these allow us to talk about the trio education-human capital-economic increasing and sustainable development. It is underlined in this frame the role of variable with special influence on eco-economic increasing and sustainable development of the secondary education and the superior one. These can lead to increasing the national and individual competitiveness and can help increasing the quality of life for the entire community. These have to be connected with the progress of the developed countries that have contributed to forming the new economy – the economy of knowledge,

innovations, new technologies and actions of business. Under these conditions, the human capital represents the foundation of this new economy. In this way, the human capital has been modified, turning from being the element of the cost in being the main productive and social factor of the development. Consequently, the necessity of forming a new paradigm of economic increase appeared, deeply involved in eco-economy and sustainable development. In the process of transition from the industrial paradigm to the informational one, the transformation of the social-economic relations takes places, which contain all the activities of man. Thus, through the human capital, one can determine the efficiency and the competitiveness of the subjects at different levels. Within the new paradigm, the human capital holds a primordial place in the national wealth, of approximately 80% in the developed countries (Stoican, M., 2012).

The important scientific problem that we try to solve through our communication consists in the argumentation of the human capital role in eco-economy and sustainable development. For the investigation and the settlement of the problems regarding the role of the human capital in eco-economy and the sustainable development, we applied the following methods: scientific abstraction, analysis and synthesis, methods of quantitative analysis, SWOT analysis, mathematical models, induction and deduction, mathematical models, investigating the evolution of the events and researched phenomena. The reasoning we used can contribute to the developing of the concepts related to the human capital and in the applicative field, one examines the actual problems of the human capital involved in eco-economy and sustainable development.

And the conclusion-request that is being drawn from above: in the next period, Romania needs to intensify the support granted to the educational sector in the context in which it wishes to reach the convergence with the average of the European Union. And these, all the more, because only in this way one can create a proper environment for research, technological development and innovation that does not appear unless the presence of a high stock of human capital.

## *2.2. The human capital in the National Strategy for Sustainable Development of Romania Horizons 2013-2020-2030*

Regarding the special significance of the human capital in The Sustainable Development Strategy, a special place is granted to this in the

national document, emphasizing on the correct evaluation of the human capital status and on the tendencies of evolution on medium and long term. The objective is to project a sustainable model of development in all its economic socio-cultural and environmental components.

Normally, it begins with a fundamental question: With whom and for whom will the sustainable development of Romania be realized for?

In order that the appreciations be objective and conclusive, the European Index of the Human Capital was used, adopted by the Council of Lisbon in 2007 and which takes into account the following elements:

- the human capital stock, respectively the investment per capita for professional education and formation of the occupied population, the composition of the human capital related to the type of education, health status;
- using the human capital, meaning the occupational rate, unemployment rate, connectivity rate to multimedia webs, participating in activities that produce income or value;
- productivity, with emphasis on the contribution of the human capital reported to the created added value, the quality of education and professional formation, getting employed over the course of whole life, investments in research-development-innovation;
- demography with increasing or declining, migrating trends, calculated impact over the work market.

The human capital represents a real engine for the eco-economy and sustainable development, where the accent is on creating and using the information found in the mind of people. Under these circumstances, treating the human being as human capital has even a greater importance because it highlights the economic power of a nation, determines the effects of investing in education, warns the population regarding the need to preserve the health and life and underlines the importance of the individual life for the country's eco-economy and the sustainable development.

### *2.3. Social development at the basis of eco-economy and sustainable development*

In the social development as well, the human capital, under all its aspects, represents the central pivot. We mention that the social development is realized through the social capital and that is why we will make the difference between the physical capital that refers to the physical

objects, the human capital that deals with the features of the human individual, and the social capital that refers to the connections between people – meaning the social webs, the reciprocity norms and the generalized trust among people. More precisely: the social capital refers to institutions, relationships, norms. And one more difference: the human capital is a form of the present that indicates the development level reached by the human individuals, while the social capital is a form of the future with a concrete expression as "what I offer today to the society with the idea that in the future me and/or others will need something from the community.

The connection between the social capital and the sustainable development that is of interest for us is realized through the social cohesion – the main element that makes the society to flourish economically and to have a sustainable development [ The World Bank, 1999]. In this vast and complex process, the theory of the social capital focuses on the participation of the individuals together at their own development and the development of the community on the basis and with the help with some solutions and common plans of eco-economic nature and sustainable development. In realizing these plans, the social capital relies on the generalized trust, reciprocity norms and the level of community participation and acts on the following channels: information circuit, reciprocity norms, collective action and enlargement of identity through changing the "I" type concept and mentality with "We" mentality.

#### *2.4. The relation between the eco-economic increasing and sustainable development and the investments in the human capital*

In our trying to establish the relation between the eco-economic increasing and sustainable development and the investments in the human capital, we passed a very ample investigational road. At the beginning, we approached sustainable development as national process and after that, we place the investment at the basis of the effort of eco-economic growth and sustainable development. Then we focused on the investments in the human capital. On this investigational basis, we can see that the issue of the investment in the human capital becomes a very important and interesting issue to study because it refers to the Romanian economic realities. The Romanian owner of the abilities, knowledge and skills finds himself in fierce competition with the human capital from a very performing economic area. Therefore, there are numerous and significant problems for Romania

that highlights the lacks in managing the human capital. First, the national human capital liberates a much lower production comparing to the western one, and that places the human development index on the last position. As inadequate is the situation of meeting the European standards from the point of view of life span, health, life quality and educational level. Through the Human Development Report we are made aware on several levels. Romania has the lowest budgetary allocations for education (3,5% from PIB) among the European countries, and the expenses for research-development-innovation 0,4% from PIB. To understand the inadequate situation we are in, it is enough to show that regarding the education allocations, Sweden assigns 46 times more, and regarding the number of scientists in one million people, Island is 8 times better than Romania – we only have 879 researchers for one million people. Regarding the local government officials, more than half of them do not have a university degree. Also, we have the lowest number of students for one thousand people (28) as opposed to the European average of 35. Synthesizing these discrepancies, we have differences at the human development index which for Romania is 0,778 as opposed to 0,956 for Norway.

The above mentioned allow us to make a brief evaluation of the human capital in Romania and highlight the chronic underinvestment in this field and its effects on the economic performances of the national work force, that lacks the competitive mentality, the flexibility and adaptability at the changing conditions of the economic system.

As opposed to the major objective of implying the human capital in the eco-economy and the sustainable development of Romania, it is necessary to take into account the fact that the performance in the two fields is obtained through human development which depends on the production and assimilation of knowledge in the process of creating the living wages for the human capital and which depends on right investments in this invaluable thesaurus which is the human capital.

### ***3. Analysis of the main coordinates of eco-economy and sustainable development***

#### ***3.1. The eco-economy of Romania***

Under the happy inspiration of Nicholas GeorgescuRoegen, the academician Alexandru T. Bogdan publishes in 2011 his opinions regarding

the eco-bio-economy as a new paradigm. As it was normal, the author departs from the American savant Lester Brown, one of the pioneers of the ambient-sustainable development concept and who launched in 2001 the eco-economy theory, which underlines the importance of the ecology and protection of the environment in the sustainable development of humanity, an alarming signal for the limited resources of Terra. The academician Alexandru T. Bogdan immediately attaches another point of the savant Lester Brown from 2010, namely "ecological and economic deficits not only shape our present but our future too."

The bio-economy concept was launched by the American savant of Romanian origin Nicholas GeorgescuRoegen, more than 40 years ago. Through this concept the focus is on the role of the human being in the anthropic ecosystems, with the necessity to statistically demonstrated regarding the negative energetic balance in the case of excessive consumption of prime materials and the lack of perspectives for the future generations.

In 2011, the academician Alexandru T. Bogdan tries to unify the two concepts of eco-economy after Lester Brown and bio-economy after Nicholas GeorgescuRoegen in a new paradigm „eco-bio-economy” as an economy of the future, meant to serve the lives of people through rational use of the environment resources. In this perspective, the author present in graphical form the integrated ellipse of eco-bio-economy and the subsequent stations between concept, sintagms and paradigms which form the content of the concept of eco-bio-economy.

In this vast and complex process, the principles of eco-economy must be expanded:

- (1) major contributions in ensuring the ecological balance by reducing the conflict between man and nature, between the processes of economic and social development and natural resources;
- (2) the settlement of patterns of evolution on solutions to get out of ecological crisis;
- (3) imposing an environmental attitudes on the members of the society;
- (4) orientation of the whole eco-economic activities towards sustainable development as the only solution to promote bio-eco-economy.



In reality, there is carelessness toward eco-economics, if we take into account the fact that the level of gas emission in cars is ignored or we refer to our trashes and those that come from Europe. The acquisition of the eco-technologies is not a national priority yet. Even if we have the right conditions, we do not place ourselves at the proper place as specialized state in the new fields: making the wind turbines, the solar cells, the hydrogen and all the alternative energy resources. We do not stimulate vocational orientation as meteorologists, geologists, hydrologists, bio-eco-economists. We don't make any proper use of zoo-technique of the Romanian agriculture capable of contributing to the sustainable development of the national economy.

We do little to protect the national agricultural system in order to attract the objectives of sustainable development and for the formation of the concept of food security and food safety.

We do not develop the interest in the prevention and control of irrational use of natural capital, respectively the natural capital and especially the biotic one. Efforts to replace consume economy with the economy based on ecology and environmental protection are not significant. Also, there are insufficient actions for greening the polluting anthropogenic activities and expanding the use of green energy.

### *3.2. Sustainable development*

We have a National Strategy for Sustainable development of Romania, Horizons 2013 2020-2030, already developed in 2008. The defining element of this National Strategy is connecting Romania to a new philosophy of development, proper to the European Union and largely shared worldwide – that of sustainable development. The strategic objectives in the short term, medium and long term are as it follows:

- Horizon 2013: The incorporation of the principles and practices of organic and sustainable development throughout the programs and public policies in Romania as a Member State of EU.
- Horizon 2020: Reaching the current average level of the countries of the European Union at the main indicators of sustainable development
- Horizon 2030: Romania's significant closeness to the average level of that year of the member countries of the EU in terms of indicators of sustainable development.

The national strategy for sustainable development is divided into five parts:

- Part I presents a general framework conceptually, defines the terms on which it operates, describing the main highlights of the strategy.
- Part II contains an assessment of the current situation of natural capital, the human factor, human and social in Romania.
- Part III presents a vision of prospect, setting precise objectives on the three horizons.
- Part IV explores the specific problems faced by Romania and establishes targets for accelerating the process of transition to a sustainable development model.
- Part V contains concrete recommendations for the implementation of the investment, monitoring and reporting results

The theme of our communication determines us to go over the Conceptual framework and to stop at the human capital, at its current situation, described in part II. As it is shown in the National Strategy, the correct evaluation of the human capital and the development trends on the medium and long term is of fundamental importance for the realistic design of prospects of a sustainable model of development in all of its essential areas: economic, socio-cultural, and environmental.

Under these demanding let us see how these elements of the human capital are presented in 2013. First, the demographic situation of Romania was in 2013 in the 24<sup>th</sup> year of damaging because of the economic and social crisis, obtaining the right to free circulation, and the effects of the demographical politics of the governs in the decades 7, 8, and 9 of the last century. Thus, in 1990-2012, the population of Romania reduced with 2,3 million of people, representing a loss of 7,2% of human fond, without taking into consideration the temporary external migration and the migration for work.

The work resources in Romania, meaning the population aging between 15-64 years old, indicates an occupational rate of the working force in 2012 of 58, 8%, situating much under the limit of 70% established through the Strategy from Lisbon for EU in 2010.

In the field of education and professional formation in 2000-2012, the number of graduates and of education units in function (especially pre-university one) was in a continuous decrease.

The average span of school life in Romania is of 15,3 years comparing to 17,6 years in European Union. The rate of early school leaving maintains alarmingly, respectively 19% comparing to the EU of 15,2 %. Participating in early education is of 76,2 % comparing to 90% - the reference target in EU. The adult's participating rate between 25 and 64 years old in educational programs is at a low level of 1,3 % comparing to the average of 9,6% in EU.

The health system in Romania, as underlined in The National Strategy, is of the social insurance type and it has as its purpose the guarantee of the equal and undiscriminating access at a basic services pack for the insured ones.

As disfunctionalities of the health system, the following are being retained: Romania is on the last place in Europe at the infant death index with 13,9 % for a thousand newborns born alive, in rural environment rising to 17,1 at one thousand. At the incidence of tuberculosis sickness, Romania is 10 places higher comparing to the UE average. Even if the number of beds in hospitals is of 6,6 for a thousand people (over the average of 6,1 in EU), the majority of these is found in buildings older than 50-100 years old unwholesome and inadequately equipped. Loading the system with medical and sanitary personnel having superior qualification is deficient in Romania (19,5 medical doctors for 10000 people comparing to the average of EU of 28-29). The situation is even more serious for the medical medium cadres with 2,04 for every medical doctor compared to 2,76 in Czech Republic. Even if the population living in the rural environment is over 40% of the country's population, it is sanitary taken care of by less than 11% of the doctors. One can notice a deterioration of the mental and emotional health status, an increasing number of abuses and addictions to psychoactive substances, of suicides and of stress factors, expansion of aggressive and violent behaviors, inclusively in minors. The general aging of population adds increasing pressure on an already weakened health system.

#### ***4. The involvement of the human capital in the implementation of eco-management and management of sustainable development***

In the actual world of business, the competitive force comes from the creation or identification of a managerial system based on the human capital. Through conception, constitution and manifestation, the human

capital involved in the implementation of the eco-management and the management of sustainable development constitutes itself as an essential and complex assembly theoretically and practically as well. The involvement of human capital in eco-management and the management of sustainable development represents the most important factor. This should be made aware by the managers, economists, engineers, jurists, psychologists, political scientists, sociologists.

For the Romanian managers, the involvement of the human capital in the implementation of eco-management and the management of sustainable development represents a major area not only in theory but in practice as well. This significance is highlighted by the progresses made up to present and those foreseen in the future, the only ones capable to sustain the changes of economic, technical, technological, psychosocial and juridical nature produced in eco-economy and sustainable development.

The concepts of eco-management and the management of sustainable development are associated with the existence of some factors or distinctive and special trends that give a certain status to the human capital involved in their implementation.

Both eco-management and sustainable development management treats the analytical links between costs, yields and risks of alternative pathways of action conducive to eco-economic purposes and of sustainable development.

The economic and social efficiency found in the eco-management and in the management of sustainable development must be seen in an acceptable nuance, by taking into consideration the indirect effects, the time factor and the "social costs".

The whole process of eco-management and management of sustainable development takes place within an organizational, market and environmental context.

The organizational context refers to two components: organizational profile and organizational culture. In this context management style is involved with the high concern for both human capital and for the purposes and tasks.

The above highlights the impact of human capital on the eco-management and management of sustainable development.

### ***5. The necessity and possibility of making the managers aware on the promotion of a responsible attitude towards human capital's involvement in eco-economics and sustainable development***

Although the involvement of the human capital in the eco-management and development management is different from one company to another, and the nature of the activity of the managers changes depending on a multitude of factors, one can identify several important responsibilities for increasing economic and social efficiency of the eco-economy and sustainable development:

- (1) Ensuring efficiency in technological development of the company, with an emphasis on getting the knowledge concerning how to make products and services, technological limits and how to obtain further information in order to lead the business to performant results;
- (2) Initiating plans, operational programs, decision-making and development of a control efficiency system;
- (3) Ensuring the motivation and satisfaction of human capital participating in the growth process of the eco-economy and sustainable development through the creation of new jobs and higher wages in accordance with its qualifications and experience and by stimulating those with meritorious results in participating in the company management;
- (4) Using the effects of performance in creating conditions for the establishment of cooperative relations and the development of human capital through the offering of health services or investment with social and educational destination.

Crystallizing and targeting the above involve the identification of clients ' needs in terms of their efficiency, creating a rigorous system for measuring the effectiveness of processes, products and services, accurate, scientific planning so that it will be appropriate to the aims and conditions of eco-economic sustainable development growth.

### ***6. Conclusions***

1. Transforming the human capital into the decisive factor of the eco-economy and sustainable development argues the need for the formation of new paradigms, whose essence lies in the transition to a new level of

socialization, changing the priorities of development and the transition from the technocratic approach to the anthropocentric approach, oriented towards the needs and capacities of man. This approach to human capital requires the research of human activity form as a unit of the needs and capacities, of production and consumption. And here from, the obligation to study the needs as the defining element of the human activity, as the driving development force, which effectively have not been investigated.

2. In the eco-economics and sustainable development, the human needs, the needs of the individual in the self affirmation and self development, its productive capacities, respectively appear in the foreground, which alter the structure of human capital, education, professional training, reproductive capacity and renewal of knowledge, abilities and personality types, health and genetic background, motivations and capacity of migration.

3. The human-capital and eco-economics and sustainable development relationship contributes to the long-term sustainability of the Organization through power and profitability. On the other hand, social capital – human capital relationship underlines the existence of links between the individual and society and the role that it has in the eco-economics and sustainable development. And, finally, human capital-capital relationship biologically put in evidence the fact that health is an essential resource for eco-economics and sustainable development.

4. The investment in human capital is particularly profitable and should be a priority issue in the eco-economics and sustainable development.

5. The implementation in practice of the strategies in the field of research-development-innovation in Romania is able to contribute to enhancing the competitiveness of the domestic and foreign markets and the development of economic, social and environmentally sustainable country.

### ***Bibliography***

- Adler, P.S., Kwon, S., (2002), *Capitalul social: previziuni pentru un nou concept*. Cronica Academiei de Management, 17-40.
- Alli, B.O., (2001), *Principiile fundamentale ale siguranței și sănătății profesionale*. Organizația Internațională a Muncii, Geneva.
- Bontis, N., (1998), *Capitalul intelectual: un studiu explorator care dezvoltă măsurile și modelele*. Decizia de management, 36(2), 63-76.

- Brown, M.G., (2003), *Măsurarea capitalului uman*. Jurnalul de calitate și participare, 22(5), 28-31.
- Bogdan, T.A., (2008), *Eco-bio-economia o nouă paradigmă*, www.postdoctorat.ro.
- Mayo, A., (2000), *Rolul dezvoltării angajatului în creșterea capitalului intelectual*. Cronica de personal, 29(4), 521-533.
- Molina-Morales, F.X., (2001), *Capitalul uman în sectoarele industrial*, Managementul sistemelor umane, 20(4), 319-333.
- Petrescu, I., (2008), *Managementul capitalului uman*, București: Editura Expert.
- Strategia Națională pentru dezvoltarea Durabilă a României. Orizonturi 2013-2020-2030.*
- Schultz, T.W., (1971), *Investiția în capitalul uman. Rolul educației și cercetării*, New York: The Free Press.