

## SUSTANABLE DEVELOPMENT AND INTERNATIONAL ECONOMY: A COMPARATIVE AND HISTORIC APPROACH IN THE FRAMEWORK OF GLOBAL ECONOMY AND SOCIETY

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### **Abstract**

*The problem of pollution of the environment is not new. It is simultaneous with the transformation of the capitalist system. The emergence of the new capitalist society, the speed of growth of economy and the efforts of enterprises to earn a bigger share in the markets have led to a result through which capitalism has totally transformed. So, this is not a new problem but a total issue of the historic development of society.*

*The developing countries could create a trend of economic development provided that they are able to manage it themselves. Obviously, this could lead to a situation during which there is a possibility of downgrading the environment by creating an economic development without paying the external costs that are related to it. It should be noted that in the last decades a trend and an effort have been developed with the aim to constrain the specific freedom of development and protect the global environment. The developing countries have been pressed in order to apply a party line that will aim to a more sustainable development.*

*Considering the economic development as an essential process of technological and organizational change, it is suggested that the basic political question about the natural resources of economy is how to make a primary sector that would be productive enough to provide the resources for investment in both primary and non-primary sectors. Today, the western societies seem to have the ambition of creating a sustainable development in an attempt to rescue the labor market from rising unemployment. The vicious cycle of pollution of the environment could be broken, if governments started to implement the zero growth strategy as presented below.*

**Keywords:** *pollution, environment, economy, development, growth, sustainable, international, history, technology.*

### **Introduction**

It is clear that the environmental problems that have been caused because of the free development of trade, have proved that in some regions of the planet or local regions, have raised some issues that make us reconsider the relationship between the international economic development and the sustainable development. This has become obvious from the fact that the specialists of the community of trade praise the virtues of liberalization of trade, while at the same time the environmentalists or the green economists accuse the liberalization of trade since the limitless expansion of trade through globalization could lead to a systematic downgrading or disaster of the environment. This contradiction between the defenders of the global trade and the green economists or environmentalist, doesn't necessarily mean that the last ones are advocates of closed economies, but on the contrary they defend internationalization of economy but with different directions.

The purpose of this paper is to give prominence to the intertemporal problem of the pollution of the environment in the course of the development of capitalist economy. Thus, we will try to present in the framework if the historic procedure of the global system, the problems associated with pollution of the environment from the 19<sup>th</sup> century until today. We will also try to comprehend the sustainable development as part of the global economy and the social-economic development of the society.

So, we should mention that the problem of pollution of the environment is not new. It is simultaneous with the transformation of the capitalist system. The problems of the environment have already begun since the 19<sup>th</sup> century because of the industrial development. The emergence of the new capitalist society, the speed of growth of economy and the efforts of enterprises to earn bigger share in the markets have led to a result through which capitalism has totally been transformed. So, this is not a new problem but a total issue of the historic development of society.

Afterwards we will give emphasis on the logic of development as it is moulded at the end of the 20<sup>th</sup> century. It is a fact that nowadays, trade and environmental issues have been analyzed and discussed in the OECD since 1991 in a forum representative of the environment, of the governments of the states of OECD of the economic and trade ministries that aimed to the completion of environmental programs in the framework of economic development such as trade, agriculture, transportations, energy and investments. Therefore this analysis will be of help so as to comprehend the results of economic growth and the need of a proportional economic policy to be implemented that will satisfy the needs of the society in the global economy. Meanwhile, we will also show the role of the developing countries and their contribution for a sustainable development in the global economy.

Meanwhile in this paper we will try to comprehend the dilemmas that are created by development in this modern era. In that respect the targets of the countries of OECD should be comprehended. Thus, we are observe that the OECD's states in this region had two aims. The first aim was to find an analytical framework so that the environmental results of trade and trade liberalization could be understood and to undertake the explanation of issues in particular industries, such as those that pollute the environment via trade and their consequences. This was considered as a particular daunting task to the extent that the methods used would assess the environmental impacts of the program. It was considered that there is a clear distinction between the impact of the environment of the trade flows and trade liberalization. The second aim of OECD has been to develop a set of guidelines on how to assess the environmental results of trade policy.<sup>1</sup>

In the end, we will try to analyze the great difference between the growth and the development of economy, which plays an important role in the progress of society and the creation of the preconditions for the prosperity of the citizens.

## **Theoretical Framework**

The economic science constitutes a branch of moral philosophy which is interested in the actions of humans and societies. So, the economic scientists consider that via of economic science the people will must satisfy their needs. The needs are connected with the products which the humans consume and their reproductions and, still, the reproduction of environment. So, the economic science interests, mainly, in the allocation of rare resources, those which

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<sup>1</sup> Potier, Michel, (1997), "Environmental assessment of trade liberalization: an OECD perspective", in "Sustainable Development in a Developing World: Integrating Socio-economic Appraisal and Environmental Assessment", edited by Colin Kirkpatrick and Norman Lee, Publications Edward Elgar Publishing Limited, 8 Lansdown Place, Northampton Massachusetts.

people have the capability to utilize, so that it is maximizes the prosperity from the use of resources. It is important that until '60s the economy of environment and natural resources did not exist. It is became obvious after the 1960s. The characteristic of new sector is that it confront the natural environment as the rare resource.<sup>2</sup>

Indeed, today, the natural environment in modern epoch has the element of rarity. Nowadays, we can detect two basic functions of environment. The first basic function of environment consists of the preservation of biological and ecological balance of human kind. So, the biological and ecological balance of human kind presupposes the corresponding relative balance of other living and unliving kinds. Competitive need as concerned to the preservation of biological and ecological balance is the use of the environment as addressee of byproduct and outcasts of economic and social procedure. That is, the use of environment as addressee of every kind of pollution. The second basic function of the environment is that it gives the direct natural inflows of matter and energy to economic procedure and more specifically to productive procedure. So, the automobile will be produced if quantities of iron and plastic are used and other first matter and energy which are used for the productive procedure.<sup>3</sup>

Today, there is an emerging reality in which the term sustainable development is by many still exceptionally vague. The agreement is being continued and masks the real picture of development. The economic development, normally, is related to the natural world and social needs. So, the economic development is related to the organization and structures of human society, the economic activities of human beings and the preservation of ecosystem. It is considered that the demands of these activities on the containing ecosystem for regeneration of raw material inputs and absorption of waste outputs must be kept at ecologically sustainable levels as a condition of sustainable development. Nowadays, the economic activities of social development involve the quantitative expansion, namely the growth, with the qualitative improvement of human needs, namely the development, as the future prosperity of human society.<sup>4</sup> So, until today, sustainable development is a term that everyone likes, but nobody is sure of what it means. For first time the term sustainable development was argued the 1987 as publication of the U.N., sponsored Brundtland Commission report, "Our Common Future", which defined the term as development which meets the needs of the present without sacrificing the human future needs.

The argument about sustainable development has started, because the classical economists consider that the economy would naturally end up in the nation-state as perpetual state, which will give wages at a subsistence level and the surplus all going to landlords as rent, with nothing left over for capitalist's profit and therefore no motive for further growth.<sup>5</sup> Many of the classical economists consider that the state is defined as the end of progress. The classical economists defined the limits of the demographic and ecological evolution, for example Malthus and Ricardo. Finally, by contrast with classical economists, today's standard neoclassical economic theory begins with parameters as preferences, technology, and distribution of income, and inquires how the physical variables of quantities of goods produced and resources used must be adjusted to fit a balance rate of growth determined by those nonphysical parameters.<sup>6</sup> From all these, we can results that the neophysical, qualitative conditions are given and the physical, quantitative conditions or magnitudes must be adjusted. It is obvious that the neoclassical economic theory joins the adjustment with growth. Today,

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<sup>2</sup> Konstantinos Bithas, (2001), "The economic of environment and the rare resources", IAPAD, Panteio University, Athens, Κωνσταντίνος Μπίθας, (2001), «Η οικονομική του περιβάλλοντος και των φυσικών πόρων», ΙΑΠΑΔ, Πάντειο Πανεπιστήμιο, Αθήνα, p. 26..

<sup>3</sup> Indid, p. 30.

<sup>4</sup> Herman E. Daily, (1996), "Beyond Growth", Publications Beakon Press Books, Boston, Massachusetts, p. 1.

<sup>5</sup> Indid, p. 3

<sup>6</sup> Indid, p. 4.

the economic thought begins with different parameters as finite world, ecologic system, biodiversity, complex ecological interrelations. So, the modern economic thought is becoming more classical than neoclassical economics, but is not sure that this means that we can rely on that to economic thought will dominate the thought of development and not the growth.

Since the 1992 there is the best opportunity to dominate the relation of economic development and the environment. It was in 1992 when the World Development Report was entitled *Development and the Environment* by World Bank.<sup>7</sup> So, the 1992 report made a number of conditions with special attention to the public health consequences of the environmental degradation from the growth without margins. So, the sustainability is the term chosen to bridge the gap between development and environment. But this aspect started from the 1987 of the World Commission on Environment and Development (WCED). The Commission was headed by Gro Brundtland, then minister of Norway.

The Brundtland Commission was not the first to use the term, but in the report of this Commission, "Our Common Future", the relation between economic growth and the environment was proposed to be investigated. So, it had become as essential element of the discussion of development. It is obvious that there had been a conflict between these two concepts since the first large UN Conference on the Human Environment, in Stockholm in 1972. Simultaneously, Indira Gandhi, then Prime Minister of India, was the lead of developing countries which were combating against poverty and the their degradation.<sup>8</sup> In parallel, these countries saw the concrete issues as a distraction of environment from the industrialized north, which wanted the developing countries down.

The important problems of environment had to be confronted directly. In the previous decades, the global consequences of environment aggravation were obvious. So, a strategy about the association of development and environment was important to be modulated. There are two quotes, illustrative about the development and environment. There are:

"Environment and development are not separate challenges, they are inexorably linked. Development cannot subsist upon a deteriorating resource base: the environment cannot be protected when growth leaves out of account the costs of environmental destruction"<sup>9</sup>

"Sustainable Development seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future. Far from requiring the cessation of economic growth, it recognizes that the problems of poverty and underdevelopment cannot be solved, unless we have a new era of growth in which developing countries play a large role and reap large benefits"<sup>10</sup>

The political conditions of the Brundtland Commission were greatly strengthen in the Rio Conference in 1992. Here, Brundtland achieved important changes. In the Rio negotiations who had doubts and misgivings about the concept of sustainable development. The developing countries continued to be suspicious. And UN Secretary-General Boutros Ghali created certain confusion on the Agenda for Development. For Sustainable Development there were two parallel agendas for the twenty-first century. This confusing situation persisted until the Johannesburg World Summit on Sustainable Development in 1992. It is important that the concept of sustainable development has been accepted as a guideline form policy action and that it is now recognized as environmental and social sustainability.<sup>11</sup>

It is believed that sustainable development is expressed as aspirations and principles in policy and law internationally and in many national and sub-national jurisdictions. So, the

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<sup>7</sup> Indid, p. 5.

<sup>8</sup> Bo Kjielen, (2008), "A New Diplomacy for Sustainable Development", Routledge Taylor & Fransis Group, LLC, p. 3.

<sup>9</sup> WCED, (1987), p. 37.

<sup>10</sup> Indid, p. 50

<sup>11</sup> Bo Kjielen, p. 4

meaning of the sustainable development has led to an international consensus. It is obvious at the 1992 Rio summit, and again at the World Summit on Sustainable Development in 2002. For example, in Australia, the emerging Rio principles were expressed as principles of ecologically sustainable development.<sup>12</sup>

Sustainable development has become an important and confusing theme, creating impossible goals for policymakers and development practitioners. Finally, everyone mostly formulates proposals for change which relate to contribution of "sustainability". It is believed that there is a widespread acknowledgment which present levels of per-capita resource consumption in the richer countries cannot generally be generalized to people living in the rest of the world.<sup>13</sup> A lot of scientists consider that there are levels of consumption which cannot be maintained, in spite of the fact that there are groups who nowadays enjoy levels of material consumption. In this new reason, resources enclose not just inherited natural capital, including raw materials, such as subsoil products, soil, good quality air and water, forests and oceans, but also the earth's capacity to absorb the waste created by our productive systems. In the same time, the analysis of resources includes researches for the quality of the environment in which the humans live and work.<sup>14</sup>

So, sustainability is not only a matter of the environment, economic justice and development. Sustainability is about people and our survival as individuals and cultures. In parallel, sustainability is the struggle for diversity in all its dimensions. Sustainability is a process rather than a set of well-specified goals. It means modifying processes in nature, the economy, and society.<sup>15</sup>

Rogers, Kazi Jalai, et. al., indicators for environmental development suggested nine ways to achieve sustainable development. These ways were: a. Leave everything in the pristine state, or return it to its pristine state. b. Develop so as to not overwhelm the carrying capacity of the system. c. Sustainability will take care of itself as economic growth proceeds. d. Polluter and victim can arrive at an efficient solution by themselves. e. Let the markets take care of it. f. Internalize the externalities. g. let the national economic accounting systems reflect defensive expenditures. h. Reinvest rents for nonrenewable resources, it means weak and strong sustainability. j. Leave future generations the options or the capacity to be as well off as we are.<sup>16</sup> Finally, the concept of the sustainability explores the relationship among economic development, environmental quality and social equity.<sup>17</sup> Generally, Sustainable economic growth means that real GNP per capita is increasing over time and the increase is not threaten by "feedback" from either biophysical impacts, that is pollution, resource degradation, or from social impacts. While, Sustainable development argues: 1. development subject to a set of constraints which set resource harvest rates at levels not higher than managed natural regeneration rate, 2. use of the environment as a waste link on the basis that waste disposal rates should not exceed rates of managed.<sup>18</sup>

### **Sustainable development and international economy as socioeconomic history evolution**

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<sup>12</sup> Robin Connor and Stephen Doves, (2004), "Institutional Change for Sustainable Development", Publications Edward Elgar Publishing Limited, p. 29-30.

<sup>13</sup> David Barkin, (2000), "Wealth, Poverty, and Sustainable Development", in Jonathan M, Harris, "Rethinking Sustainability, Power, Knowledge and Institutions", Publications The University of Michigan, p. 98.

<sup>14</sup> Indid, p. 99.

<sup>15</sup> Indid, p. 99-100.

<sup>16</sup> Rogers Peter, et. al., (1997), "Measuring Environmental Quality in Asia", Cambridge, MA: Harvard University, Press.

<sup>17</sup> Peter P. Rogers, et. al, (2008). "An Introduction to Sustainable Development", Publications Glen Educational Foundation, Inc., Earthscan, p. 42. .

<sup>18</sup> Indid, p. 43.

The theoretical approaches, the studies and researches for the economic development from 19th and after show that the industry was in the epicenter of the socioeconomic transformation which was formed, not only during the periods of transition to the modern period, (1700-1870), the prevalence of industry capitalism (1870-1945) and the big developmental leap (1945-1978), but also to the period of the transition of the society of knowledge from the 80ies until today. The huge industrial development, which started in the 19th century, is correlated and depended mainly on the adoption on the one hand of technological changes to materials and the sources of energy and on the other hand on the betterment and import of new methods of organization.<sup>19</sup> Here we will mention that in this period the development improved the standard of living together with the growth of producing goods. The changes in technology and the relevant prices of productive factors, and different structures of market and non-economic constitutions and different economic and political systems, form the netting of broad extension of bonds, directs and indirect, narrows and lax, exclusives and small and every industrialized society develops its own combination of elements which match to possibilities and the occasions in which it is.<sup>20</sup>

We must mention that Friedrich Engels described the situation which had prevailed in an especially intense way, in his work "The conditions of the Working Class in England". At that time there was a severe environmental crisis particularly in the air and the waters, which provoked intense worries. The situation was encumbered by the use of coal as combustibles in the industrial production and in houses. In the first period development in England was at the centre of debates. Public health was at risk because of the production of alkali and the first firms were created in 1823 in Liverpool.

The structure and the organization of enterprises with the prevalence of the capitalist manner of production have transformed and have progressed from the sovereign local small scale industry to small enterprises and after the middle of the 19th century to big oligopoly enterprises in the framework of which mass production will develop from the end of the 19th century. During the period from 1870 to 1978 the industrial capitalism has achieved the biggest developmental leap in modern history.<sup>21</sup> The technological changes of the sovereign team of technology of mass production – consumption, which have succeeded the team of heavy industry, which have been connected with administrative innovations and modernization of institutional framework, will lead to a level of productivity much higher in relation to any previous period.<sup>22</sup>

In this framework, the performance of new technologies and the new qualitative characteristics of them, create the preconditions in the internal combustion engines, in automobiles, in petrochemicals, in the plastics, in the fertilizers and in the consumer goods and the accelerating role of the long-lasting stability in matters such as the provision and the price of petrol, constitute the basis of planning of the huge development of industry that led to the great development and economic miracle of 1945-1980. In the end, this had as a result, because of an unprecedented growth in the climax of production and consumption in a great number of products in the form of new materials, such as the plastics, the creation of new drugs and

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<sup>19</sup> St. Tsotsoros-St. Lidorikis, (2014), "Technological Change and Economic Development: The Transition to postindustrial epoch and the failure of transformation of Greek Economy", (1974-2008), Volume 1, publications PAPAISIS, (Στ. Τσοτσόρος-Στ. Λιδωρίκης, Τεχνολογική Αλλαγή και Οικονομική Ανάπτυξη-Η Μετάβαση στη Μεταβιομηχανική Εποχή και η αποτυχία Μετασχηματισμού της Ελληνικής Οικονομίας (1974-2008), Τόμος α', ΠΑΠΑΖΗΣΗΣ, p. 108.

<sup>20</sup> David Landes, (2008), "The unbound Prometheus Technological Change and Industrial Development in Western Europe from 1750 to the Present", Cambridge University Press Cambridge, Second edition, fourth printing, p. 545, St. Tsotsoros-St. Lidorikis, p. 108.

<sup>21</sup> St. Tsotsoros-St. Lidorikis, p. 114.

<sup>22</sup> Indid, p. 121.

chemicals. In this period a large number of products were created, most of which were useful, but other were useless and which were destined for the consumers and are characteristics of the consuming society.<sup>23</sup>

Obviously these rapid changes are shaped in an entirely new international environment that dominates after the end of the Second World War and three worlds contribute to it: the Western World dominated by the USA, the Eastern Europe dominated by the USSR and the decolonized Third World. In this framework the new international relationships, the international rivalries and geopolitical stabilities are formed. In the enterprises with the dominant administrative organization that prevails in the framework of the model of Fordism-Taylorism, the multinational enterprises develop mechanisms of development in order to dominate in the international markets on behalf of the industrial and Stock Exchange capital. In this period the internationalization of production and the vertical integration of entrepreneurial structures dominate, as well as the strengthening of the enterprises in the form of repurchases or mergers.

The technology as a core and motive force of industrial development since the beginning of industrialization (18th century) until today has direct and indirect effects to environmental change. There was big transportation of huge volumes of materials, at first, because of the broadening of the capacity of the productive system which the technological change brought about, and secondly, because the volume of production had arisen rapidly as a result of profits of productivity and efficiency for a long time to the duration of life of successively teams of technology. All these have had important indirect consequences for the environment (ground, waters, air), which has had local importance at the beginning of the industrialization and global from the middle of the 20th century, when the quantitative return of industry system culminated.<sup>24</sup>

The chemical industry, the principal industry that produces materials and substances, plays a central role in the ruling issue of development and the environment since the 19th century. The significant aspects of pollution and the serious environmental accidents are associated in the conscience of human societies in such a way that the industrial pollution is correlated to chemical industry and consequently contributed to the formation of the environmental policies. So, the chemical industry and the chemical products are directly associated with the major environmental problems, with led to a further detailed approach of the relationship between technology and environment, in the framework of the historical evolution of the chemical industry.

Until the 1960ies, the industrial and economic development of states and regions constituted the first priority. The environmental issues were restricted to local demonstrations or disputes, which were resolved in courts. Since the 1980ies and afterwards the environment has become top priority in national and global issues, which must be resolved. The environmental problems constituted the first priority, in global, as well as national and local level.<sup>25</sup> So, the technologies must contribute to the resolution of problems. The antithesis is that while the environmental pollution until now has been done because of the technology, it is realized today that technology must be used for the therapy of the negative consequences it has created. This is a paradox of the industrial and technological development.<sup>26</sup>

The technologies that come up against the environmental problems are of two directions:

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<sup>23</sup> Arnulf Grubler, (2003), "Technology and Global Change", Cambridge University Press International, Institute for Applied Systems Analysis, Austria, p. 215.

<sup>24</sup> St. Tsotsoros-St Lidorikis, p. 129.

<sup>25</sup> Indid, p. 130-131.

<sup>26</sup> Arnulf Grubler, (2003), "Technology and Global Change", Cambridge University Press International Institute for Applied Systems Analysis, Laxenburg, Austria, p. 341, St. Tsotsoros-St. Lidorikis, p. 131.

Technologies that are related to the growth of productivity and efficiency with the logic of minimization of material inflow in the productive procedure and at the same time growth of volume of final products.

Technologies that reduce pollutant emission and are related to catalytic converters in automobiles, recycling and others. In other words, improvement of environmental compatibility of material used.

So, what we have observed is that the volume of material that is mobilized globally is huge. Simultaneously, this is more than an economic growth, since the real material flows of matters should be enhanced with the matters that go with the flow of the basic product from mining to the final consumption. The litter of consumption increases the volume of the basic product up to twenty times. The proportion of mobility of matters, as a proportion of primary to final product in the cases of mines of carbon, has been appreciated up to twenty times, if the volume of water is counted in, that is used in the process of production.<sup>27</sup>

### **The logic of development in the beginning of the 21st century**

The developing countries could create a trend of economic development provided that they are able to manage it themselves. Consequently, we have to deal with a kind of freedom in order to make good use of resources and exhaust them briefly. Obviously, this could lead to a situation during which there is a possibility of downgrading the environment by creating an economic development without paying the external costs that are related to it.<sup>28</sup> It should be noted that the last decades a trend and an effort have been developed with the aim to constrain the specific freedom of development and protect the global environment. The developing countries have been pressed in order to apply a party line that will aim to a more sustainable development.<sup>29</sup> The cease of deforestation and the attempt to deal with their environment impels to ensure a more sustainable administration of the forests in the wet rainforests and reduce the speed of devastation in the dry regions. Preserving the rainforests and expanding the plantation in them drive to a case which aims to moderate or soften the future global climate change.

In this framework, the common environmental policies should converge and especially in weak environmental regimes, so that a truly global environmental management can exist. But for the accomplishment of this aim, the states should join hands. In this procedure and because of the urge of a common environmental policy to be applied, the governments of developed countries operate and act under the pressure of the most powerful environmental social pressure groups. However, there is always the danger of climate change to affect the biodiversity highly. What should be noted here is that the percentage of per capita emissions of greenhouses in developing countries is less than the corresponding percentage of the developed countries. Furthermore, what is quite significant is the fact that the developing countries have advanced the conventional sense and their adaptation in the international economic environment and as a result, the overall emissions of gas will constantly increase.

The environmental impacts of the human activities are already at the stage of worrying the developed countries, but they also impose global restrictions now in order to compel the future development in the developing countries.<sup>30</sup> In general terms, this evolution, that is the global environmental management will undoubtedly benefit the world on the whole. The costs

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<sup>27</sup> St. Tsotsoros-St. Lidorikis, p. 131.

<sup>28</sup> Alan Grainger, (1997), "Assessing the environmental impacts of national development", in "Sustainable Development in a Developing World", edited by Colin Kirkaratrick and Norman Lee, publications Eduard Elgar Publishing Limited, 8 Landsdown, Place, Northampton Massachusetts, p. 61.

<sup>29</sup> IUCN, (1989), WCED, (1987).

<sup>30</sup> Alan Grainger, p. 62.



of this change will be distributed unequally to the developing countries because of the fact that they will constrain their development. In any case, this evolution that is based on the power of the developed countries could be considered as a contemporary eco-imperialism".<sup>31</sup> This is connected with the official imperialism of the colonial era or even with the new-imperialism that led to this situation that is the restriction of development of the developing countries.<sup>32</sup> Furthermore, this means that the developing power of the international environmental regimes and the prospect that the environmental requirements will be included in the international trade regimes. As a consequence, the developing countries will be asked to conform to environmental ethics of the developed countries and internationalize the external environmental costs of their development and benefit the whole world more rather than in relation to their own development.

The modern environmental theories are divided in two directions, namely the soft approach and the hard approach. Soft approaches on sustainable development are popular among the policymakers, but they are usually based on undefined aims that could be searched through the origins of the way of thinking of 1980s. Many theorists accept that sustainable development first emerged as a serious thought in the IUCN Conversation Strategy in 1980. As well, many environmentalists do not accept the development because of global warming. However, they recognize the inevitable result that the developing countries will develop, but they would try to do this in a sustainable way, that is to cause as less global warming as possible. Sustainable development was therefore an explicit attempt made by environmentalists to bridge the gap between environment and development. But the agenda aimed to constrain the future development of developing countries in order for them to conform in the global environment.<sup>33</sup> Sustainable development became important after the publication of the report of the Brundtland Commission in 1987.<sup>34</sup> But the last years, sustainable development has become synonymous with better environmental management in developed countries. There are some international programs that demand more constraints on resource depletion and on environmental degradation in developing countries. The generated inequity has been criticized bitterly political ecologists and development economists.<sup>35</sup>

The hard approaches to sustainable development associate with the natural and human capital and in fact they have a stronger basis. Green economists consider that sustainable development is an important theoretical thought. They have defined that sustainable development can create conditions to prevent declining of human welfare and they aim at the specialization of the relations between capital and natural capital.<sup>36</sup> Some green economists consider that transforming natural capital due to development is an inevitable consequence. In the framework of development, there has been given priority (parallel to constraints of monetary policy) to promoting the growth of the output of goods and services by emphasizing the Gross Domestic Product (GDP), rather than paying costs of environmental impacts, like pollution. In general, national income is artificially inflated, as there is a failure to rectify the depreciation of natural capital just like the human capital.<sup>37</sup> Economic development is often used in the GDP index, as it shows the evolution of economic resources of the country. But the economic growth is different from the economic development. When we refer to development, we should bear in mind the prospect of prosperity in a society. The meaning of development is

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<sup>31</sup> D. Lal, (1989), "The limits of International Cooperation", The Wincoff Lecture, Institute for Economic Affairs, London.

<sup>32</sup> P. J. Taylor, "Political Geography", Harlow: Lohgman, 1989.

<sup>33</sup> N. Grainger, p. 63.

<sup>34</sup> WCED, (1987).

<sup>35</sup> W. M. Adams, "Green Development", London: Routledge.

<sup>36</sup> D. W. Pearce, (edited), (1991), Blueprint 2, "Greening the Wold Economy", London: Earthscan.

<sup>37</sup> T. H. Tietenberg, (1994), "Economics and Environmental Policy", Aldershot, UK: Eduard Elgar.

related to all citizens' improvement of life. As a matter of fact, in today's unequal world we come to the conclusion that on the basis of income, a better life for the majority means first of all that basic needs should be secured. This means that there should be work for all and as a consequence the adequate food would sustain people's good health. At the same time, a safe and healthy residence should exist, in which every citizen should live and accessible services should be provided. In order for these to correspond citizens' needs, they should be treated with dignity and respect. Apparently, all these could be fulfilled in a fair society. In the logic of this growth, all these modern methods and views concerning technology, democracy, and their organization are incorporated for an ultimate aim. The formation of a productive procedure, which will consent to an economic growth, means it will utilize all available resources even of those productive factors that lead to prosperity. In the procedure of modern economic history the economic development and the sustainable development have a totally different content from economic growth. In fact, economic growth means the achievement of mass economy, that is on the one hand the production of more goods and services and on the other hand, the increase of the national budget, that is the gross domestic product and a bigger national budget, which concerns the gross national product. The economic growth mainly occurs when the most productive resources, those connected with the earth, the workers, the capitals and the equipment, are forced to produce more goods and services, and in this way the anarchist production leads to the pollution of the environment. Consequently, there is no sustainable growth, since growth is related to the production of more goods and services, and as well with the growth of GDP, so the economic growth does not affect the problems of inequality and poverty. As a result, the growth is connected with massive economy and the maximization of earnings of enterprises.

### **The dilemma of development**

Considering the economic development as an essential process of technological and organizational change, it is suggested that the basic political question about the natural resources of economy is how to make a primary sector that would be productive enough to provide the resources for investment in both primary and non-primary sectors. In other words, to begin a process of gradual development of technology on the basis of capital intensive.<sup>38</sup> The basic progress has been made over the past decade towards understanding the fundamental sources of long-run economic growth and economic development. The theoretical framework of economic growth and economic development has advanced at the end of 80's through the endogenous technological innovation and by increasing the causes and effects of different rates of human capital accumulation.<sup>39</sup>

But today, the western societies seem to have the ambition of creating a sustainable development in an attempt to rescue the labor market from rising unemployment. The vicious cycle of pollution of the environment could be broken if governments started to implement the zero growth strategy as presented below. So, this development could be implemented if it was connected with innovation and new technology and created the improvement of the environment and the distribution of the produced wealth to the whole society. In this case, people would have more leisure time to organize their lives according to their preferences. Consequently, they would be able to maintain a satisfying standard of living. This progress

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<sup>38</sup> Jorg Mayer, "Introduction, in "Development Policies in Natural Resource Economics", by Jorg Mayer, at. Al., publications Edward Elgar Publishing Limited Glensanda House, p. 1.

<sup>39</sup> P. Romer, (1986), "Increasing returns and long-run growth", *Journal of political Economy*, 94, p. 1002-37. P. Romer, "Endogenous technological change", *Journal of Political Economy*, 98, 1990, S71-S102. R. Lucas, "On the mechanics of economic development", *Journal of Monetary Economics*, 22, 1988, p. 3-42. R. Lucas, "Making a miracle", *Econometrica*, 61, p. 251-72.

could create the conditions for the western societies to embark on a productive step leading to sustainable development.

The green economists have always had a quite stormy relation with growth, which is very often identified with “development”. It is not accidental that in many instances it is blamed on the environmental crisis. The reaction of its more devout opponents, especially in the beginning of the decade of 70’s, was categorical, while at the same time some perceptions dominated for the withdraw to smaller communities or yet to self-supporting families that managed their lives by the earth’s goods. Obviously, this would occur without any specialization and simultaneously without giving any value to the concept of “development”. The pressure that is put by the green economists has sometimes a utopian dimension, since it is desired to be accomplished through cooperation with the sector of industry and trade in order to lead the enterprises of these sectors to sustainable choices, but by ignoring the nature of market and competition, and without seeking to change the nature of capitalism and the models of administration and governance of societies.

They are in pursuit of surpassing the dysfunctional model of development that dominates in modern economy, by searching the formation of alternative models of organization and development of economy. Actually, the attempt of a green rebuilding of economy is a difficult or even impossible venture. This means that the attempt of sustainable development cannot be achieved right now and also it may not be searched out of the economic model of global capitalism. Therefore, as a result of the essays of Brundtland and Stern, what is pursued is the form of economic development in the framework of the international economy based on the features and structures of globalization. Consequently, what we should wonder about is whether the modern model of development is defective or if it just produces inadequate products on a bad basis. What is more, another question is raised: Is capitalism sustainable?

No one expects that the answers are going to be uniform. In this framework, those who believe that capitalism is sustainable consider that in order to make this happen, the looting of the planet should stop and this could be succeeded if technology is going to be utilized to a large extent. So, basing our hopes on the almighty scientists and to unconfirmed technologies, should be basically seen as a kind of denial that we are all highly prone to.<sup>40</sup>

At the same time, there are some green economists who realize the stalemate of economic development and the problems that have been caused because of the pollution and they demand to put an end to the specific developmental model at once. Therefore, to make this happen, the concept “the profit at any cost” should stop dominating. In other words, the neoliberal thought should stop prevailing, according to which development is identified with growth and the dynamic course of the economy of a state is identified with competition, which means competitive private sector and as a consequence, competitiveness among enterprises for direct domination on the market, which is accompanied with decrease of cost production and so decrease of cost that contribute to production of foods and therefore with the maximization of profits at any cost.

What does economic approach of sustainability finally mean? The core idea of sustainability is that economic development with sustainability goes along with the expectations of maintaining and improving the future living standards. This means that the economic systems should be managed in such a way that we would be able to live in a healthy environment without destroying the resources of earth.<sup>41</sup> By “resources” Repetto refers also to natural resources. According to Repetto, resources are a gift of the environment. For David Pearce and some others, economic growth means that that the real GNP per capita is increasing

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<sup>40</sup> C. Monbiot, (2006), “Heat: How to stop the Planet Burning”, Harmondsworth, Penguin.

<sup>41</sup> Robert C. Repetto, (1986), “World Enough and Time: Successful Strategies for Resource Management”, New Haven, Ct: Yale University Press.

over time and the increase is not threatened by feedback from either biophysical impacts, that is pollution, or from social impacts.<sup>42</sup> So, according to Pearce sustainable development is the subject to a set of constraints in which the resources are rated at levels not higher than managed appreciated natural regeneration rate, and, still the use of the environment as a “waste sink” should not exceed rates of managed or natural assimilation of the capacity of the ecosystem.<sup>43</sup>

The elements that lead to sustainable development are poverty, population, pollution, market failures and prevention and management of disasters. All these could be considered as the major pillars on which sustainable development depends on.<sup>44</sup> So, poverty should be reduced. This could be based on health, education, protection, productive employment and control over joint ownership of property. In this way, there is some hope for the environmental and social consequences of development to be minimized. The fact is that one of the most important reasons of environmental degradation is poverty. So, projects should be assessed for their impact on environment and society. I consider that only in the framework of the capitalistic way of production we could talk about the population by keeping in mind that it is a significant factor of sustainable development. I think that maximization of production of foods leads to the division of the population to rich and poor. The way of production manages the pollution of environment with principles.

This is quite understandable if we assume that technology is the driving force of industrial development from the beginning of industrialization in 18th century, until today. This fact has both a direct and an indirect impact on environmental change. The mobility of a huge mass of matters, on the one hand, because of the expansion of skills of the productive system which brought about the technological change and on the other hand because of the rapid growth of the production in volume, was a result of the profits because of the productivity and efficiency for long periods during the life-time of successive forms of technology. They also had major consequences for the environment (land, waters, air) of local importance in the beginning of globalization and global from the middle of the 20th century and thereafter when the quantitative efficiency of the industrial system peaks. As a consequence, we observe destroyed lands because of the extraction of matters, polluted rivers and seas because of the imprudent discharges of industrial and urban effluents, a polluted atmosphere because of the uncontrolled pollutant emission. All these compose, from a first approach, the general image of the consequences of the industrial development to environment, which constitutes the indirect contribution of technology to the specific negative environmental evolutions.

In this direction, we can see that faster growing tempos of the core of industrialized states, namely, 3, 6% for 1, 7% of the states of the region and 3,3% of the states of the framework of developed states. As a consequence, we observe the unprecedented assembly of the industrialized production in the core of the industrialized states which produce 70% of the global industrial production.<sup>45</sup> As a matter of fact, from the perspective of absolute numbers, in 1900 the industrial production just of England is estimated to be equal to the global production of 1750. In 1920 the core of the industrialized states has over multiplied by five its industrial production, compared to 1870, while the region to this effect has just redoubled its production.

New technologies and methods of the emerging group of mass production are already present at the industrial scenery of the core states, and they form gradually the environment of the big changes both in the structure of the productive system and in the formation of the

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<sup>42</sup> David W. Pearce, at. Al., (1989), “Blueprint for a Green Economy”, London: Earthscan Publication.

<sup>43</sup> David W. Pearce, (1988), “Optional Prices for Sustainable Development”, in “Economics, Growth and Sustainable Environment”, David Collard, David W; Pearce and David Ulph, eds. London: McMillan Press.

<sup>44</sup> Peter P. Rogers, at. Al., (2008), “An Introduction to Sustainable Development”, publications Glen Educational Foundation, Inc., Earthscan.

<sup>45</sup> St.Tsotsoros-St. Lidorikis, p. 125.

industrial product, which is extremely different, compared to previous periods. Mainly, however, in the developing potential of the system that will lead to the unprecedented growth and diversification of the industrial product and in 1980 the global industrial production is over multiplied by eight compared to the corresponding production of 1920. As far as the allocation of the global product is concerned, the core aggregates 67% for 21% of the states of the framework and hardly 12% of the countries of the periphery. In other words, the countries of OECD aggregate 88% of the global industrial production for 12% of the rest of the planet. Consequently, the world is dramatically unequal.<sup>46</sup>

What basically interpret the global allocation of industrial product and the intense differentiations, concerning the results of the energy administration (exploitation of natural resources) and environmental repercussions between states and regions, are both the differentiation in productivity between developed or developing states and additionally the rational and effective governing of state and private domains.

As we can observe from Index 1 for 1990, the specific elements of course of the developed states that operate in the framework of the market, of the under transition countries of Eastern Europe and the developing states of former Third World, are revealing concerning the negative aspect of the developing miracle.<sup>47</sup>

**INDEX 1**

**Basic activity data for the industry, 1990**

economy	Number of people employed (10 <sup>6</sup> )	Value Added (10 <sup>9</sup> US\$)	Seven major commodities produced (10 <sup>6</sup> ton)	Ton-Km transport (10 <sup>12</sup> )	Mtoe final energy consumed (without feed stocks)	Carbon Emissions (10 <sup>6</sup> tons)
Market	130	4.632	1.096	7	877	766
Reforming	80	975	515	5	640	584
Developing	300	1.068	895	5	841	733
World	510	6.675	2.505	17	2.358	2.083

**Source: Grubler, A., (2003), p. 203. Also, St. Tsotsoros-St.Lidorikis, p. 127.**

In Index 1, the elements give prominence to a considerable discrepancy between the regions concerning the produced wealth. More specifically, the added value, for seven basic produced products, per habitant in developed regions is as high as 35.630\$ (4.632X10<sup>9</sup>/130X10<sup>6</sup>) per employee, over 12.187\$ (975X10<sup>9</sup>/80X10<sup>6</sup>) per employee to economies under transition and hardly 3.560\$ (1.068X10<sup>9</sup>/300X10<sup>6</sup>) per employee for the developing economies. In the unequal distribution per employee for added value, the result of the great differentiation is imprinted not only in the international division of labor but also in the standard of technological development and consequently in the productivity among the tree areas, the developed, that under transition and the developing world.

These differentiations explain the further strengthening tendency of the unequal distribution of wealth and the growth of inequalities and are distinguished as major problems

<sup>46</sup> The same, p. 125.

<sup>47</sup> The same, p. 127.

of the capitalist development in the decades that follow<sup>48</sup> and are imprinted in the significantly higher pollution per employee in the economies under transition (7,3 instead of 5,89 tons of carbon emission per employee), which is increased afterwards after the enactment of a severe regulatory framework for the protection of the environment in the core of the developed economies.

Contrary to it, the corresponding emissions in the under industrialization developing economies, (2,444 tons per employee), mainly due to the restricted industrial activities, while these differentiations have the tendency to strengthen in the modern era of the fourth industrial revolution of the post-digital period, in which the pollutant productive activities are concentrated in the relatively undeveloped areas of our planet, but the peak technologies of the digital and post-digital period are concentrated and transform the productive structures of the advanced economies.

Finally, concerning the evolution of released wages, they have been over multiplied by six during the period of 1870 and 1970 in the core states of the European industrial states, the have been over multiplied by seven in the U.S.A., but they have hardly over multiplied by four in Great Britain. The wage inequalities are illustrated in the elements of Index 2. So, in 1979, the hourly wage of the employee for the same category of labor is over eight times more or even ten times more for the states of the industrial core compared to the Asian hourly wages.<sup>49</sup>

**INDEX 2**

	Imperialistic countries		Countries "point of support"		Dominating countries	
	FRG	144	Australia	97	South Korea	21
	Belgium	143	Austria	95	Hong Kong	19
	Sweden	142	Italy	93	Singapore	16
	Netherlands	139	Finland	87	Formosa	15
	Denmark	136	Spain	79		
	Switzerland	129	Ireland	67		
	Norway	127	Greece	42		
	U.S.A.	118	Brazil	40		
	Canada	110	Mexico	33		
	Japan	103	Portugal	26		
	France	100				
	Great Britain	74				

**Sources: Bead, M. (2008), p.355. Also, St. Tsotsoros – St.Lidorikis, p. 129.**

All these prove that development without principles, since the capitalistic competition exists for the maximization of the profit without limits, could lead to the success of economy but the consequences are significant. So, this kind of development could generate inequalities among different regions of the planet or even differences stratification of society, while the growing productivity could lead to the pollution of environment. As a result, development is identified with growth. Then, development becomes an end in itself for the function of markets and in this way we can only talk about the growth of economy. Firstly, our priority should be the whole society and its happiness and generally, development should aim to a better quality of life for people. Secondly, economy should not be seen just as competition of economy or maximization of profits of the companies. On the other hand, economic growth means the achievement of mass economy, which is the increase of the national budget, that is the Gross

<sup>48</sup> Thomas Piketty, (2014), "Capital in the Twenty – First Century", The Belknap Press of Harvard University, Press, Part Three: the structure of inequality, p. 430-467.

<sup>49</sup> The same, p. 128.

National Product (GNP) and the achievement of a bigger national budget that the GNP plans. As a consequence, economic growth mainly occurs when the most productive resources, that is the ones that are connected with earth, the workers, the capitals and the equipment, are forced to produce more goods and services. So, economic growth could be achieved without having to deal with problems such as inequality or poverty.

## **Conclusions**

As this article has elaborated, it is obvious that environmental problems have been caused by the free development of trade. Also, it has been proven that in some regions of the planet or local regions, there have been raised issues that make us reconsider the relation between the international economic development and sustainable development. The opposition between the defenders of the global trade and the green economists or environmentalists, it doesn't necessarily mean that the last ones advocate to a closed economy, but instead they support an internationalization of economy with different aspects or different context.

The structure and the organization of enterprises with the prevalence of the capitalistic way of production have transformed and progressed from the form of the sovereign local small scale industry to small enterprises and after the middle of 19th century to big oligopolistic enterprises in the framework of which the mass production will be developed from the end of the 19th century. During the period of 1870-1978 the industrial capitalism made the biggest developmental leap of modern history.

Technology, as the core and driving force of the industrial development from the beginning of industrialization until today, had both a direct and an indirect effect to environmental change. There has been a transformation of huge volume of matters firstly because of the expansion of the productive system that has in fact been created by the technological change, and secondly because the volume of production has been arisen rapidly as a result of the profits of productivity and efficiency for long periods during the life of consecutive clusters of technology. All these had some indirect consequences of local importance for the environment at the beginning of industrialization and of global importance from the middle of the 20th century and thereafter that is since the output of the industrial system has been arisen.

The developing states could create trends of development of economy in case they could achieve development themselves. So, we could have a kind of freedom so that the specific states would be able to utilize and exhaust the natural resources in a brief period. Obviously, this could lead to a situation in the framework of which there is a possibility of downgrading the environment by creating an economic development without paying the costs that are related to it. As a consequence, during the last decades there has been developed a trend of undertaking an effort with the aim to restrict this freedom of development and finally to protect the global environment. The developing countries were forced to apply a policy that would aim to a more sustainable development.

Finally, the differentiation of productivity among the developed states that are already under development, as well as the rational and effective management of the state and the privacy sector should be interpreted as the basic reason of the global allocation of the industrial product. Also, the intense differentiation should be interpreted as the results of energy administration, namely, the exploitation of natural resources and environmental elements and furthermore, the results of the environmental consequences among states and regions.

## **References**

- Adams W. M., Green Development, London Routledge.

- Barkin David, (2000), "Wealth, Poverty, and Sustainable Development", in Jonathan M. Haris, *Rethinking Sustainability, Power, Knowledge and Institutions*, publications University of Michigan.
- Bithas Konstantinos P., (2011), "Economic of the Environment and the Natural Resources", IAPAD, Panteio University, Athens, Μπίθας Κωνσταντίνος Π., (2011), «Οικονομική του περιβάλλοντος και των φυσικών πόρων», ΙΑΠΙΑΔ, Πάντειο Πανεπιστήμιο, Αθήνα.
- Connor David and Stephen Dovers, (2004), "Institutional Change for Sustainable Development", publications Edward Elgar Publishing Limited.
- Grainger Alan, (1997), "Assessing the environmental impacts of national development", in "Sustainable Development in a Developing World", edited by Colin Kinkpatrick and Norman Lee, publications Edward Elgar Publishing Limited, & Landsdown Place, Northampton, Massachusetts.
- Grubler Amuulf, (2003), "Technology and Global Change", Cambridge University Press International Institute for Applied Systems Analysis, Laxenburg Austria.
- IUCN, (1980).
- Kjielen Bo, (2008), "A New Diplomacy for Sustainable Development", Routledge Taylor 7 Francis Group, LLC.
- Lal D., (1989), "The limits of International Cooperation", The Wincoff Lecture, Institute for Economic Affairs, London.
- Landes David, (2008), "The unbound Prometheus Technological Change and Industrial Development in Western Europe from 1750 to the Present", Cambridge University Press Cambridge, Second Edition, fourth printing.
- Lucas R., (1993), "Making a miracle", *Econometrica*, 61.
- Lucas R., (1998), "On the mechanics of economic development", *Journal of Monetary Economics*, 22.
- Mayer Jorg, "Introduction, in "Development Policies in Natural Recourse Economies", by Jorg Mayer, Brian Chambers and Avisha, publications Edward Elgar Publishing Limited Glesanda House.
- Mondiot C., (2006), "Heat: How to stop the Planet Burning", Harmondsworth, Penguin.
- Pearce David W., (1998), "Optional Prices for Sustainable Development" in "Economics, Growth and Sustainable Environment", David Collard, David W. Pearce and David Uiph, eds. London, McMillan, Press.
- Pearce David W., et. al., (1989), "Blueprint for a Green Economy", London: Earthscan Publications.
- Pearce D. W., (edited), (1991), "Blueprint 2, Greening the World Economy", London Earthscan.
- Piketty Thomas, (2014) "Capital in the Twenty – First Century", The Belknap Press of Harvard University, Press.
- Potier Michel, (1997), "Environmental assessment of trade liberalization: an OECD perspective", in "Sustainable Development in Developing World: Integrating Socio-economic Appraisal and Environmental Assessment, edited by Collin Kinkpatrick and Norman Lee, publications Edward Elgar Publishing Limited, & Landsdown Place, Northampton Massachusetts.
- Repetto Robert C., (1986), "World Enough and Tome: Successful Strategies for Resource Management", New Haven, Ct: Yale University, Press.
- Rogers Peter P., et.al., (2008), "An Introduction to Sustainable Development", publications Elen Educational Foundation, Inc., Earthscan.
- Rogers Peter, et. al., (1997), "Measuring Environmental Quality in Asia", Cambridge, MA: Harvard University Press.



- Romer R., (1986), "Increasing returns and long-run growth", Journal of Political Economy, 94.
- Romer R., (1990), "Endogenous technological change", Journal of Political Economy, 98.
- Taylor P. J., (1989), "Political Geography", Harlow: Lohgman.
- Tietenberg T. H., (1994), "Economics and Environmental Policy", Aldershot, UK: Eduard Elgar.
- Tsotsoros St. - St. Lidorikis, (2014), "Technological Change and Economic Development: The Transition to postindustrial epoch and the failure of the Transformation of Greek Economy (1974-2008)", Volume 1, publications PAPAZISIS, (Στ. Τσοτσορός-Στ. Λιδωρίκης, (2014), "Τεχνολογική Αλλαγή και Οικονομική Ανάπτυξη: Η Μετάβαση στη Μεταβιομηχανική Εποχή και η Αποτυχία Μετασχηματισμού της Ελληνικής Οικονομίας (1974-2008)", Τόμος Α΄, εκδόσεις ΠΑΠΑΖΗΣΗ.
- WCED, (1987).