

# **The future of Economic Growth rate in the modern economy: Impact of the global warming, resources and Energy constraints**

Mrs Mejdoubi Mouna, Mrs Mejdoubi Myriam, Prof. Hassan El Aissaoui, Prof. Houda Lechheb

*Laboratory: economy, management and organizations development Ibn Tofail University, Kenitra, Morocco*

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## **Abstract / keywords:**

*The future of Economic Growth rate in today's modern economy aims to redefine the vision of economic growth in today's world modern economy especially after the rise of the global warming that has a direct effect over the growth rate of the economies around the world. During the last decades, the world experienced many incidents (gulf war, Arab spring, financial crisis, etc....) that had a direct impact over the worldwide economic growth. The global economic growth have known a continual increase during the last years, however, this growth cannot be infinite. Economichistorians were considering the growth of the economic growth of nations mainly routed to the country's history and structural conditions. The growth of the economy was mainly influenced by institutions and policies and historians were considering the economic growth as continuous and constant. However, with the emergence of global warming, resources constraints and energy, theoreticians became septic about the future of growth of the economy during the coming years. How can the growth rate be affected by climate change? What are the main effect of global warming and resources and energy constraints? What is the future of growth rate in the coming years? And are there any other alternatives that could replace the growth rate in the world's modern economy?*

**Keywords:** *Economic growth, inflation, global economy, economy, History, global warming, resources constraints, energy*

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## **I. Introduction:**

The modern world is changing completely, it is fast moving away from the period of religious dogmas. The production of goods per inhabitant took off and growth is accelerating under the impetus of industrial revolutions. This acceleration owes a great deal to trust in the individual as well as scientific progress. The innovations were largely the result of private and local initiatives. For their part, the European nations have heard of taking their destiny in hand to build a better future. And yet most economists of the years saw no future for growth, out of indifference or out of skepticism.

Since 1945, economists have placed growth at the heart of their research. And governments have made it a subject of major concern. Expanding into emerging economies, growth is taking place on a crowded global stage where nations are jostling for their place in the sun. Three fears are circulating at present: the insidious degradation undergone by the environment threaten food production, the hunger for raw materials on a world level exhausts the mineral deposits and the limits to the absorption of emissions by the environment cause irreversible damage and reduce economic performance. We start in practice from the fact that we must conserve vital resources, recycle for example metals and find substitutes for fossil fuels. A green economy in which cost-effective instruments correct market failures must allow for environmentally friendly growth which also leaves enough room for future generations. Sustainable development and environmental protection have become essential themes in all political, economic and social debates in recent years. The reference definition was given in the report "Our common future", published by the United Nations Commission for the Environment in 1987. It is a "development which meets the needs of the present without compromising the capacity future generations of respond to theirs." Three components, closely linked, were thus identified: environment preservation, economic growth and social equity."The economy of tomorrow will be inclusive, green and sustainable (...) The crisis is an opportunity to accelerate the necessary transition to this economy.» (G20, 2009).

This new growth model holds great potential in terms of jobs and contribution to gross domestic product GDP. In its 2010 report, UNEP estimates that more than 25 million jobs by 2050 will be created by the green economy, at an investment of 2% of global GDP, (UNEP, 2010). Other reports confirm this, and estimate that at

least half of the global workforce will be affected by the transition to a more environmentally friendly economy (ILO, UNEP (2012)).

## **II. The concept of Growth rate:**

The term economic growth has been studied by many theoreticians during the last decades. Many theoreticians like Montesquieu, Max and Weber associate the economic growth of a country with the history of the country and its structural conditions. Some of them associate the economic growths to the capital accumulation (Neoclassical growth theory, Robert M. Solow, 1999) while others like slow swan model consider the growth based on the correlation between supply of labor and state of technological knowledge (Robert M. Solow, 1999). According to the Malthusian theories, the researchers believe that progress in technology causes population growth rather than economic growth. ( Loschky, 2011)

The economic growth rate actually refers to the annual rate of increase in every country's GDP. The economic growth is crucial to study because it mainly determines the material well-being of the population. Growth rate can be considered as the best way to achieve massive poverty reduction in many countries (Deaton and Dreze, 2002). However, many researcher associate between growth and societal inequality, the economic growth causes inequalities at the national level as the GDP per Capita is growing more rapidly in developed countries than in less developed countries.

### **2.1 Neoclassical growth theory:**

The neoclassical growth theory believes that when the factors of production are substitutable, the coefficient of capital becomes a function of the capitalistic index. When the savings rate is constant, the guaranteed growth rate is thus also a decreasing function of the capitalistic. (Ferguson, C. E., 2008). The flexibility of production techniques thus makes it possible to achieve the guaranteed growth rate and the natural growth rate. If the economy is too strong, the guaranteed growth rate that is, the capital growth rate is higher than the growth rate of labor and income per capita. This is obviously the opposite when the capital per capita is greater than the equilibrium value. (Ferguson, C. E., 2008).

As Solow points out, the previous adjustment is realized implicitly by changes in the distribution of income. When the income per capita is too low the marginal productivity of capital, for instance, the rate of profit, is higher than the rate of profit which would correspond to balanced growth. In other words, the real wage is too low and the production techniques insufficiently capitalistic. However, increasing income per capita will increase labor productivity and real wages, and decrease the marginal productivity of capital (rate of profit) until the economy reaches the balanced growth path. The wage flexibility allows throughout the adjustment to maintain full employment. If the real wage were rigid, the rate of growth of the economy (guaranteed rate) would be higher than the growth rate of the labor force, and there would be an increasing shortage of workers. This shortage would lead to a rise in the real wage and would also lead to the balanced growth path. (Robert M. Solow, 1999).

### **2.2 Keynesian theory:**

In the previous model, investment equals savings and the goods markets are always balanced. Other models of imbalance simultaneously take into account imbalances in the goods and labor market and the role of capital accumulation in resolving these imbalances. In the models developed notably by Picard (1982), Autume (1982&1988), Muet and Sterdyniak (1988), the investment function, inspired by the work of Malinvaud (1979), depends both on the profitability and the imbalance between production and production capacity. Investment depends on growth and the imbalance between actual output and production.

At a given moment, the nature of the imbalances depends on the per capita self demand and capital stock per capita. When the autonomous demand and the capacity of production (thus the capital) are superior to the production of full employment, the economy is in inflation contained (or over-employment). When the capital stock is too small, the productive capacity is less than both full-employment demand and output and the economy is in conventional unemployment. When the autonomous demand is too weak, the demand limits the production and there is at the same time unemployment and excess of production capacity (Palley, 2010).

In the Keynesian unemployment situation, if production capacity is in surplus, investment is growing more slowly than demand, and capital stock per capita is decreasing. It is the same in the situation of contained inflation where the capacity of production is superior to the production of full-employment. In the situation of conventional unemployment, if the production capacity is insufficient, the investment and the stock of capital increase. In any case, the economy tends towards the frontier of conventional unemployment and over-employment if the autonomous demand is greater than the autonomous demand for equilibrium or towards the frontier of classical and Keynesian unemployment if the autonomous request is too weak. (Palley, 2010).

There are, however, two situations of classic unemployment. "Pure" classical unemployment where investment depends on the imbalance between full employment and productive capacity, and "mixed" unemploy-

ment where investment depends on the imbalance between demand and production capacity. In the first case, a stimulation of demand has no effect on production, either in the short term or in the long term. In the second case, a policy of stimulating demand increases investment and future production capacity, which increases production in later periods.(Palley, 2010).

### **2.3 The Malthusian theory**

The Malthusian theory of economic growth is based on two different components. The first one is the positive effect that standard of living has over the growth rate of the population and the second one is the negative effect of the existence of fixed resources over the size of the population to the standard of living. (N.Weil&Wilde, 2009). The combination of the two components leads to the generation of number of predictions especially that the population growth will be stable around a certain level due to the absence of technological change and the stagnation of the stock of resources; this will also lead to a constant growth of population but not a higher standard of living. The Malthusian theory had a long period of success worldwide until the beginning of the industrial revolution. (N.Weil&Wilde, 2009).

In order to study the Malthusian theory, the first step is to differentiate the different ways that affects economic growth. The channels that work through the growth rate and demographic structure of the population can be considered as non-Malthusian (growth population effect on worker per Capita, age structure effect). The Malthusian term can be used for channels like size of the population and the congestion of fixed resources. The Malthusian theory believe that the high level of population in a country will lead to lower the country's income relative to other countries and the increase of the demographics around the world will lead to a congestion of productive resources and environment. The Malthusian effect sweats better to the poor countries for many different reasons. First of all, the population of poor countries is gradually and continually increasing. The population of the African continent is expected to multiply by 9.8 from 1950 to 2050 and the one of India is expected to grow by 5.5 between 1920 and 2020. The European continent, however, has known a growing population of 2.2 between 1800 and 1900. The higher increase of the population will lead to disequilibrium between population and resources. The theory says that the manner how resources enter the production function has a direct impact on the resource dilution and income per capita.(N.Weil&Wilde, 2009).

### **III. History of the growth rate in developed countries:**

In the true sense, the history of economic growth is very short and corresponds to a particular period of time. As the concept is not trans historic but linked to "modernity" and the economic systems that will be born with, it is to study how this notion becomes central not only in the current economy but in our society. In this regard, the evolution of the meaning of "economic crisis" in history is interesting because it refers precisely to the break in normal economic functioning.

At a minimum, economic growth can be defined as a continuous increase in production for a whole population or per capita. The quantitative aspect first appears and refers to dimension indicators intended to apprehend the phenomenon: generally GDP or GNP; often per capita. Moreover, every indicator is open to criticism and this one is more and more criticized. A priori, two major levels of criticism release: a technical level, that is to say a suitable estimate of what one seeks to grasp; a conceptual level, that is to say the outlines of what one seeks to grasp. Here, the second aspect interests us more even if the construction of the indicator, and therefore the technical choices that are made or even the difficulties encountered, are not indifferent. Then, the definition highlights the ideas of continuity, duration "Endless", not exceptional in appearance. Finally, the creation of a particular wealth, the production (implicitly goods and services) for a set (often a country), sometimes expressed on average (by inhabitant), evokes the notion of productivity. This last aspect has a lot of implicit relatively not only to production concerned but also to its general purpose and its role in the economic and social system.

In short, a series of questions arose only in terms of the nature of economic growth, but also as to its legitimation / justification and its role. The European continent has known, until the end of the eighteenth century a remarkable level of production growth and major changes. For Karl Polanyi(1780), one of the essential changes occurred in the relationship between the economy and society that have led to a new type of organization and opened up to the industrial revolution and capitalism. In the late nineteenth and early twentieth century, violent crises shake the economic system and with industrialization and capitalism, their manifestation changed by a gradual transition from so-called "old" crises to "mixed" and then "modern" crises.

The change of the phenomenon covered by the word crisis reveals their nature as agricultural and industrial as well as their origin both external and internal. The explicit involvement of the state in the economy makes the relevant global approach and national accounts necessary. If the setting up of the CN is, more or less fast, according to the countries, it generalizes after the Second World War. The economic work of the second half of the twentieth century completes the landscape by proposing both the reference in economic growth and a new body of theories devoted to economic growth. The Steps to Economic Growth, Written in 1960 by W. W.

Rostow offers a perspective on British growth as the model to follow. All human societies would potentially be engaged in an identical process of economic transformation that goes through a series of specific stages. As not all are progressing at the same pace, they are more or less advanced on this path of growth. On the other hand, the importance of the theories of growth shows the place it has taken in our societies. Following the Keynesian theories or investment theory, the neoclassical school (Robert Solow ...) brings its contribution to investment by diminishing returns and technical progress, then the school of regulation (by R. Boyer ...) proposes its own productivity gains, accumulation regime and income distribution. Finally, the theories of endogenous growth, in their diversity (Romer P., Aghion P., R. Barro ...), give an important place to the public authorities in the impulse and the diffusion of the technical progress necessary for the growth .

#### **IV. Economic growth and change at the heart of capitalism:**

The dynamics of capitalism thus refer very directly to economic growth, which can be extensive increase of natural resources, human resources, techniques used or, by incorporating technical progress, intensive increase of productive efficiency or productivity of resources.

As by definition, it assumes to produce more and more, the more essential material needs are satisfied, the more the change accelerates; with a transition from wear to obsolescence. Consequently, in order to counter the saturation in goods of solvent consumers, the system needs to move to the artificial and permanent creation of new "needs" that can be satisfied by consumption. Thus, by the manipulation of minds (Veblen, Galbraith, 1958), advertising tries to make believe that goods can meet the desires that they can compensate for the frustrations generated by the system itself. Economic growth, with its corollary, the increase in Western standard of living, has become the "norm" of the "thirty glorious": it goes without saying, and to a certain extent "reconciles" with the idea of progress. However, the material accumulation does not solve the existential question of the sense and today, the misdeeds on the environment become obvious to the point that it becomes impossible to ignore them.

##### **4.1 Impact of the growth rate in the world economy:**

The economic growth refers to the increase in the production of goods and services over a specific period of time. The economic growth helps the economy of a country to develop and the business to grow and create more profit. Thus creating more job openings and increasing capital for business to grow. The creation of jobs helps the income of consumers to increase and thus consumers' willingness to buy additional products and services. The best measure of economic growth of a country is the gross domestic product (GDP). The GDP takes into account all the country's inputs goods and services produced in the country for sale. (B. Tucker,2015)

The most accurate way to calculate the growth of a country is the real GDP, removing the impact of the inflation over the economy of the country. Most banks calculate the growth rate by the gross national income instead of the GDP; gross national income takes into account the cash inflows emerging from citizens working overseas. The income sent from citizens working overseas represent a crucial source of income for many emerging markets countries. (B. Tucker,2015)

During these three last years, the global economic Growth has fallen to its lowest level but is supposed to stabilize in the short term. However, the growth remains fragile and exposed to significant risks. International investments and trades have known a significant decrease during these last years and major advanced economies and emerging and developing economies posted a more modest activity than expected. The Fragile Growth rate is principally related to the increase in trade disputes among the World's largest economic powers, emerging financial crises in emerging and developing economies, or a more brutal slowdown than expected in several major economies.

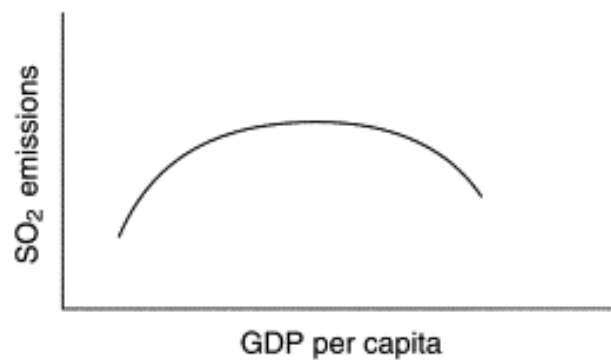
The growth rate can be impacted by the disturbances in the ecological equilibrium, due to the overexploitation of natural resources: greenhouse gas emissions (fossil fuels), over-pumping (water), over-cultivation (arable land), overgrazing (plant resources)), overfishing (halieutic resources).(IMF, 2019)

##### **4.2 The effect of climate change on growth rate in today's economy:**

Recently, a new economic literature has developed: the climate economic literature. The researcher became more skeptics about the evolution of climate change and its impact on the economy in general. The new climate economy literature was popularized by an article written by Melissa Dell, Benjamin F. Jones and Benjamin A. Olken published in 2014 in the Journal of Economic Literature. The authors reviewed the empirical work that examines the relationship between temperature, precipitation or extreme events (storms, etc.) and economic variables.

During The 90s, the first research aiming to explain the relationship between economic growth and the quality of the environment began to rise. The objective or the main purpose of those research works was to test the hypothesis of the Kuznets environmental curve or an inverted U-shaped curve between economic growth and quality indicators (CO<sub>2</sub>, SO<sub>2</sub>, Deforestation, volatile particles, etc.). Instead of describing the economic

growth as a threat to the environment and to call for its cessation, the hypothesis presupposes certain compatibility between the protection of the environment and the future economic growth.



Source: (Ginevicius, Romualdas & Lapinskiene, Giedre & Peleckis, Kestutis, 2016).

For a long time, economists were not considering geographical elements as a significant determinant of growth (except possibly in specific cases). Empirical studies have shown that there is no doubt that climate shocks would indeed be an impediment to growth. This is at least the case for tropical countries whose recorded temperature differences would lead to high volatility of agricultural income or tourism. The climate has been suspected for centuries to be negatively correlated with income. However, it was not until 2014 that economists had a real reference article on the issue and identified empirical evidence of climate shocks to growth. (Ginevicius, Romualdas & Lapinskiene, Giedre & Peleckis, Kestutis, 2016).

The first economic studies conducted by Jeffrey D. Sachs in the early 2000s, already showed high temperature effects on income per Capita, agricultural productivity and health. From a global sample, Dell, Jones and Olken indicate that an additional Celsius degree would lead to an 8.5% less growth.

According to Nordhaus's work in 2006, 20% of GDP differences between African countries and the richest regions of the planet can be explained by geographical variables including temperature and precipitation via their effects on soil quality and agricultural productivity. Recently, a study by Marco Letta and Richard Tol insisted on this point: it underlines that climate change will further increase the inequalities between rich and southern countries, the latter being more vulnerable (large share of agricultural sector impacted by climate change, restricted access to energy, etc.).

## **V. The future of growth rate and alternatives:**

What will be the color of the future growth rate? Green with low carbon intensity? White adapted to aging societies? Or blue like the economy centered on the innovative company advocated by Gunter Pauli? What will be the generic technology: digital, nanotechnology, biotechnology? Those are the most common question that arise from most economist about the future of growth rate that have led to commissions, reports, seminars to reflect on new modes of growth. Along with the impact of the economic crisis of 2009 combined with changes in the economic structures of emerging countries and environmental and societal constraints that force us to rethink production and consumption models. This period of change is both a source of hope because we see a multiplication of meetings to overcome challenges that are at once economic, societal, political and environmental, but also anxious because it is a transition period which can be long with a high cost for the generation that are facing this shift towards a new growth model. (Cornilleau, 2006)

Should we fear that the technological cycle will run out of steam when traditional industries? The risks of weakening economic growth are mentioned by various authors. Robert J. Gordon for example, in a recent article, recalls that productivity in the United States was supported by information technologies in the 1990s and then by cost reduction policies by companies in the 2000s. Seen the spread of new products (iPod, 3D television), but which do not have an impact comparable to innovations like the Internet on productivity. For Robert J. Gordon, the United States will face a slowdown in the growth of labor productivity, which will drop from just over 2% over the period 1996 to 2007 to 1.7% in the coming years. This slowdown, combined with a labor force that will increase more slowly, should lead to a slowdown in American economic growth. (Cornilleau, 2006)

In this context, structural policies which aim to encourage the emergence of new growth models are both essential to overcome the new constraints and with uncertain effects since they are geared towards long-term growth.(Cornilleau, 2006)

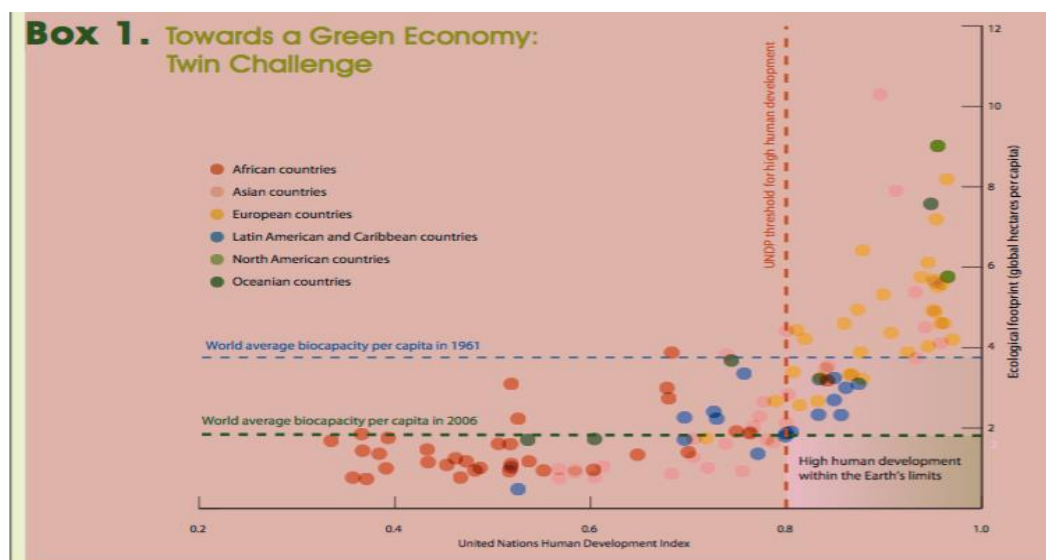
### 5.1 The green economies:

Defined by the United Nations as "an ecological way of doing business", the green economy intends to reconcile growth and nature. The Green Economy is golden. It has been part of practically all the major international reports and UN forums since 2008. With the main highlight to date, the Earth Summit "Rio + 20", held in 2012 in Brazil. It is the new ecological engine for economic growth to be maintained or revived. It is also the new trendy appellation of the already old "sustainable development", prescribed two decades earlier, in 1992 also in Rio. Or rather the means, this time, of achieving it, because the commitments then made by the international community were only very partially fulfilled. No "sustainable development" without "green economy". The green economy covers a range of activities which concern the management of scarce resources, renewable energies, climate change, risk prevention, waste management. The move towards "greening" economies means that free goods that have so far been considered inexhaustible have a price. There is therefore the appearance of additional costs for agents which can induce a slowdown in growth, but also a change in the structure of relative prices which can encourage the development of new markets and new sectors. A first question arises: how to identify the costs to be taken into account? "If there is space for green growth, it may be first because the measurement of growth by GDP is tainted with an original bias: cost accounting, it tends to value any expenditure whatever the utility associated with it, while the damage caused by productive activity is little or not taken into account. Seen from this angle, green growth would have some similarities with a reconstruction effort. (Cornilleau, 2006)

The European Commission in a prospective study identifies major trends: by 2025, world production will have practically doubled compared to 2005, the world population will have increased by 20% to reach 8 billion, the European population will begin to decrease around 2012, cities in developing countries will account for 95% of urban expansion (1.5 billion inhabitants in the slums), Asia will be at the head for the localization of the research of the private firms (in 2025, China could become the second world economic power), the world demand for energy will increase by 50% compared to 2005 (data from the International Energy Agency). In 2025, 3 billion people are at risk of running out of water. These trends lead to tensions at the same time on food, access to water, raw materials, and energy. For the Commission, Europe must, in a multi polar world, accelerate its transition to a new "socio ecological" model: "Environmental requirements and dependence on raw materials will pull towards a new way of producing, consuming, living, moving, etc. It will have to strengthen its efforts to become the undisputed leader at the global level of this "socio ecological" transition.(Cornilleau, 2006)

### 5.2 How far are we from green economy?

Over the last century, the world has experienced a huge increase in its economy; the world economy has multiplied by 4 for the benefits of hundreds of people around the world. However, the increase in the economy was accompanied by a decrease in major ecosystem. The downgrade in ecosystem is mainly due to the fact that economic growth is accomplished daily by drawing down natural resources around the world without leaving the place for the natural stock to regenerate and thus resulting in a degradation and loss of ecosystem. For instance, the supply of water around the world is supposedly supposed to satisfy only 60% of the world demand in the coming 20 years, soil quality have known a great downgrade due to the use of fertilizers. The scarcity of the ecosystem is seriously affecting the economic sector.



Source: *The Ecological Wealth of Nations: Earth's Biocapacity as a New Framework for International Cooperation*. Global Footprint Network (2010), p. 13; Human Development Index data from Human Development Report 2009 – *Overcoming Barriers: Human Mobility and Development*. UNDP (2009).

The level of development and human capital of countries are relevant factors that will affect the level of the country's transition to green economies. The following graph demonstrates the different opportunities for countries to move toward green.

The graph shows that many countries have known high level of human development at the expense of their natural resources base and the quality of the environment with the emission of high GHG. The actual challenge for those countries is to reduce the ecological footprint per capita without having an impact of the quality of life of their citizens. Other countries, mainly the underdeveloped ones, still maintain low ecological footprint per capita. The challenge of those counties is to try to deliver to their citizens improved level of services and material without any impact over the ecological footprint. All the nations around the world will have to face one of those two challenges that is why all the countries around the world are far from being green economies.

### **VI. The new growth rate based on green economy:**

A macroeconomic model of the transition to green economy has been elaborated with three major key findings; first the green economy will generate an increase in wealth, a gain in natural capital and an increase in the GDP. Second, the green economy will help to eradicate poverty around the world. Lastly, the green economy will help to create new job openings.

#### **6.1 The green economy and wealth increase:**

The biodiversity of the planet composed of ecosystems, species and natural resources helps by contributing to provide valuable resources to the human beings. These ecosystems are considered as natural capital and can be estimated by economic values. The following table states the public goods and services that have been economically invisible resulting to their loss.

**Table 1. Natural Capital: Underlying Components and Illustrative Services and Values**

Biodiversity	Ecosystem goods and services (examples)	Economic values (examples)
Ecosystems (variety & extent/area)	<ul style="list-style-type: none"> <li>• Recreation</li> <li>• Water regulation</li> <li>• Carbon storage</li> </ul>	Avoiding GHG emissions by conserving forests: US\$ 3.7 trillion (NPV) <sup>23</sup>
Species (diversity & abundance)	<ul style="list-style-type: none"> <li>• Food, fibre, fuel</li> <li>• Design inspiration</li> <li>• Pollination</li> </ul>	Contribution of insect pollinators to agricultural output: ~US\$ 190 billion/year <sup>24</sup>
Genes (variability & population)	<ul style="list-style-type: none"> <li>• Medicinal discovery</li> <li>• Disease resistance</li> <li>• Adaptive capacity</li> </ul>	25-50% of the US\$ 640 billion pharmaceutical market is derived from genetic resources <sup>25</sup>

Source: Arib, 2014

The transition to green economy helps us to consider the value of natural capital that has been taken for granted during the last years, it also helps us to reconsider investments in this natural capital in order to maintain sustainable economic progress.

#### **Deforestation:**

Forests around the globe are considered to be one of the most immortal natural resource that help to support the human well being. Forests help to offer an irreplaceable environment service, they help the world to breath and harbor 80% of the species around the globe, it contributes in agriculture and in many biology driven sectors. However, the high rate of deforestation mainly due to the high demand for wood leads to huge losses in this ecosystem and economic opportunity. The green economy model anticipates an increase of 20% in forest industry if 0.03% of GDP between 2011 and 2050 is invested in conserving forests and reforestation. This can also lead to an increase in employment in this sector as well as carbon stored in forests.

#### **Green agriculture:**

The green agriculture main objective is to help the world to feed it population in the coming years due to the scarcity of resources. The main challenge of the green agriculture is to achieve the objective of feedings to world's population without damaging the ecosystem. Eco farming or green agriculture aims to lower the use of water and the use of organic soil nutrients and pest control. Investments in Green agriculture can help to increase the yield of farms while maintaining great quality of soil.

## **6.2 Green economy and poverty eradication and job creation:**

One of the main objectives of green economy is to eradicate poverty around the world. Green economy seeks to create new opportunities for development without eradicating the natural resources of the countries. Several comparative studies have shown that the concept of the green economy has much greater potential for sustainable growth and job creation than the conventional model (CES, 2012).

In addition to the environmental benefits, investing in the green economy is described in several reports (UNEP, ILO, OECD, UNDP ...), as a way to create millions of new jobs. A higher employment rate is one of the main engines of economic growth, making it possible to increase the purchasing power of consumers, so that they can not only live, but also support the economy.( Arib, 2014)

This article has shown the great opportunities that the green economy offers in terms of job creation, which is a source of hope for the authorities of all countries, especially in these times of crisis and uncertainty. This article concludes that for countries, at all stages of development, the movement towards environmental sustainability and greener economies is accelerating, and that tens of millions of green jobs have already been.( Arib, 2014)

This article also show that the global market for “green” products and services will explode by 2030 and the green economy will create tens of millions of new jobs, in both developed and developing countries. We focus particularly on the development of new technologies, renewable energies, cleaner production methods, and the development of more sustainable agriculture as indicators for growth in the world.( Arib, 2014)

According to the report (ILO, UNEP (2012)), "The conversion to an economy more respectful of the environment could generate 15 to 60 million additional jobs globally over the next 20 years and lift tens of millions of workers out of poverty, "and that job gains could be higher in emerging and developing countries than in industrialized countries. The report gives the example of China, Brazil or India which can more easily "make a leap towards green technologies rather than replace infrastructures which consume resources which have become obsolete ». (ILO, UNEP (2012))

The market for environment-related goods and services is expected to double, from the current 1.370 billion dollars a year to 2.740 billion in 2030. Half of these markets will reside in the energy and energy efficiency sector, and the rest will be split between sustainable development, water supply, sanitation and waste management, UNEP (2010).

The renewable energy sector has been the most analyzed internationally. Employment growth has been particularly strong in the renewable energy sector, increasing at an overall rate of 21 percent per year. The potential for job growth in this sector is huge. According to numerous reports, it generates more jobs than that of fossil fuels. Some 2.3 million people have already found jobs in the renewable energy sector in 2008, in the six leading countries in terms of green jobs (China, Denmark, Germany, India, Spain and the United States). These jobs are expected to increase by 20 million additional jobs, given the estimated 630 billion investments expected by 2030: 2.1 million in wind, 6.3 million in solar, but also 12 million in biomass power plants. ( Arib, 2014)

## **VII. Conclusion:**

To conclude, there is a risk that tensions will increase between economic interdependence reinforced by planetary environmental challenges and divergent economic approaches. After a period when world capitalism seemed to unify around a model marked by financial capitalism, we could witness in the next decades the coexistence and competition between several types of capitalism, part of the emerging countries as well as the oil countries promoting state capitalism. The takeover of natural resources by sovereign wealth funds could be an illustration of this competition. More than ever, a consensus on international economic and environmental governance is to be worked out to create the conditions for new development models which decouple growth and consumption of resources. The proposals are multiplying: creation of a World Environment Organization or an International Authority for Sustainable Development, idea of a Committee for future generations, of a world parliament, of a planetary security NATO. This reflection on international institutions comes up against the difficulty of deciding together the economic, financial, ecological and social aspects by integrating short and long term deadlines and by combining what a global agenda could be with taking into account priorities.

For future growth that respects the environment in the sense of a green economy, it will be increasingly necessary to replace natural resources with other capital, above all with knowledge. The primary task of the state is to correct market failures so that humans can use their creativity in this area early enough.

The green economy is no longer a simple concept, but a strategy recognized as relevant for the preservation of the environment and macro and micro-economic competitiveness.

The creation of jobs in general, and green in particular, depends on the degree of involvement of all actors, including public authorities and businesses. The green economy could not, in fact, be a growth lever for the territories, an engine of business competitiveness and job creation if it builds with all stakeholders, partnerships ensuring economic development, socially fairer and more respectful of the environment. At this level, eco-innovation has a fundamental role to play in improving the sustainability of the economy and maximizing its



potential contributions from an environmental, social and cultural point of view, in the transition to a green economy. This innovation must not only be technological, but also socioeconomic and organizational. It should allow a new funding model for environmental services to emerge to remedy the crisis of the current development model.

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