



Investing in Human Capital for Sustainable Development: Progress and Opportunities in light of Covid-19 Setback for the Maghreb Countries

Lilia TAALLAH
Lazhar CHINE

Scientific review of economic future

Décembre 2021 Vol 9 -n°01
Pages 260-281

E-ISSN 2676-2218
P-ISSN 2352-9660

Classe
B

Article disponible en ligne à l'adresse:

<https://www.asjp.cerist.dz/en/PresentationRevue/583>

Pour citer cet article :

TAALLAH L., & CHINE L., (2021), "Investing in Human Capital for Sustainable Development: Progress and Opportunities in light of Covid-19 Setback for the Maghreb Countries", *Revue scientifique Avenir économique*, Vol.9. n°01, p.260-281.

Investing in Human Capital for Sustainable Development: Progress and Opportunities in light of Covid-19 Setback for the Maghreb Countries

الاستثمار في رأس المال البشري من أجل التنمية المستدامة: التقدم في البلدان المغاربية Covid-19 والفرص في ظل انتكاسة

Lilia TAALLAH(*)

The High National School of Statistics and Applied Economics ENSSEA, Kolea, (ALGERIA)
liliataallah@gmail.com,

Received : 10/03/2021

Lazhar CHINE

Faculty of economics, commercial and management, BOUMERDES University, (ALGERIA)
drchine@gmail.com,

Accepted : 03/07/2021

Abstract : This paper aims to show the relationship between investment in human capital matters and sustainable development as well as links sustainability issues with those of knowledge. The study presents the progress of Maghreb countries in this regard and points also the most important opportunities for sustainability that have accompanied the setback for the Covid-19 pandemic regarding investment in human capital. In terms of results, the Maghreb countries are still far from achieving sustainable development and face many challenges due to the disappointing human development process and due to the weakness of the knowledge base which is a vital path to achieve sustainable development. The Covid-19 pandemic, despite the material and human losses it has left behind, has granted opportunities for the developing countries to prioritize human capital and improving it in order to keep pace with the knowledge, technological and digital development occurring in the world which greatly contributes to achieving the sustainable development goals properly.

Key words: Human capital, knowledge, sustainable development, Covid-19, Maghreb countries;

JEL classification: I0, J24, O15, Q01;

الملخص إن منطقة المغرب العربي معنية، مثلها مثل جميع الدول، بتحقيق التنمية المستدامة. تهدف هذه الورقة إلى إظهار العلاقة بين الاستثمار في قضايا التنمية البشرية من رعاية صحية وتعليم وتدريب وغيرها بالتنمية المستدامة. وكذلك ربط قضايا الاستدامة بقضايا المعرفة. تعرض الدراسة الأداء والتقدم الذي أحرزته دول المغرب العربي في هذا الصدد وتشير أيضاً إلى أهم فرص الاستدامة التي صاحبت انتكاسة جائحة كوفيد-19 فيما يتعلق بالاستثمار في رأس المال البشري. أظهرت النتائج أن دول المغرب العربي لا تزال بعيدة عن تحقيق التنمية المستدامة وتواجه العديد من التحديات بسبب عملية التنمية البشرية المخيبة للأمل، بالرغم من الإصلاحات المتخذة وكذلك بسبب ضعف قاعدة المعرفة التي تعتبر عنصراً حاسماً في تحقيق التنمية المستدامة. جائحة كوفيد-19 على الرغم من الخسائر المادية والبشرية التي خلفتها، إلا أنها وفرت فرصاً لإعطاء

(*) *corresponding authors*

الأولوية للتنمية البشرية وتحسينها لمواكبة التطور المعرفي والتكنولوجي والرقمي الذي يحدث في العالم، وهو الطريق حيوي لتحقيق الاستدامة.

الكلمات المفتاحية: رأس المال البشري، المعرفة، التنمية المستدامة، كوفيد-19، دول المغرب.

INTRODUCTION

Sustainable development represents an essential challenge for both developing and developed countries alike in the twenty-first century. In the countries of the Maghreb, achieving sustainable development remains a source of concern because, despite the significant improvement in some domains, the region still faces structural impediments and barriers in many areas that are often common to 22 Arab countries, and that hinder the path towards achieving sustainable development.

In light of the current changes happening in the universe and the openness of the world to the phenomenon of globalization and the adoption of a knowledge economy based on knowledge and innovation, the interest in the human element has increased because it is the core of these changes and the main pillar at all levels, thus it is either constructive or destructive in its society and its environment.

Therefore, investment in human capital through health care, education, training and empowerment, etc. has become the most important long-term investment that supports sustainability in development and progress and the continuity for the future generations, as well as in line with the Sustainable Development Goals (SDGs) of the United Nations Development Program (UNDP) within the 2030 Agenda.

Problem statement:

In this context, the following research question is addressed:

What is the reality of investing in human capital to promote sustainable development in the Maghreb countries?

To answer this problem, it can be divided into the following sub-questions:

- 1) How can investing in Human Capital contribute to achieving SD?
- 2) Have Maghreb countries made significant progress in this regard?
- 3) What are the opportunities that appeared in light of Covid-19 setback?

Objectives of the study:

This study aims to:

- Highlight the role of investing in human capital in order to achieve sustainable development.
- Link sustainability issues to knowledge issues.
- Evaluate the performance and the progress made by the Maghreb countries with regard to human capital development and knowledge issues.
- Point out the positive side of the Covid-19 setback through enhancing the opportunities of achieving sustainability.

In this endeavour, we will look, in the first section, at the conceptual framework for sustainable development, human capital, and the theoretical relationship between them. The second section will examine the performance of the Maghreb countries in relation to the subject, using relevant macroeconomic aggregates and statistical indicators. While the third section will present the most important opportunities of achieving sustainability that have accompanied the setback for the Covid-19 pandemic.

1. Sustainable development and human capital: concepts and issues

1.1 Sustainable Development (SD)

Despite the increase in economic growth rates witnessed by most countries around the world in recent decades, this improvement was accompanied by the emergence of many negative aspects such as an increase in poverty and unemployment rates, hunger, diseases, inequality, depletion of resources and irrational use, environmental pollution, and widening of technological gap, etc.... In this light, a new concept of development has emerged, called "Sustainable Development (SD)". The concept supports the balance and integration between the economic, social and environmental dimensions of development to ensure continuity for future generations in various fields.

The definition of the term "Sustainable Development" has evolved over time where many interpretations have appeared and has become a buzzword and until the present time it has no official approved definition, but the most cited definition is the one proposed by the World Commission on Environment and Development in 1987 appeared and discussed for the first time in the Brundtland Commission Report: "Sustainable development is a form of development that meets the needs of present generations without compromising the ability of future generations to meet their own needs". (Renko, 2018, p. 33)

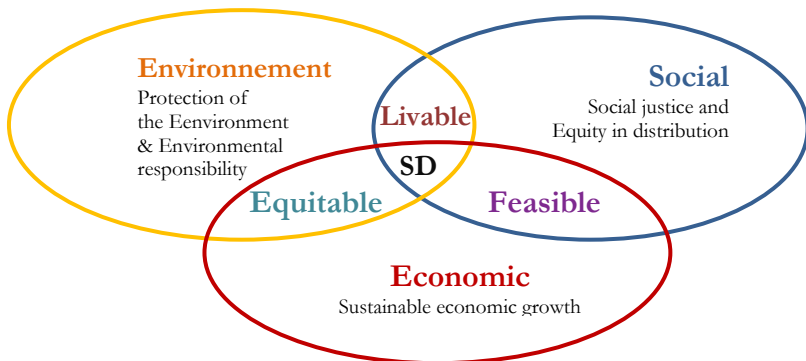
Sustainable development has also been defined as “a set of objectives that seek to satisfy basic needs focusing on the long term instead of the short term, on future generations instead of only current generations, on several fields rather than one field, and on the entire planet Earth rather than specific countries and regions”. (Semouk, 2019, p. 928)

In other sense, Sustainable development is the principle of achieving humankind goals while preserving at the same time the ability of the ecosystem to provide natural resources and services upon which the economy and society depend; and the desired result is to reach a state in which the needs of stakeholders are met, presently and in the future, without damaging the integrity and stability of the ecosystem in order to ensure the continuity of natural resources production”.

Through the definitions and interpretations of SD, we observe that it is mainly related by three challenges for its implementation: protection of the environment, economic development and social justice, in addition to their mutual relationships between them. These challenges represent the three fundamental dimensions of the concept or three pillars of sustainability.

The following figure shows that the three dimensions are complementary and equally important, and its overlapping realizes sustainability at all levels:

Figure 1: SD dimensions



Source: (Hu, 2018)

Each dimension of them consists of a set of elements:

Table 1: SD dimensions Elements

Ecological dimension	Economic dimension	Social dimension
- Ecosystems	- Sustainable economic growth	- Social justice (equal opportunity)
- Natural landscape	- Flexibility and stability	- Maintenance of human capital : Health and education
- Fresh air and water	- Capital efficiency and competitiveness	- Safety and social protection
- Biodiversity	- Economic justice (satisfying basic needs)	- Popular participation and social mobility
- Biological productivity	- Employment	- Cultural diversity
- Energy and natural resources	- International trade	- Institutional quality development

Source: (Muschett, 1996) (Semouk, 2019, p. 929)

In this matter, given the significant progress made by many countries of the world with regard to the MDGs 2000-2015, the United Nations set up another development program in 2015 that adopts a set of goals that seek to achieve Sustainable Development for all member states by 2030 Agenda, namely:

- (1) No poverty: end poverty in all its forms everywhere.
- (2) Zero hunger: end hunger, achieve food security, improved nutrition and promote sustainable agriculture.
- (3) Good health and well-being: ensure healthy life and promote well-being for all at all ages.
- (4) Quality education: ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- (5) Gender equality: achieve gender equality and empower all women and girls.
- (6) Clean water and sanitation: ensure availability and sustainable management of water and sanitation.
- (7) Affordable and clean energy: ensure access to affordable, reliable, sustainable and modern energy for all.

- (8) Decent work and economic growth: promote, sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
- (9) Industry, innovation and infrastructure: build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
- (10) Reduce inequalities: reduce inequality within and among countries.
- (11) Sustainable cities and communities: make cities and human settlement inclusive, safe, resilient and sustainable.
- (12) Responsible consumption and production: ensure sustainable consumption and production patterns.
- (13) Climate action: take urgent action to combat climate change and its impacts.
- (14) Life below water: conserve and sustainably use the oceans, seas and marine resources for sustainable development.
- (15) Life on land: protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
- (16) Peace, justice and strong institutions: promote peaceful and inclusive societies for SD, provide access to justice for all and built effective, accountable, and inclusive institutions at all levels.
- (17) Partnerships for the goals: strengthen the means of implementation and revitalize the global partnership for SD.

The Sustainable Development Goals (SDGs) are a plan to create a better and more sustainable future for all and a universal call to work to end poverty and inequality, protect the planet, establishing equity, and ensure that all people enjoy peace and prosperity by 2030. The 17 goals are integrated since development must balance social, economic and environmental sustainability, and because the action in one area will affect outcomes in others (UNDP, 2020).

1.2 Human Capital (HC)

Starting in 1960s and 1970s, the conception of capital has been expanded to include “human capital” after it was restricted only to “physical capital” and the concept has been first discussed by Gary Stanley Becker (1962, 1975) and Schultz (1961).

OECD (2001) defines human capital in a broader way as human capital encompasses “the knowledge, the skills, competencies, and

attributes embodied in individuals that facilitate the creation of personal, social and economic well-being". (OECD, 2001, p. 18)

Stiglitz et al. (2014) added that "human capital constitutes a stock of technical knowledge, skills and experiences accumulated by people, result from permanent investment in the process of education and training and have the effect of making employees more productive".

Theories of economic growth (exogenous and endogenous growth theories) asserted that growth cannot be generally attributed only to material inputs but also to the productivity of factors embodied in the accumulation of skills and knowledge in employees. Solow, Romer, Barrow and Lucas have all indicated that the accumulation of human capital allows to enhancing productivity, facilitating technological progress and thus maintaining the sustainability of economic growth.

In this regard, a Human Development Index (HDI) was created in 1990 by the United Nations Development Program (UNDP) which is based on three dimensions: a long and healthy life (life expectancy), knowledge (level of educational attainment) and a decent standard of living (GNI). The purpose of the index is that development economics should be evaluated not only on economic growth but also improvements in human capabilities and its well-being by making human development policies among government priorities.

Besides the HDI, the World Bank Group has launched in 2018 a new Human Capital Index (HCI) project to estimate the productivity of the next generation of workers relative to the benchmark of complete education and full health and to supporting governments to build HC. The index measures the country's investment in its human capital and its care from its inception to its maturity through three components: (World Bank Group, 2018)

- Survival: is measured as the probability to survive for kids born today until the process of human capital accumulation through formal education can begin (to age 5).
- School: this component combines the quantity of education, through the expected years of schooling until to the age of 18, and the quality of education (meaning how many years they will complete and how much will they learn in school).
- Health: the World Bank group uses commonly two indicators to this component for a country's overall health environment: (1) healthy growth of children under age 5 and during school years; and (2) the adult survival rate (15year old to age 60).

The HDI and HCI simplify and capture only part of what human development requires (health and education), they are not reflected on

inequalities, poverty, human security, gender disparity, empowerment, well being, etc. So, other indices were been adopted by the human development report office (HDRO) as a broader proxy for some of the key human development issues.

1.3 The role of investment in Human Capital to achieve Sustainable development

The human element is the main axis in all areas of life due to being the focus of concerns and at the same time for being the first and last actor and responsible (after God Almighty) for everything that has happened, is happening, and will happen in this universe. Thus, it can be an effective and constructive factor if we pay attention to it and improve it, just as it can be a disincentive and destructive factor if it is marginalized and left aside.

Therefore, more inclusive societies can be built through human capital development. This requires investing in people by providing nutrition, healthcare, quality education and training, empowerment, improving the standard of living and developing their knowledge, capabilities, skills and talents in a way that make them more flexible and enables them to improve their performance and increase their productivity. So, human capital became the most important long-term investment that any country can make for its people's future, prosperity, and quality of life, especially in light of rapid technological change and globalization that increased interconnections and knowledge flow among nations.

UNDP pays great attention precisely to the human resource and calls to take care of it and to improve it and seeks to develop it through the 2030 Agenda of SDGs considering that it is an essential pillar to achieve it.

The care and the interest in human resources and their appropriate education are reflected in a large way through the nature of the individual's interaction, performance, and behavior towards his society and environment, which may contribute significantly to promoting sustainable development. Hence, the importance of investing in human capital can be summarized in the following points:

- Increasing the understanding and knowledge of individuals through proper upbringing and quality education that constitute an educated, conscious, and vigilant generation;

- Improving physical and health capabilities, skills, and individual experiences, and thus making a qualified workforce that increases productivity and improves standard living;
- Build and develop intellectual capital* by focusing on bright, smart, and successful people;
- Increasing organizational and leadership competencies and capabilities through training and empowerment, which improves institutional quality and competitiveness;
- Creating more knowledge, ideas and information that are transferable across generations, and hence ensuring knowledge sustainability;
- Increasing creativity and innovation, and thus creating new technologies that improve and develop the quality of life in its various aspects;
- The transition to a knowledge economy[†], which is one of the most important social and economic changes in the current and coming decades. (Djeflat, 2014, p. 2)

Accordingly, it is evident that investing in human capital ensures sustainable human development that creates sustainable knowledge allowing the generation of creativity and technological innovation that improves infrastructure, life facilities, institutional quality, as well as the living standard and leads in particular to the transition to a knowledge economy which is a vital path towards surpassing the barriers that can hinder the sustainable development in any country in general.

(Mezher, Noamani, & Abdul-Malak, 2011), (Al-Roubaie, 2013), (Djeflat, 2014) and many other researchers recognized that harnessing knowledge is one of the main engines for achieving SD, and it should be noted that we can link sustainability issues to knowledge issues only through investing in human capital that can provide sustainability in generating knowledge.

2. Human capital and development in Maghreb countries

Since investing in human resources opens great horizons in achieving a high level of development, many greatest countries that have

* Intellectual capital is a special category of human capital characterized by knowledge and efficiency in management and organization, and the ability to create and innovate without others and contributes to value creation and competitive advantage.

† Knowledge economy is an economy where knowledge is acquired, created, disseminated and used effectively to enhance economic development (Derek & Carl J., 2006, p. 4).

advanced today have rushed to invest in their human capital and manage it in a way that guarantees progress and continuity in light of the rapid changes and knowledge development occurring in the world. On the contrary, the Arab world in general and the Maghreb countries in particular, focus their attention more on physical capital rather than human capital.

Maghreb countries, like all Arab countries in general, characterized by weak economic performance and slow development; poor production efficiency and misuse of economic and human resources; weak Arab integration and especially among Maghreb countries because of dependency abroad; lower institutional quality; as well as technological and scientific backwardness due to weak openness to the world and limited and restricted foreign direct investment (FDI) that allow technology transfer, feeble absorptive capacities of foreign technologies, lack of appreciation of the value and the feasibility of scientific research, and little spending on research and development (R&D), etc.

In addition to all this, there is also the rent phenomenon that characterizes most Arab countries, and in the Maghreb region, both Libya and Algeria are fully oil-dependent economies.

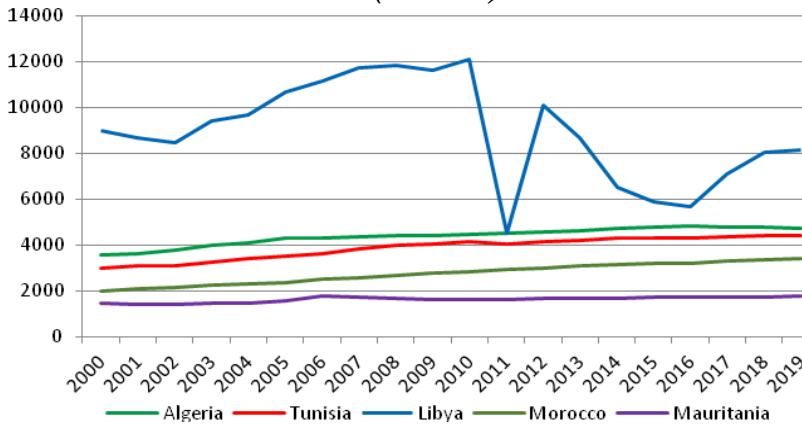
In this section, we assess the statistical indicators related to investment in human capital and harnessing knowledge for sustainable development in the Maghreb.

2.1 Poverty, per capita GDP and per capita GNI

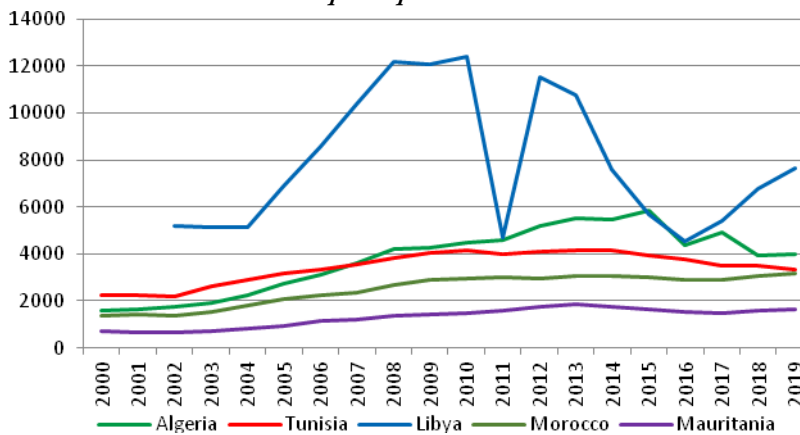
According to the UNDP, the countries of the Maghreb were able to eradicate extreme poverty and its rates decreased throughout the region during the Millennium Development period (2000-2015), yet large segments of the population are at risk of falling again into poverty and high unemployment rates, especially among the youth, which constitutes a continuous challenge for the Maghreb region. In addition, poverty and unemployment rates in the Maghreb are unevenly distributed across age, gender, and geography, thus creating inequality that has been identified by the new World Bank report as a major obstacle to the global goal of ending global poverty by 2030. (The World Bank, 2016)

The following figure presents per capita GDP and per capita GNI which are internationally recognized measures that reflect, respectively, the level of prosperity, and the standard of living and quality of life of a population in a country.

Figure 2: Real per capita GDP and GNI (US\$) in Maghreb countries (2000-2019)



Real per capita GDP



Real per capita GNI

Source: (World Bank, 2020)

We note that Libya holds the first rank in both per capita GDP and per capita GNI but marked by huge fluctuations along the period 2000-2019 because of the political instability situation that lives.

Concerning the per capita GDP, Algeria, Tunisia, Morocco and Mauritania recorded a successive increase during the 20 years at 32.4%, 46.7%, 71.9% and 19%, respectively. As for the per capita GNI, it also witnessed a significant improvement over the 20 years, where Algeria, Morocco and Mauritania registered high growth rates of 149.7%, 129.5%

and 127.4%, respectively, while Tunisia achieved a per capita GNI growth rate of 48%.

Although the favourable improvements regarding the two indicators over the past two decades in most of the Maghreb countries, the per capita GDP is still characterized by weak and slow growth and it is still far from keeping pace with the developed countries, especially for Libya and Algeria economies which are driven by non-renewable resources and depend heavily on oil and gas rent, making them fragile economies and limiting their ability to support long-term development. Also the per capita GNI is still poor because the Maghreb countries were classified according to the World Bank's Atlas method 2019 in the lower-middle-income economies, except for Libya which falls into the group of upper-middle-income economies.*

2.2 Human capital indicators

The HCI and HDI have been adopted directly instead of education and health indicators separately given that they are included within the dimensions of the two indicators.

Table 2 below displays the estimates of the World Bank HCI for the Maghreb countries† and some of the European countries.

Table 2: HCI- Maghreb countries and some European countries

		Algeria	Tunisia	Morocco	Mauritania
Maghreb countries	HCI-2018	0.52	0.51	0.50	0.35
	HCI-2020	0.53	0.52	0.50	0.38
		Germany	France	Italy	Spain
European countries	HCI-2018	0.79	0.76	0.77	0.74
	HCI-2020	0.75	0.76	0.73	0.73

Source: (World Bank Group, 2018, p. 32); (World Bank Group, 2020, p. 27)

Data in Table 2 reveals that Maghreb countries invested in their human capital in terms of complete education and full health in 2020 at

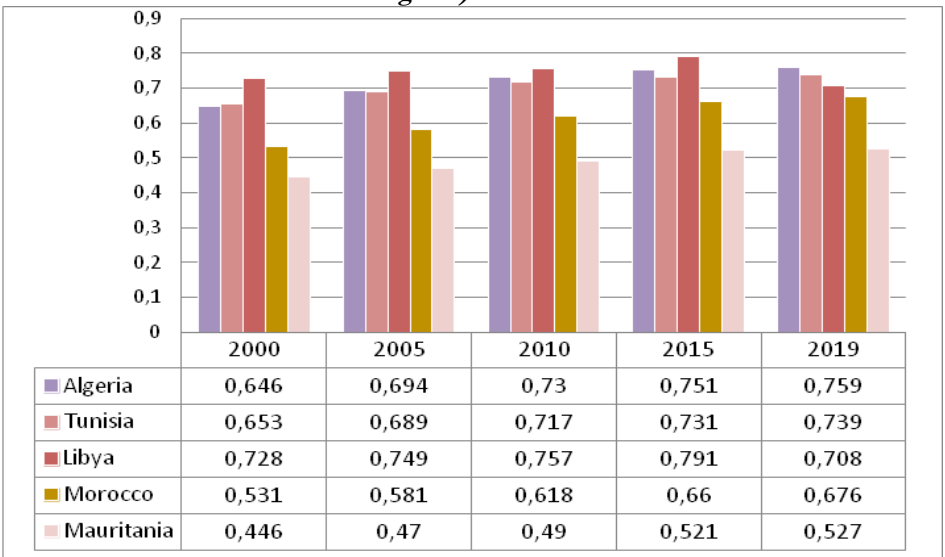
* For the current 2021 fiscal year, low-income economies are defined as those with a GNI per capita, calculated using the World Bank Atlas method, of \$1,035 or less in 2019; lower-middle-income economies: GNI per capita between \$1,036 and \$4,045; upper-middle-income economies: GNI per capita between \$4,046 and \$12,535; high-income economies: GNI per capita of \$12,536 or more.

† Libya is not included in the new World Bank's Human Capital Project.

only about 50% (except for Mauritania) in contrast to European countries that invested extensively in their human capital by about 74 to 80 percent. This indicates that the Maghreb countries have not invested and exploited their human potential in the required and sufficient way to achieve progress and catch up with the developed countries and this is often due to the weak and ineffective education and health services systems in these countries.

Figure 3 shows the progress achieved by Maghreb countries by HDI during the period 2000-2019.

Figure 3: HDI- Maghreb countries during 2000-2020 (Scale 0 = lowest & 10=highest)



Source: (UNDP, 2019)

During the MDGs period 2000-2015, Libya was at the front of the Maghreb countries in terms of the HDI, moving from 0.72 to 0.79, an increase of only 9.7%, and then falling to 0.71 in the first years of the SDGs 2030 Agenda ranking 110th in the world in 2019. Regarding the rest of the Maghreb countries, the HDI continues to rise along 2000-2019 with an increase of 17.5% in Algeria ranking 82nd globally and 1st in the Maghreb; 13.2% in Tunisia ranking 91st globally and 3rd Maghreb rank; 27.3% in Morocco ranking 121st in the world and 4th in the Maghreb; and 18.2% in Mauritania with a global rank of 161st and last in the Maghreb.* Algeria, Tunisia and Libya belong to the countries with a

* Rankings are based on the year 2019.

high HDI, while Morocco remains with the group of countries with medium HDI in spite of the appreciable improvements realized, as for Mauritania, it belongs to the countries with a low HDI.

Unfortunately, the HDI does not take into account the inequality among the country's population, unlike the Inequality-Adjusted Human Development Index (IHDI)* which falls below the HDI when inequality rises.

Since Maghreb countries suffer from inequality, which is one of the United Nations 2030 SDGs (G10: Reducing inequalities); thus the IHDI reflects the reality of the feeble and ineffective human development strategy in the Maghreb and that human capital is still marginalized and neglected compared to the developed countries because despite the made efforts and strategies established to improving healthcare, providing good education and enhancing standard living, and also to reducing inequalities, however, there is a big gap between planning and implementation and human development has registered a small growth over a long period of 20 years and inequalities remain widespread broadly in the Arab world in general compared to the developed countries.

2.3 Knowledge indicators

In view of the crucial role that knowledge (as an output resulting from investment in human capital) plays in attaining SD, we present below the performance of the Maghreb countries regarding the following knowledge indicators:

- Knowledge Index (KI): is an economic indicator prepared by the World Bank Institute to measure a country's ability to generate, adopt and diffuse knowledge. The KI is the average of the normalized performance scores of a country in the three Knowledge pillars – education and human resources, the innovation system and information and communication technology (ICT) infrastructure. (Djeflat, 2014, p. 7)
- Knowledge Economy Index (KEI): is an aggregate index that represents the overall level of development of a country or region in the Knowledge Economy. The KEI is based on a simple average of four sub-indexes which represent the four pillars of the knowledge economy: Economic Incentive and Institutional

* The IHDI was not used in this study due to unavailable data for the majority of Maghreb countries.

Regime plus the three Knowledge pillars. (World Bank Institute, 2012)

- Global Knowledge Index (GKI)* that recognizes the multidimensional nature of knowledge systems and takes into account seven sectoral indices (pillars): Pre-University Education; Technical Vocational Education and Training (TVET); Higher Education; Research, Development and Innovation (RDI); Information and Communications Technology (ICT); Economy; and General Enabling Environment. The index also links development in its various dimensions with a multidimensional concept of knowledge in keeping with human development as well as SD and the 2030 Agenda for the SDGs.

Table 3 displays the performance of the Maghreb countries with regard to the KI and the KEI (unfortunately, the available statistics ceased in 2012), and Table 4 shows the level of GKI in the Maghreb countries and some European countries with their global ranking during the recent years (2017-2020).

Table 3: KI and KEI in Maghreb countries (Scale 0 = lowest & 10 = highest)

Maghreb Countries	2000		2012	
	KI	KEI	KI	KEI
Algeria	3.44	3.25	4.28	3.54
Morocco	3.33	4.04	3.25	3.76
Mauritania	1.89	1.66	1.52	1.68
Tunisia	4.24	4.24	4.80	4.97

Source: (World Bank Institute, 2012)

* The GKI has been produced through a partnership between the Mohammed Bin Rashid Al Maktoum Knowledge Foundation (MBRF) and UNDP in 2017. (UNDP & MBRF)

Table 4: GKI of Maghreb countries and some European countries (scale 0 = worst, 100 = best)

European/ Maghreb Countries	2017		2018		2019		2020	
	GKI	Global rank	GKI	Global rank	GKI	Global rank	GKI	Global rank
Algeria	39.6	96	39	104	37.1	104	37.5	103
Morocco	43	77	41	94	34.2	92	42.6	83
Tunisia	42.4	80	44	82	43.1	78	42.7	82
Mauritania	29.4	128	30	131	26.3	132	25.6	136
Germany	63.9	15	64	14	64.6	17	66.2	11
Italy	56.6	30	59	29	56.2	31	56.6	32
France	62.2	18	63	17	62.5	22	64	20
Spain	55.9	31	58	31	57.3	30	57.9	30

Source: (UNDP & MBRF, 2017-2020)

Looking at table 4, it is evident that Tunisia is the top country by KI and KEI score among the four Maghreb countries, and during the two years, then comes Algeria, Morocco, and Mauritania, but all countries score relatively low in the two indexes (below average and even very bad for Mauritania) which means that the performance of the entire Maghreb region in terms of knowledge and knowledge economy is very weak and unpleasant.

According to data in table 4 above, it can be seen that the performance of all Maghreb countries in terms of GKI is below average, and we notice that always Tunisia tops the Maghreb countries except for 2017 where Morocco was the first ranked country then decline during 2018 and 2019 and made progress in 2020 the year of Covid-19. As for Algeria, it takes third place in the Maghreb and it is in a continuous backed off with very little progress in 2020. While Mauritania, as usual, and unfortunately, took the third last rank in the world. These levels remain weak and inadequate In light of the current developments and compared to the European countries Germany, France, Italy, and Spain (which are developed countries) that recorded good levels in terms of the Global Knowledge Index during the past four years and occupied advanced positions in terms of the Global Knowledge Index. This indicates that the Maghreb region is characterized by a strong vulnerability and fragility towards the seven sectoral indices of the GKI.

Based on this, we conclude that the entire Maghreb region has a weak knowledge base that did not allow it to adopt a knowledge economy which is the main way to the sustainable development and this is due to the absence of an existing innovation system and the limited transfer and access to modern technology, which led to the emergence of a technological and scientific gap with developed countries.

3. Opportunities for enhancing human capital and achieve sustainable development in light of covid-19 setback for the Maghreb countries

The Covid-19 pandemic (an infectious Corona-virus that emerged in late 2019 for the first time in Wuhan, China, to spread throughout the world during the year 2020) has caused an economic crisis and according to the last Updated report of The Human Capital Index in Tile of COVID-19 by the (World Bank Group, 2020, p. 63), a baseline forecast for GDP in 2020 predicts a global drop of 5.2%, the worst recession in eight decades, which is likely to push 100 million people around the world into poverty due to high unemployment rates and reduced remittances and other consequences....

Besides to the economic losses, the Covid-19 epidemic has exposed the weaknesses of the health, education, and social protection systems in the Maghreb countries, similar to other Arab and developing countries. As the health systems of these countries were unable to face the situation in light of the outbreak of the pandemic due to the lack of efficiency of their human capital and deficiency and weakness of the necessary material, human and technological capabilities; as well as due to the measures imposed by the health situation to control and combat it (closures and quarantine), the implementation of other regular medical services was neglected and reduced, a situation that has led to dire consequences on the human capital and huge losses. In addition, due to closures and quarantine, most children and young people were unable to continue their courses in schools and universities due to the lack of distance learning and study capabilities, and also nearly 50% of the population lost their jobs which led to high unemployment rates that threaten to fall into the cycle of poverty again.

Hence, in light of all these and other repercussions that followed the COVID-19 pandemic, investment in human capital has become more necessary than ever in the Maghreb countries as it is the main leader in managing situations and combating crises. Despite the bad side of this pandemic, but we could see and explore that there are new

opportunities for development in the Arab world and the Maghreb countries in particular, and with regard to the issue of investment in human capital, this pandemic provides an opportunity to accelerate reforms that may not have been adopted so quickly in normal circumstances, whether in the education system and telemedicine, or in improving health structures and the sewage system, or in creating and using technology and adopting a knowledge economy, or raising cash transfers allocated to vulnerable people, and many other aspects.....

Accordingly, Maghreb countries as a developing region, can take the setback of the Covid-19 pandemic as an opportunity to re-prioritize and achieve independence in many areas and building a real sustainable development based on the need and the necessity for it and not only in response to the global call and facing global competitiveness towards achieving the United Nations SDGs. This is through:

- Rearranging priorities, giving greater value to developing and investing in human capital in a way that makes it more effective and beneficial for its society and environment.
- ICTs to keeping up with the digital transformation taking place in the contemporary world by adopting and spreading the distance education and training culture (e-learning) and digital Knowledge (especially in the quarantine period), which prevents widening of the digital divide and technological gap between the Maghreb and developed countries.
- Gain access to globally available knowledge, assimilating and adapting it in line with the special needs of the region.
- Reducing the knowledge gap and diminishing the risk of falling behind by creating an enabling environment for building a strong knowledge base and an effective innovation system, which allows the adoption of a knowledge economy capable of achieving sustainable development and facing the global crises.
- Promoting and supporting domestic R&D and giving value to academic scientific research that can be used to improve the development process in various domains.
- Fostering the Maghreb integration and strengthening of regional cooperation which empowering countries to meet their common challenges and face global crises and adopt more appropriate solutions through the exchange of experience between governments in terms of effective policies and strategies in all fields as well as human and intellectual capital flows, which helps the implementation of the 2030 Agenda.

In addition to all this, it should be noted also that the ecosystem has taken its chance from the pandemic setback of Covid-19, as global carbon dioxide emissions fell by a record 7% in 2020, the biggest drop ever according to the Global Carbon Project (GCB) 2020 report in its annual assessment on December 11th and this is mainly due to the closures of many international borders and confinement of residents in their homes (quarantine), which reduced transportation and changed energy consumption patterns..

CONCLUSION

This study has highlighted the role of investing in human capital to sustain development as well the performance made by Maghreb countries in this regard. Sustainable development is necessary for all countries alike given its great role in their progress and upgrading their economies while reducing the risk of environmental degradation and protecting natural resources and preserving the rights of the coming generation, and the human element is the principal pillar to achieve it. Investing in the human element improves its skills and capabilities and enables it to generate knowledge, innovation and new technologies that are the main engine and vital pathway to achieving high levels of progress and sustaining development. This illustrates the close relationship between knowledge and sustainability systems.

For the progress made by the Maghreb countries in this regard, we mention the most prominent results:

- The Maghreb countries have managed to eliminate extreme poverty and improve the standard of living of their population to some extent, but they still suffer from the problem of inequality, feeble production growth rates and low levels of per capita income as they were classified within the lower-middle-income economies except for Libya that belongs the upper-middle-income economies.
- The process of investing and developing in human capital in relation to health care and education has made varying progress in different Maghreb countries, but their level remains below the threshold for promoting sustainable development due to poor education systems and weak sanitation systems and health care services in the Maghreb countries, which denotes that human capital is still marginalized and neglected compared to developed countries and many challenges persist in terms of human development.
- The performance of the Maghreb countries in terms of knowledge indicators is extremely unpleasant, which indicates that the region as

a whole is still lacking adequate knowledge that was the major cause of the widening of the knowledge gap between them and developed countries and making them scientifically and technologically dependent on developed countries in various fields.

- It should also be noted that Mauritania is the last country in the Maghreb in the matter of all relevant indicators and has been classified as one of the least developed countries (LDCs).

Given the disappointing progress over the past twenty years (2000-2020), the countries of the Maghreb are still distant from achieving sustainable development goals by 2030 and face many challenges. They need a relatively high rate of growth of GDP and GNI to solve the many socio-economic problems. Therefore they must take serious and strict initiatives to enhance their human resources and build knowledge capacities that help the adoption of a knowledge economy in order to evolve their economic growth and to join the wheel of sustainable development and reduce Reliance on developed countries.

In addition, this study also mentioned the most relevant opportunities that the Maghreb countries can take in light of the setback of the Covid-19 pandemic. This latter is considered as an opportunity that has made it possible to understand the reasons that force these countries to invest in their human capital and to protect the progress achieved, albeit relative in this area. Besides, the Covid-19 pandemic provides the opportunity of strengthening Maghreb integration to face global crises and pushes the Maghreb countries to make human capital development a priority and consecrate more potential to take care and improve it in order to keep pace with the knowledge, technological and digital developments occurring in the world which greatly contributes to achieving the sustainable development goals properly.

REFERENCES:

- **Al-Roubaie, A.** (2013). BUILDING KNOWLEDGE CAPACITY FOR SUSTAINABLE DEVELOPMENT IN THE ARAB WORLD. *International Journal of Innovation and Knowledge Management in Middle East & North Africa* , 2 (1), 7-20.
- **Derek, H. C., & Carl J., D.** (2006). *The Knowledge Economy, The KAM Methodology And World Bank Operations*. Washington, USA: The International Bank for Reconstruction and Development/The World Bank.

- **Djeflat, A.** (2014). Harnessing knowledge for sustainable development: challenges and opportunities for Arab countries. Knowledge-Based Economic Policy Development in the Arab World .
- **Economic Commission for Africa (UNECA).** (2018). First Report on the Achievement of Sustainable Development Goals in the Maghreb. Tunisia.
- **Hu, Z.** (2018, septembre 30). Investing in the Bottom. Récupéré sur Medium.com: <https://medium.com/@zeyu007/investing-in-the-bottom-61b33aa4c70d>
- **Mezher, T., Noamani, D., & Abdul-Malak, A.** (2011). Analyzing Sustainability Knowledge in the Arab World. Sustainable Development , 402–416.
- **Muschett, F. D.** (1996). Principles of Sustainable Development. London, New York: CRS press.
- **OECD.** (2001). The well-being on nations. The role of Human and Social Capital. British Columbia, Canada: Centre for Educational Research and Innovation.
- **Renko, S.** (2018). The Concept of Sustainable Development. The Sustainable Marketing Concept in European SMEs , 29-52.
- **Semouk, N.** (2019). Malaysia's Leading Experience in Sustainable Development. Commercial Economic Sciences, Management and Sciences Review , 926-937.
- **The World Bank.** (2016, October 7). Poverty has Fallen in the Maghreb, but Inequality Persists. Récupéré sur [worldbank.org](https://www.worldbank.org/en/news/feature/2016/10/17/poverty-has-fallen-in-the-maghreb-but-inequality-persists): <https://www.worldbank.org/en/news/feature/2016/10/17/poverty-has-fallen-in-the-maghreb-but-inequality-persists>
- **UN_ESCWA.** (2020). Arab Sustainable Development Report. Beirut, Lebanon.: United Nations publication issued by ESCWA.
- **UNDP & MBRF.** (s.d.). Global Knowledge Index. Récupéré sur [knowledge4all.org](https://www.knowledge4all.org): <https://www.knowledge4all.org/Methodology2019.aspx>
- **UNDP & MBRF.** (2017-2020). Global Knowledge Index. United Nations Development Programme (UNDP) and the Mohammed Bin Rashid Al Maktoum Knowledge Foundation (MBRF). Dubai – United Arab Emirates: Ghurair Printing and Publishing.
- **UNDP.** (2019). Human Development Reports. Récupéré sur <http://hdr.undp.org/>.
- **UNDP.** (2020). UNDP-SUSTAINABLE DEVELOPMENT GOALS. Récupéré sur [undp.org](https://www.undp.org/):

[https://www.undp.org/content/undp/en/home/sustainable-development-](https://www.undp.org/content/undp/en/home/sustainable-development-goals.html#:~:text=The%20Sustainable%20Development%20Goal%20s%20(SDGs,peace%20and%20prosperity%20by%202030.)

[goals.html#:~:text=The%20Sustainable%20Development%20Goal%20s%20\(SDGs,peace%20and%20prosperity%20by%202030.](https://www.undp.org/content/undp/en/home/sustainable-development-goals.html#:~:text=The%20Sustainable%20Development%20Goal%20s%20(SDGs,peace%20and%20prosperity%20by%202030.)

- **World Bank Group.** (2018). *The Human Capital Project*. Washington: World Bank Publications.
- **World Bank Group.** (2020). *The Human Capital Index 2020 Update: Human Capital in Time of COVID-19*. Washington: World Bank Publications.
- **World Bank Institute.** (2012, 01 01). *Knowledge Economy Index, World Bank (discontinued)*. Récupéré sur <https://datacatalog.worldbank.org/>: <https://knoema.com/WBKEI2013/knowledge-economy-index-world-bank-discontinued#>
- **World Bank.** (2020). *World Development Indicators*. Récupéré sur <https://data.worldbank.org/>: <https://data.worldbank.org/indicator/NY.GNP.PCAP.CD?end=2019&locations=DZ-TN-LY-MA-MR&start=2000&view=chart>