

Contribution of the green economy to the creation of green jobs - with reference to the case of Algeria

Dehimi Djaber ¹ / Laboratory of Marketing, Economic Research and Studies
,Ferhat Abbas Setif 01 University, Setif, Algeria, djaber.dehimi@univ-setif.dz

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Abstract:

This study examines the green economy as an alternative development model to the traditional economy, emphasizing its role in promoting environmental, economic, and social sustainability and maintains sustainable production and consumption patterns, thus providing a model for renewable energy projects, sustainable building, sustainable transport, clean water, and sustainable and ecological agriculture.

As a result, we find that Algeria, like other countries, seeks to adopt a green economy path by adopting a green jobs strategy that, on the one hand, preserves natural resources and also helps create sustainable income, especially in fragile places.

Keywords: Green economy;Renewable energy;Green jobs;Algeria.

Jel Classification Codes : P28 ; Q56 .

Résumé:

Notre étude vise à mettre en évidence un nouveau modèle d'économie de développement alternatif à l'économie traditionnelle, l'économie verte, qui cherche la durabilité environnementale, économique et sociale et maintient des modes de production et de consommation durables, fournissant ainsi un modèle pour les projets d'énergie renouvelable, bâtiment durable, transport durable, eau potable et agriculture durable et écologique.

De ce fait, nous constatons que l'Algérie, comme d'autres pays, cherche à adopter une voie d'économie verte en adoptant une stratégie d'emplois verts qui, d'une part, préserve les ressources naturelles et contribue également à créer des revenus durables, notamment dans les endroits fragiles.

Mots clés: Economie verte ;énergie renouvelable ;emploi vert ;algerie.

Jel Classification Codes : P28 ; Q56 .

¹. Corresponding author: Djaber Dehimi, djaber.dehimi@univ-setif.dz

I. Introduction

Countries, governments, and business organizations are increasingly exploring alternative development models to replace the traditional economic paradigm, which, despite its efforts to achieve economic growth and prosperity, has had such a negative impact on the environment that countries are now exploring a new development paradigm that balances economic progress with natural resource conservation.

This model seeks to improve human well-being and reduce social disparities in the long term, as well as to mitigate the risks of ecological degradation and natural resource depletion for future generations. In recent years, the concept of sustainable development has shifted from an "environment-centred" approach, where the focus is on environmental considerations, to a model based on achieving economic and social development with environmentally friendly materials that preserve biodiversity and the ecosystem.

The philosophy of the green economy is based on a general context that does not conflict with the traditional grey economy, but rather seeks to replace polluting jobs and professions with green ones that contribute to the sustainability of natural resources and provide us with a model for clean environmental living in economic, social and environmental terms.

Research problem

Based on the previous discussion, the study raises the following question:

-How does engagement in the green economy contribute to the creation of green jobs?.

Research objectives

This study aims to achieve several objectives, notably :

- _Defining the green economy and highlighting its importance;
- _Highlight the various benefits and advantages enjoyed by countries involved in this field;
- _Attempt to link the orientation of institutions within the framework of the green economy and the creation of green jobs;
- _Presenting successful models of countries that have engaged in the green trend.

Research methodology :

In this study, the descriptive–analytical approach was adopted in order to present and analyze the various concepts of the green economy and green jobs, while reviewing the currently available data and information related to Algeria.

Literature Review :

Several previous studies have examined topics closely related to the present research. One important study is by **Stoyanova and Harizanova (2015)**, titled "*Perspectives of Development of Green Jobs.*" The study explains how green

jobs have emerged in Bulgaria through the creation of new professions. Using the SWOT model, it examines the conditions that affect the development of green jobs and compares Bulgaria's situation with that of EU countries. The authors find that most green jobs in Bulgaria are found in the construction sector, and they note that knowledge about how to expand green job creation remains limited.

Another relevant study is by **Chaban-Gracia and Hidalgo-Capitan (2023)**, titled "*Green Economy and Green Jobs: A Multisectoral Analysis by Means of Spain's Social Accounting Matrix.*" This study identifies both economic and social efficiency criteria—especially those related to green job creation—that could be strengthened through a national strategy for green economy development in Spain. Based on the 2010 Social Accounting Matrix, the study concludes that the food industry has the strongest potential to transition into a green sector, supported by sectors such as water, livestock, and fishing.

A third study, by **Gouri Assia (2024)** and titled "*The Contribution of the Green Economy to Creating Green Jobs in Algeria,*" emphasizes the importance of Algeria's move toward adopting a green economy strategy to promote green job creation and reduce poverty. It highlights the potential of several sectors, including the circular economy, renewable energy, and biodiversity protection. However, the study also notes that Algeria's efforts toward a green transition remain limited compared to national goals and available resources.

II. The conceptual framework of the green economy

The Rio+20 Conference identified the green economy as a key global priority, noting that current patterns of production and consumption linked to economic and demographic growth have led to the overexploitation of natural resources, accompanied by serious damage to the environment and the balance of natural systems. The threat to the climate, biodiversity and economic development has also contributed to growing academic (De la vega, natalia, & Cerimelo, 2024, p. 1) political interest in developing policies aimed at green transition and sustainable development.

II.1 Definition of the green economy

Despite its growing prominence, the concept of the green economy still lacks a universally accepted definition. It encompasses cleaner production, waste management chains, bioeconomy, industrial ecology (Dini & Focacci, 2025, pp. 265-266), and other concepts related to the environment. In this regard, several definitions have been concept of green economy.

- According to the Organisation for Economic Co-operation and Development (OECD), a green economy is one that promotes economic growth and development while ensuring that natural resources and environmental

services on which its prosperity depends are sustained. To achieve this, investment and innovation must be stimulated, supporting steady growth and creating new economic opportunities (Kechat & Hadjaz, 2019, p. 38)

▪ According to the United Nations Environment Programme (UNEP), which proposed a definition, a green economy is one that improves human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. At a more operational level, a green economy can be understood as an economy in which income and employment growth are driven by investments in the public and private sectors that enhance resource efficiency, reduce carbon emissions, waste and pollution, and prevent biodiversity loss and ecosystem degradation. These investments are also driven by growing market demand for green goods and services, technological innovations and, in many cases, by adjustments to fiscal and sectoral policies to ensure that prices adequately reflect environmental costs (UNEP, Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication - A Reference for Policymakers, 2011, p. 9)

▪ Chapple defines it as the economy of clean energy and improving the quality of the environment by reducing greenhouse gas emissions, reducing environmental impact and improving the use of natural resources. It consists of several economic sectors and is not limited to the ability to produce clean energy, but also includes technologies that allow for cleaner production processes, as well as the growing market for products that consume less energy. It may therefore include products, processes and services that reduce environmental impact or improve the use of natural resources (Thabti & Berkanou, 2014, p. 92).

▪ The International Labour Organisation defines a green economy as a low-carbon, resource-efficient and socially inclusive economy in which income and employment growth are driven by public and private sector investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, prevent the loss of biodiversity and ecosystem services, and generates green jobs that ultimately reduce the environmental impact of economic sector institutions to levels that achieve sustainability (Gamal el dine, Akram, & Hanafi, 2014, p. 432) .

▪ Karl Burkart defines it as an economy based on six key sectors: renewable energy, green construction, modern transportation, water management, heavy water recycling, and land management (Al-Feki, 2014, p. 5).

▪ Stoevska & Hunter emphasise that the green economy is not a substitute for sustainable development, but rather a means of achieving it. (Zornitsa & Harizanova, 2015, p. 37)

From the above definitions, we can conclude the following points:

- The green economy as a concept does not seek to compensate for or replace the concept of sustainable development, but rather aims to strengthen the foundations of sustainable development and reinforce its links.
- Building a green economy requires us to establish a partnership between the public and private sectors, as each sector has a role to play in contributing to this economy.
- The green economy aims to support a range of sectors such as renewable energy, green urban planning, water management, waste recovery and treatment, etc.
- Countries seeking to adopt a green economy aim to support the job market with green jobs, thereby contributing to reducing widespread unemployment, especially in developing countries.

II.2 Historical context of the emergence of the green economy

The green economy as a concept is not a recent development, but rather the result of a series of global conferences, reports and crises that have shaped global economic dynamics significantly. The following is a summary of the most important milestones in the development of the concept.

✓ First milestone

The concept of sustainable development gained greater prominence at the United Nations Conference on Environment and Development, held in 1992 in Rio de Janeiro, Brazil. At that conference, governments issued the Rio Declaration on Environment and Development and adopted Agenda 21, which included a programme of desired actions. In doing so, they affirmed that ***"States should cooperate in promoting a supportive and open international economic system that will lead to economic growth and sustainable development in all countries, in order to better address the problems of environmental degradation."***

Around the same time, two academic research publications introduced the concept of the green economy for the first time.

The first was Blueprint for a Green Economy, which highlighted the interdependence of the economy and the environment as a means of advancing the understanding and achievement of sustainable development.

The second was The Green Economy, which examined the relationship between the environment and the economy in a broader context and emphasised the importance of the relationship between humans and the natural world. Although these two publications first introduced the concept, the green economy did not attract international attention until nearly 20 years later (UNEP, Green economy, 2011, p. 3)

✓ **The second milestone**

In 2008, the world experienced an unprecedented financial crisis that weakened and threatened efforts to achieve development goals and sustainable development. In the wake of this crisis, many governments began to rethink traditional economic models and concepts of wealth and prosperity. A number of countries took the initiative to consider adopting integrated sets of tax incentives to address the financial crisis, and the United Nations Environment Programme (UNEP) played a useful role in refocusing attention on the green economy by promoting what has come to be known as the "***New Global Green Deal***" (Mesghouni, 2011, p. 185).

✓ **Third stage**

The global food crisis worsened in 2008 and 2009 due in part to rising prices for basic foodstuffs, caused by higher production costs, the rapid expansion of the biofuel sector, and accompanying increases in unemployment.

✓ **Fourth stage**

The acute climate crisis and the need for concerted international efforts to address the challenges of this complex global crisis at all levels. The concept of the green economy gained international recognition when the General Assembly organised the United Nations Conference on Sustainable Development in 2012, which focused on the green economy in the context of sustainable development and poverty eradication.

II.3 Importance and benefits of the green economy

The green economy seeks to reinforce the relationship between economic activity, environmental protection, and sustainable development, by adopting effective economic policies to preserve the environment and limit its degradation as a result of climate change, which now threatens health and life in general, due to the various natural disasters it causes, and seeking to help mitigate rising poverty levels in many countries by creating decent job opportunities, improving living standards, and using renewable energy sources that do not harm humans or the environment (jriou, 2012) .

Green growth is also considered a means of achieving economic growth and development. Numerous studies and reports have demonstrated the potential benefits of adopting a green economy, most recently the 2011 report by the United Nations Environment Programme, which focused on the environmental, economic and social benefits to be gained from adopting such an economy (gaham & chrakrak, 2016, p. 440)

The following is an overview of the most important benefits achieved through the adoption of a green economy: (Al-Feki, 2014, p. 17)

1- Providing guidance on policies that achieve the transition to a green economy, such as: reducing or eliminating corrupt or anti-environmental

subsidies, providing market-based incentives, establishing frameworks for green public regulations and legislation, and stimulating investment;

2- Addressing environmental challenges:

The concept of a green economy emerged primarily as a response to the environmental degradation caused by unsustainable production and consumption patterns over the past decades. Reducing the ecological footprint is therefore an integral part of the green economy initiative. The environmental benefits include reducing greenhouse gas emissions and improving resource efficiency by "greening" various economic sectors.

The mechanisms for transitioning to a green economy focus in particular on reducing CO₂ emissions, with improving energy efficiency and expanding renewable energies forming a key pillar of the transition to a green economy. Environmental objectives include: (gaham & chrakrak, 2016, p. 440)

- 1- Reducing waste and managing it better;
- 2- Improving water management;
- 3- Protecting biodiversity;
- 4- Halting the depletion of forests and fish stocks.

II.4 Requirements for the transition to a green economy

The transition to a green economy must be subject to a set of rules and requirements that countries must adhere to and adopt in their economic and development plans, which we summarise below (Radi, 2014, p. 56).

- Reviewing and redesigning government policies to stimulate changes in production, consumption and investment patterns;
- Focusing on rural development with the aim of reducing rural poverty while increasing resources;
- Focusing on the water sector, regulating and rationalising its use, and preventing its pollution;
- Working on sustainable investments in energy and measures to increase energy efficiency, supporting the mass transport sector;
- Developing low-carbon strategies for industrial development and using more efficient production technologies in factories;
- Adopting land classification systems and mixed-use development and adopting environmental standards in construction;
- Addressing the issue of municipal solid waste and investing in useful and environmentally friendly solutions;

III. The concept of green jobs

Every day, the job market offers new types of jobs, including green jobs, The latter are considered solutions to global environmental problems, encouraging the creation of a generation of innovators and workers who are aware of pollution issues and capable of devising practical and implementable

solutions that meet the needs of the labour market by integrating environmental benefits with traditional work concerns, such as: wages, occupational safety, social protection, health and workers' rights, and defining policies aimed at promoting this type of job.

III. 1 Definition of green jobs

The term "white-collar" jobs are office-based occupations that do not involve manual labor, such as administration, personnel affairs, and sales, with a monthly salary. The term "blue-collar" jobs refers to those jobs that require wearing a special blue work uniform and involve daily professional work such as construction, maintenance, mechanics and manufacturing, with a daily or hourly wage. "Pink collar" jobs are those that women did in safe places during the Industrial Revolution and World War I (Ashi & Matlef, 2011, p. 3).

According to the Green Jobs Initiative issued by the International Labour Organisation, green jobs are defined as decent work that mitigates the impact of companies and economic sectors on the environment and reduces it to sustainable levels, or work that includes jobs that preserve the environment (De la vega, natalia, & Cerimelo, 2024, p. 3).

III. 2 The historical development of green jobs

Green jobs have gone through a series of stages, which we will mention here (Berkanou & Thabti, 2016, p. 42)

The term "**green collars**" first appeared in 1976 during a hearing in the United States Congress, when Professor Patrick Heffernan presented a paper entitled "**Jobs for the Environment.**"

— In 1990, it became clear that measures to protect the environment could create new jobs and shift workers from older, harmful industries to cleaner production.

— In 1999, Alan Durning coined the term "green-collar jobs" in a study of employment changes in the north-western United States. Since then, the concept has been expanded by researchers such as Raquel Pinderhughes and community organisations such as the Apollo Alliance to cover other types of work and develop a social dimension.

— The green jobs model first gained popularity in 2007 when Hilda Solis and John Tierney presented green jobs to the US Congress. They proposed this work to amend the Workforce Investment Act of 1998, to make approximately \$125 million available for the creation of an energy efficiency and renewable energy training programme for workers. Also in 2007, the United Nations Environment Programme, the International Trade Union Confederation, the International Organisation of Employers, and the International Labour Organisation launched a joint initiative on green jobs with the aim of

strengthening the links between environmental sustainability, employment conditions and labour markets.

III. 3 List of green jobs:

Green jobs are found in many sectors, such as energy efficiency, sustainable agriculture, eco-tourism, water treatment and management, and clean energy. Below are some of the most common environmental jobs and some of the jobs that have seen the fastest growth recently:

- **Green building designers:** Design buildings (which can be homes, offices, schools, hospitals or any other type of building) that reduce or eliminate negative impacts in their design, construction or operation, and can create positive effects on the environment.
- **Renewable energy engineer:** Green jobs are affecting the labour market by replacing some jobs, such as the shift from fossil fuels to renewable energies (Sulich & Sołoducho-Pelc, 2022, p. 14234)
- **Water quality specialist:** Ensures that minimum water quality standards are met and that these standards guarantee human safety and minimise environmental damage.
- **Wind energy technician:** Wind technicians install, inspect, maintain, operate, and repair wind turbines;
- **Recycling worker:** Green economy and circular economy concepts aim to transform current economic models towards more sustainable goals; (Telukdarie, Katsumbe, & Mahure, 2024, p. 2)
- **Photovoltaic solar panel installation specialist:** assembling and installing solar panels on roofs, the ground, etc.;
- **Agricultural specialist:** specialising in agricultural productivity, studying plants, animals and farming techniques in order to improve the productivity and sustainability of farms and agricultural industries;
- **Climate change specialist:** research and provide data on the structure and dynamics of the climate system;
- **Conservation officer:** Developing and ensuring the protection of the environment and natural resources by educating communities and encouraging participation and awareness;
- **Ecologist:** Surveying ecosystems as a whole and assessing the diversity and abundance, and behaviour of different organisms within the ecosystem;
- **Electric Vehicle Engineer:** Design and develop electric vehicle technology, evaluating it in terms of efficiency and cost;
- **Environmental engineer:** Examining and mitigating the effects of human activities on the environment by reducing pollution and protecting the land, air, and water;

- **Environmental scientist:** Uses knowledge of natural sciences to protect the environment and human health by examining the environment and developing policies and plans to prevent and reduce pollution and limit the harmful effects of human activity;

- **Environmental Health Officer:** Measures risks and develops oversight, implementing legislation governing the public health of the built and natural environment;

- **Forestry Officer:** Cultivates, grows, harvests, and preserves forests for timber production and sustainable forest management.

In addition to urban farming jobs, energy auditor, building performance analyst, weatherproofing specialist, heating, ventilation and air conditioning technician, and eco-tourism.

III. 4 The impact of the green economy on green jobs:

Research on green jobs has shown that different economic sectors and old and new industries are likely to undergo unique transformations towards greener markets and processes. The Green Jobs Report identified the impact of the green economy on jobs as follows (Berkanou & Thabti, 2016, p. 32).

- _ **Creation of additional jobs:** as in the manufacture of pollution control devices in addition to existing production equipment;

- _ **Replacing some employment opportunities:** as in the case of switching from fossil fuels to renewable energy sources, or using landfills and waste incineration for recycling;

- _ **Job losses:** Some jobs may disappear without immediate replacement, such as those related to banned packaging materials, which will no longer be produced;

- _ **Many existing jobs,** particularly plumbers, electricians, metalworkers and construction workers, will simply be transformed and redefined in terms of daily skill sets and working methods.

In a green economy, the development of green jobs becomes the basis for sustainable economic development. Green jobs are therefore central to sustainable development and respond to the global challenges of environmental protection, economic development and social integration.

Studies therefore indicate that environmental legislation must be accompanied by investment in human capital and innovation in order to create green jobs that will replace traditional jobs (Garcia & Capitan, 2023, p. 383)

III.4.1 The role of renewable energy in creating green jobs

Employment in the alternative energy sector is growing at a very rapid pace, and compared to fossil fuel power plants, renewable energy generates more green jobs. According to the "**Green Jobs**" report prepared in collaboration with the International Labour Organisation and the International Trade Union

Confederation, around 300,000 workers are employed in wind energy and more than 100,000 in solar photovoltaic systems around the world.

In China, the United States and Europe, more than 600,000 people work in solar thermal energy, and around 1.2 million workers are employed in biomass projects in four leading countries: Brazil, the United States, Germany and China. The total number of people currently employed in renewable energy is around 2.3 million in countries with data on this subject.

The rapid expansion of employment in the renewable energy sector is driven by growing investments that exceeded \$100 billion in 2007, according to a report by the Renewable Energy Policy Network (R21). Companies are seeking government incentives and financial support to install solar energy systems or to obtain carbon credits by investing in emissions reductions in developing countries through booming carbon markets.

In Germany, a leader in wind and solar energy technology, direct and indirect employment in renewable energy was estimated at 260,000 workers in 2006, and could reach 500,000 in 2020 and 700,000 in 2030. In the United States, approximately 464,000 direct and indirect jobs are employed. A recent report by the American Solar Energy Society stated that a quarter of workers could be employed in the renewable energy and energy efficiency industries by 2030. These industries currently provide around 8.5 million jobs with revenues of \$1 trillion, and this could rise to 40 million jobs with revenues of \$4.5 trillion. Estimates for China indicate that there are one million jobs in renewable energy, approximately two-thirds of which are in the solar thermal industry. Brazil's sugarcane ethanol industry employs about one million people, and its biofuel programme is expected to generate an additional 400,000 jobs (<https://portal.arid.my/Publications>).

III. 4.2 Construction of energy-efficient buildings

In its 2007 report, the Intergovernmental Panel on Climate Change stated that the construction sector could reduce greenhouse gases more than any other sector, by 29% in 2020. Energy-saving measures include green buildings and improving the efficiency of individual building components, including: water heaters, cooking equipment, household appliances, office equipment and electronics, as well as ventilation and heating systems.

A recent analysis of the energy-efficient building renovation project in Germany concluded that 140,000 jobs were either preserved or newly created in the construction sector to retrofit nearly 200,000 homes. According to the US Green Building Council, there are currently more than 40,000 certified professionals with ***the Leadership in Energy and Environmental Design (LEED) organisation*** who have been trained in the design, construction, operation and maintenance of green buildings. Since the 1970s, energy service companies have

provided financing for energy-efficient projects worth \$20 million worldwide. The European Commission has estimated that a 20% reduction in energy consumption in the European Union could create around one million jobs, many of them in the construction sector. The US Department of Energy expects that setting standards for washing machines, water heaters and fluorescent lamps will create 120,000 jobs by 2020 (<https://portal.arid.my/Publications>).

III.4.3 Use of sustainable transport

Leadership in the fuel economy and production of cleaner cars has become a prerequisite for the survival of the automotive industry, and companies lagging behind in this regard are losing customers as fuel prices rise. A global assessment shows that the number of jobs in the "relatively green" automotive industry is around a quarter of a million, and using more lenient definitions, the figure rises to around 80,000 jobs, based on data from Europe, Korea and the United States, which account for more than 4 million jobs in the automotive industry, or half of the global total.

Buses, trams and trains consume much less energy per kilometre to transport passengers and goods, and the jobs needed to manufacture and operate them are, in principle, green jobs, but improvements are needed, particularly with regard to air pollutant emissions. Old diesel buses are considered polluting vehicles with a bad reputation. There are many green job opportunities in retrofitting them to reduce pollutant emissions and in manufacturing modern buses that run on alternative fuels such as compressed natural gas or hybrid buses that run on fuel and electricity. China, India, Pakistan and other countries have invested heavily in compressed natural gas, and the introduction of 6,100 buses operating in New Delhi, India, is expected to create 18,000 new jobs.

III.4.4 Sustainable and green agriculture

Green employment is considered secure and profitable in the above sectors. However, in agriculture, the green jobs scenario requires political intervention to overcome a series of obstacles resulting from the threat to small farmers' incomes, the high consumption of energy and chemicals used in intensive farming, and the expansion of certain crops.

A study conducted by the Food and Agriculture Organisation (FAO) confirms that organic farming requires additional labour compared to conventional systems. A large-scale study of 1144 organic farms in Britain and Ireland showed that these farms employed 135% more full-time workers than conventional farms. Organic farmland accounts for 4.3% of the total farmland in Britain and 1% in Ireland. If 20% of agricultural land in both countries became organic, this would be accompanied by an increase of 73,200 jobs in Britain and 9,200 jobs in Ireland.

The green economy therefore seeks to raise awareness of the value of natural capital, which is the foundation of the economy. It also seeks to improve the efficient use of natural resources, significantly reduce environmental risks, and create jobs and new sources of income, thereby improving human well-being (Africa E. C., 2015, p. 1) The following table illustrates this.

Table (01): Number of green jobs created in selected countries

Country	(%) Green Fund to GDP	Targeted spending (Billion \$)	Number of green jobs created in each country
Australia	0.87	2.5	Focus on the construction, transportation, and energy sectors, and approve programs to create green jobs, through a \$94 million program to create 50,000 green jobs. Providing a 26-week training program to help participants find green jobs.
China	5.24	218	Priority is given to sectors related to railway infrastructure and electricity grid, energy efficiency in buildings and vehicles, wastewater treatment and forestry. 4 million jobs were created, reaching 10 million in 2020.
Japan	0.74	12.3	Initiatives include energy-saving technologies, railway construction, and research and development, including carbon dioxide, to create about one million jobs. It reached 1.4 million job opportunities thanks to the growing demand for green goods and services, which reached 468 billion US dollars.
South Korea	6.99	37	Approval of the Green Deal plan to create 960,000 jobs, with priority investment in renewable energy of \$5.5 billion, \$7.1 billion in forests, and \$690 million in water, bringing jobs from 610,000 in 2008 to 810,000 in 2013.
Singapore	-	0.7	Providing special support for environmental sustainability in the field of environmental technologies, water and industries used within the framework of clean energy, generating 19,000 jobs.
Thailand	-	-	Target a 20% share of alternative energy by 2022, create jobs in the biofuel sector, and build co-generation plants using biomass and biogas, creating around 40,000 new jobs.
Indonesia	-	1.0	Establish a \$1 billion climate fund to reduce carbon dioxide emissions Promoting renewable energy, and Providing loans and tax incentives for research in the field of energy saving and new energies.
France	-	-	Under the Grenelle de l'environnement agreement (2009-2020), \$600 billion has been allocated, which has allowed for the creation of 300,000 jobs to date.

Source: Table based on: Thabti Al-Habib, Barkou Nasira,2014,p.99., Nawaf Abu Shamala,2016,p13.

We note from the above table that the green economy works to provide and create green jobs, This has prompted many countries around the world, especially developed ones, to engage in this new trend by building a new model of economic development based primarily on large green investments in sectors

such as renewable energy efficiency, green infrastructure, waste management and others, thereby creating green jobs.

The UNEP report noted that economic growth may appear to be slow in the short term, especially when measured using traditional methods that exclude external environmental factors from their calculations, but that growth is expected to accelerate in the long term (2020 and beyond) to exceed the growth rate.

IV. Algeria's experience with the green economy and job creation

Algeria views the green economy as a pathway to implementing sustainable development goals, creating job opportunities, supporting economic growth (Diversifying production and increasing added value), promoting innovation and reducing poverty. The country is encouraging a gradual transition to a green economy that takes into account its priorities, particularly the energy transition, which is of paramount importance. The new five-year growth plan (2015-2019) considers the green economy to be a lever for development and technological progress. The plan also encourages investment in key sectors of the green economy (Agriculture, water, waste recycling and recovery, industry and tourism) and the development of small and medium-sized enterprises (SMEs).

IV.1 Areas of investment in the green economy in Algeria:

According to a study by the Algerian Ministry of Regional Planning and Environment, 1,400,000 jobs could be created in the green economy sector between 2011 and 2025, compared to 273,000 jobs that existed in 2010 in environment-related fields, such as waste recycling and renewable energy.

In a document setting out the objectives of the ***National Regional Development Plan***, the government clearly states that sustainable development is a guiding principle for the plan. It should be noted here that talking about sustainable development means talking about the green economy. The first guideline established by the law is based on resource sustainability according to three regional action programmes that benefit the green economy: water resource sustainability, soil conservation and combating desertification, and ecosystem protection.

The implementation of the national regional development plan has been translated into a number of public measures that fall within the framework of the green economy. A number of laws and regulations have been enacted with the aim of promoting sustainable development and protecting and enhancing natural resources. Institutions have been established to help design and implement sustainable development policies, such as the National Observatory for the Environment and Sustainable Development, the National Centre for the Development of Biological Resources, the National Waste Management Agency, the National Centre for Environmental Training, the National Centre for Cleaner

Production Technology, the Air Quality Monitoring Network, the Water Basin Agency, the National Office for Sanitation, the National Office for Irrigation and Drainage, and the Algerian Water Company.

In parallel with the implementation of the new pricing structure for drinking water and water used in industry and agriculture, support is being provided for initiatives to reduce consumption through the use of appropriate irrigation techniques, such as localised irrigation and sprinkling. It is expected that the area of agricultural land equipped with water-saving irrigation techniques will reach 997,000 hectares in 2014, up from 350,000 hectares in 2011.

Assistance has been provided for renewable energy development projects and public investment in this area. A photovoltaic module plant was established during the period 2011-2014, along with a solar water heater factory, a central telephone exchange equipped with photovoltaic panels, a wind farm in the Adrar region with a capacity of approximately 10 megawatts, two concentrated solar power plants in El Oued and Beni Abbas, each with a capacity of 150 megawatts, and the supply of photovoltaic solar energy to some villages and pumping equipment in the Grand Sud and the highlands. Algeria's renewable energy development programme aims to meet 40% of domestic electricity consumption from renewable sources by 2030.

Green economy sectors have generated new employment opportunities, particularly for youth. Waste management is a major source of green jobs, and public action in this area is based primarily on the enforcement of the law on waste management and disposal (a law supplemented by regulatory provisions). the establishment of the National Waste Agency responsible for developing the "Eco-Jem" system for recycling packaging waste, and the comprehensive support of dozens of controlled landfills and dumps (Al badrani, 2012, p. 64).

IV.1.1 Investment in renewable energies

The integration of renewable energy into the national energy mix represents a major challenge in terms of preserving fossil resources, diversifying electricity production and contributing to sustainable development. Thanks to the 2011-2030 National Renewable Energy Programme, these energies are at the heart of Algeria's energy and economic policies, particularly through the large-scale development of solar and wind energy, the introduction of biomass (waste recovery), thermal and geothermal energy, and the development of solar thermal energy.

The capacity of the renewable energy programme required to meet the needs of the national market during the period 2015-2030 is estimated at 22,000 MW, of which 4,500 MW will be achieved by 2020.

1.2 Environmentally friendly architectural designs

These are buildings with high environmental qualities based on a smart system that ensures coordinated and integrated management (air conditioning, water distribution, energy performance control, conversion of rainwater into irrigation water, etc.). They were adopted by the Algerian government following the launch of energy efficiency programmes, which focus on energy-saving thermal insulation through the installation of thermal insulation on building roofs and walls, efficient lighting using low-energy bulbs, diodes and sodium lamps, as well as the use of solar water heaters, which save energy. The CYBERPARC technology hub is considered an Algerian model of environmentally friendly architecture, built between 2002 and 2010 in Sidi Abdallah, Algiers.

IV.1.3 Construction of desalination plants

According to the latest statistics provided by the Ministry of Water Resources in April 2017, Algeria has completed 20 seawater desalination plants distributed across the country, with contributions ranging from 25,000 m³ /day as the lowest recorded value in Tizi Ouzou to 500,000 m³ /day as the highest recorded value in Oran (Kechat & Hadjaz, 2019, p. 38).

IV.2 Development of green jobs in Algeria's green economy sectors

According to a study on the employability and entrepreneurship of young people and women in the green economy sector, this sector has significant potential for job creation, but this remains unknown to many, particularly in the absence of a guide to green economy professions.

This sector provided around 450,000 jobs in 2012 and could provide more than 1.4 million jobs by 2025, particularly in the following five areas: renewable energies, energy efficiency, water management, waste treatment and recycling, and services related to the environment and the management of green spaces. The study confirms the interest of young people and women in these new professions and recommends the development of an integrated human resources management policy based on the inclusion of green economy professions, particularly in the vocational training sector. (Africa T. E.)

Table(02): Development of green jobs in Algeria

	2012	2015	2017	2020	2025
Renewable energy	1500	7,500	13,700	52,500	137,000
Waste management	23,848	50,656	105,918	138,154	161,180
Water Management	44,670	48,812	52,785	56,587	65,600
Green Buildings HPE	41027	9866	190,246	363,802	722,994
Environment-related services	3000	3473	3829	4432	5657
Green Space Management	333,917	364,880	387,101	422,996	490,368
Total green jobs	447,962	564,984	753,579	1,038,471	1,421,619

Source: Qaham and Heiba, 2016, p. 375.

V. Conclusion

Based on our review of the research, we conclude that the future belongs to the green economy, especially since countries such as Germany, the United States and France have made significant progress in this area. However, the contributions of developing countries such as Algeria remain weak in this area when compared to their considerable natural resources, particularly in the field of renewable energy.

The study reached several conclusions, which can be summarized as follows:

- _ The green economy represents an integrated and sustainable approach to achieving sustainable development.

- _ The green economy is still in its early stages, and its outcomes remain modest based on international experiences, which raises questions about its economic viability,

- _ Although the shift from traditional to green jobs remains slow, several pioneering international experiences provide valuable models for green transition—such as those of Germany and Hong Kong—that may serve as successful models for the green transition.

- _ Although Algeria possesses natural assets that qualify it to be among the countries moving toward a green economy, the situation on the ground does not reflect this potential, whether on the part of the government or business managers.

In conclusion, we can offer a number of recommendations:

- _ Strengthening the legal framework with a set of laws that would encourage positive engagement in the green economy.

- _ Organising international seminars under the supervision of experts and specialists in the field of the green economy, with a view to transferring leading expertise and experiences;

- _ Establish a national institute or observatory to oversee the development of sound frameworks for a systematic and rapid transition towards the adoption of a green economy in the field;

- _ Developing environmental awareness among citizens to encourage them to adopt environmentally sound consumption patterns;

- _ Reviving frozen projects such as the Desertec project and considering how to phase out the grey economy.

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