

The Green Economy as a Pathway to Sustainable Development in Algeria

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Abstract

This study aims to shed light on the role that the adoption of the green economy approach can play in orienting Algeria towards sustainable development — an overarching objective whose purpose is to achieve a balance between current human welfare and the preservation of natural resources for future generations, to maintain the ecosystem's capacity for renewal, to improve the efficiency of resource and energy use, and thereby to achieve both industrial progress and effective environmental protection. The study finds that Algeria, in common with all other nations, is striving to adopt the green economy approach in the firm conviction that it represents the model and methodology best suited to protecting it and its environment from environmental problems that have become plainly manifest and whose severity has been compounded by technological development and the exploitation of resources to satisfy society's ever-growing needs. In Algeria's view, the green economy constitutes an environmentally friendly activity and one of the pathways to sustainable development, insofar as it facilitates the integration of sustainable development's three dimensions — economic, social, and environmental.

Keywords: Green economy; sustainable development; green economy in Algeria.

Introduction

The final decades of the last century and the opening years of the present one witnessed a succession of economic and environmental crises — including crises of food, energy, climate, and poverty. There is broad consensus that these crises, particularly those of an environmental nature, are the product of the traditional development model, which has had an adverse impact on the environment from two perspectives: first, through the over-exploitation of natural resources, and second, through rising rates of pollution.

If environmental degradation was among the most serious failings of the twentieth century, the shift towards concern for environmental affairs and the incorporation of the environmental dimension into development processes was equally one of its most significant achievements. In this context, a number of concepts emerged — including sustainable development, the Millennium Development

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Goals, green organizations, and the green economy. The green economy may be understood as the culmination of a process of reconsidering the relative weight of the active variables in the development equation — economy, environment, and human being — particularly in the aftermath of the consequences of the 2008 crisis and the threat it posed to efforts to achieve development goals and the pursuit of sustainable development. Business organisations, as the fundamental building blocks of economic activity and a primary driver of the development process, play an active role in giving concrete expression to the shift towards the green economy; indeed, a green economy cannot be prepared without preparing the organisations that constitute it — particularly those engaged in industrial activity — by ensuring they adopt practices that make them more resource-efficient, less polluting, and thereby capable of achieving the overarching objective of sustainable development.

Research Problem

The foregoing discussion brings into focus the following central research problem:

– What mechanisms is Algeria adopting in order to transition towards the green economy in pursuit of sustainable development?

Sub-questions

– What are the fundamental pillars of the green economy model?

– How can sustainable development be achieved?

– Is the orientation towards the green economy capable of achieving sustainable development in Algeria?

Significance of the Study

The significance of this study derives from the importance of the variables to which it relates — principally sustainable development, whose importance has grown considerably in light of the emergence of the green economy as a new development model that contributes to reducing the quantities of energy and materials consumed in the production process, mitigates greenhouse gas emissions, and illuminates the mechanisms that Algeria is adopting in pursuit of a green economy transition.

Research Objectives

– To address the most important conceptual foundations of the green economy.

– To identify the various theoretical concepts associated with sustainable development.

– To analyse the mechanisms Algeria is adopting to embrace the green economy in support of the principles of sustainable development.

Research Methodology

This study relies primarily on the descriptive method, which entails a scientific description of the concepts addressed in the study with a view to defining their contours and characteristics. The maximum amount of information on the research subject has been gathered and subjected to analysis.

Structure of the Study

In addressing the central research problem, this paper is organised around the following three themes:

– Theme One: A Conceptual Introduction to the Green Economy

– Theme Two: The Fundamental Pillars of Sustainable Development

– Theme Three: Applications of the Green Economy in Algeria in Pursuit of Sustainable Development

Theme One: A Conceptual Introduction to the Green Economy

The green economy represents a new and rapidly growing model of economic development, grounded primarily in knowledge of environmental economics — a field concerned with examining the interrelationship between human economies and the natural ecosystem, and with the adverse impact of human activities on climate change and global warming. It encompasses clean energy generated from renewable sources. The importance of the green economy model lies, above all, in its capacity to create what are known as 'green jobs' and to ensure genuine and enduring economic growth.

1. Definitions of the Green Economy

The Economic and Social Commission for Western Asia (ESCWA) defines the green economy as 'a new perspective on the interconnection between the economic, social and environmental dimensions, aimed at reducing poverty and achieving well-being, while opening space for mobilising support for sustainable development through a new conceptual framework that does not replace sustainable development but rather consolidates the integration of its three economic, social and environmental dimensions.'²

Chapple defines the green economy as 'an economy of clean energy and improved environmental quality through the reduction of greenhouse gas emissions, the minimisation of environmental impact, and the improvement of the use of natural resources; it encompasses several economic sectors and is not limited to the capacity to produce clean energy, but also includes the technologies that enable cleaner production processes.'³

The United Nations Environment Programme (UNEP) defines the green economy as 'an economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcity.'⁴

On the basis of the foregoing, the green economy may be described as an economy that promotes the efficient use of energy and resources, prevents the loss of biodiversity and ecosystem services, and generates green jobs that ultimately reduce the environmental impact of institutions and economic sectors to levels consistent with sustainability.

2. Manifestations and Indicators of Green Economy Adoption

Among the most important manifestations and characteristics of the adoption of the green economy at the global level are the following:⁵

²Siham Alliouat and Kheireddine Boumehrouk, 'Environmental Management Systems (ISO 14000) as a Tool for Activating the Role of Business Organisations in the Transition to the Green Economy — An Analytical Theoretical Approach,' Second International Scientific Symposium on the Enterprise between Economic Necessity and Environmental Challenges, Faculty of Economic, Commercial and Management Sciences, Mohammed El-Seddik Ben Yahia University, Jijel, 24–25 April 2017, p. 3.

³Najwa Yusuf Jamal al-Din et al., 'The Green Economy: The Concept and Its Requirements in Education,' Journal of Educational Sciences, Institute for Educational Studies and Research, Faculty of Agriculture, Cairo University, No. 3, 2014, p. 432.

⁴Thabiti al-Habib and Berkoun Nassira, 'The Role of the Green Economy in Creating Green Jobs and Contributing to Poverty Reduction,' International Symposium on the Assessment of Poverty Reduction Policies in Arab Countries in the Age of Globalisation, 8–9 December 2014, University of Algiers 3, p. 3.

⁵Fatima Bekdi, *The Green Economy: From Theory to Practice*, Academic Book Centre, Amman, Jordan, 2019, pp. 224–225.

1. In 2008, the United Nations Environment Programme launched the Green Economy Initiative with the aim of providing policy support for investment in green sectors and greening environmentally harmful sectors.
2. The Paris Climate Conference of 2015, at which a landmark agreement was reached on combating climate change: after twenty years of negotiations, representatives of the 195 participating countries concluded a binding and comprehensive agreement on combating climate change and working towards solutions for reducing the phenomenon.
3. Clean energy, green investment, and green technology now occupy the forefront of numerous countries' strategies as solutions for a better future.
4. Fifteen per cent of the USD 2,800 billion economic recovery programme budget mobilised worldwide since 2008 was allocated to financing green investments, directed towards three areas: the promotion of energy efficiency (67% of green investments — including smart energy-saving systems, energy renovation of buildings, support for the development of low-carbon vehicles, and transport equipment); water management, waste treatment, and pollution-reduction technologies (19% of green investments); and the development of low-carbon energies (14% of green investments, allocated to the promotion of renewable energies and carbon capture and storage technologies).
 - The launch of the Clean Energy Investment Fund, valued at one billion dollars, in collaboration with Bill Gates, Mukesh Ambani, and other investors.
 - Green jobs are generated not only in private business but can equally exist in the public sector — through standard-setting, policymaking, monitoring and conservation, support programmes, and similar functions.

3. Requirements for Transitioning to the Green Economy

For the transition to the green economy to be facilitated, a number of preconditions must be met, including:⁶

- Ensuring that institutions master the relevant technologies and possess the necessary competencies; it is preferable to develop new competencies in order to operate a continuous training system.
- Embracing the social dimension by adopting a comprehensive view of employment for the purpose of creating quality jobs (working conditions, career development, wage levels, etc.).
- Not neglecting non-green activities and ensuring overall coherence among functions — that is, clarity and stability in various projects and strategic decisions (major loans, the general state of industry, green job mobilisation plans, etc.).
- Ensuring the integration of social partners at all levels and monitoring the pace of work in branches and the extent of its adaptation.
- The necessity of support and incentives through targeted public spending, policy reform, and regulatory change; the development path must preserve natural capital while creating new wealth through the brown economy model.
- The necessity of enabling conditions derived from a background of national regulations, policies, material support, incentives, international legal and market structures, and assistance and trade protocols.

⁶Munira Salami and Mona Mesghouni, 'The Problem of Environmental Qualification in Small and Medium-Sized Enterprises towards Achieving the Green Economy,' Second International Symposium on the Outstanding Performance of Organisations and Governments, 22–23 November 2011, Kasdi Merbah University, Ouargla, p. 7.

4. Effects of the Transition to the Green Economy

The transition to the green economy generates numerous effects, the most significant of which are as follows:⁷

- **Protection of Resources from Depletion:** For example, the activation of hybrid energy (gas–wind energy) would protect Algeria's natural gas reserves, since the use of gas for electricity generation has depleted approximately 48% of the country's gas energy reserves. The cost of electricity produced from gas is also high.
- **Generation of Additional Revenue:** In Algeria, for instance, the harnessing of wind resources has the potential to generate substantial revenues of up to 3 billion euros per year, enabling Algeria to produce electrical energy that contributes to sustainable development and creates thousands of direct and indirect jobs. Waste recycling can likewise generate added value of up to 3.5 billion Algerian dinars per year.
- **New Investment Opportunities:** A group of researchers proposed to Germany an environmental policy as an instrument for exiting the financial and economic crisis, which was expected to give a powerful impetus to environmental investment, raising the rate of GDP growth to more than 2% in the period 2010–2020, compared with 1% per year in the absence of new policies, while unemployment was projected to fall by one million jobseekers.
- **Development of New Local Industries:** Energy-saving light bulbs (for public lighting and housing), thermal insulation materials, solar water heaters, liquefied natural gas equipment, solar panels, pumping systems for farmers, and the supply of industrial electricity to remote villages and areas — all represent new industries offering opportunities for exploitation and the development of local industry.
- **Cost Reduction:** Low-cost debt (concessional financing) can reduce the cost of capital. The European Investment Bank significantly increased its lending for wind and solar energy projects in 2011, estimated at approximately USD 7.25 billion, of which USD 1.7 billion was directed at energy efficiency projects.
- **Creation of Green Jobs:** While the transition to the green economy has been described as a 'war on jobs' and a 'war on fossil fuels,' practical experience has demonstrated that the green economy can generate latent green jobs — that is, jobs that offer products and services using renewable energy sources, reducing pollution, conserving energy and natural resources, and promoting recycling.

Theme Two: The Fundamental Pillars of Sustainable Development

Sustainable development has become a subject attracting the attention of the entire world at the economic, social, and environmental levels. Today, sustainable development shapes the greater part of current environmental, social, and economic policy. The following sections address the fundamental concepts relating to sustainable development.

1. The Concept of Sustainable Development

The definitions of sustainable development are numerous and have varied across different historical periods; yet a close and attentive reading reveals that they all adopt the same essential meaning in the same context. From the early 1980s, however, sustainable development was advanced as an alternative development model, and the concept accordingly acquired new dimensions.

The Food and Agriculture Organization (FAO) defined sustainable development in 1989 as 'the management and conservation of the natural resource base, and the orientation of technological and

⁷Fatima Bekdi, op. cit., pp. 229–230.

institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations.⁸

Principle Three adopted at the United Nations Conference on Environment and Development, held in Brazil in 1992, defines it as 'the need to fulfil the right to development in such a way that the developmental and environmental needs of present and future generations are met equitably.'⁹

The report of the World Commission on Environment and Development defines it as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'¹⁰

The Brundtland Report of the World Commission on Environment and Development (1987) defines it as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs, such that the present generation leaves to future generations a stock of natural resources equivalent to or better than what it has inherited.'¹¹

It is clear from the foregoing that sustainable development aims to provide economic well-being for both present and future generations while preserving the environment and maintaining it — achieving economic development and a standard of living that does not undermine the environment's capacity to meet the needs of present and future consumers, while endeavouring to achieve a balance between the environmental, economic, and social systems that constitute the development process by caring for the environment and ensuring the continuity of natural resources — particularly non-renewable ones — for as long as possible, out of respect for the rights of future generations.

It is also notable that environmental economists have employed the concept of 'environmental sustainability' in an attempt to clarify the desire to achieve a balance between economic growth on the one hand and the preservation of environmental equilibrium on the other. Natural resources within any state constitute a heritage belonging to all generations; the destruction of these natural assets in pursuit of short-term economic objectives penalizes both the present generation and subsequent ones. It is therefore important for development planners and policymakers to take environmental considerations into account in their planning.

2. Characteristics of Sustainable Development

Sustainable development is distinguished from other forms and modalities of development by a set of characteristics. On the basis of the definitions formulated for this concept, the following characteristics may be identified:¹²

- Sustainable development entails the introduction of changes in all areas of economic life — manifested in an increase in the average per capita share of real income — as well as the conservation of natural resources, whether renewable or non-renewable, through their rational exploitation.
- Sustainable development is a continuous process, both in the present and in the future, meeting the aspirations and needs of present and future generations. The State strives to achieve

⁸Abd al-Rahman Sayf Sardar, *Sustainable Development*, Dar al-Raya for Publishing and Distribution, Amman, Jordan, 2015, p. 13.

⁹Mustafa Yusuf Kafi, *The Philosophy of Green Marketing*, Arab Community Library for Publishing and Distribution, Amman, Jordan, 2014, p. 222.

¹⁰Report of the World Commission on Environment and Development, *Our Common Future*, United Nations Environment Programme, 1987.

¹¹Medhat Abu al-Nasr and Yasmine Medhat Muhammad, *Sustainable Development: Concept, Dimensions, and Indicators*, Arab Group for Training and Publishing, Cairo, 2017, p. 81.

¹²Ibrahim Mellawi and Nour al-Din Bray, *Spatial Planning and Environmental Protection in the Framework of Sustainable Development*, Dar al-I'sar al-'Ilmi for Publishing and Distribution, Amman, Jordan, 2018, pp. 36–37.

development in all sectors to cover society's increasing needs, relying on projects, methods, and mechanisms to guarantee the needs of future generations.

- Sustainable development is comprehensive and constitutes a shared responsibility across all sectors of the State; the State at all its levels bears the responsibility of contributing to the decision-making process.
- The term 'sustainable development' is a global term, reflected in the political, economic, and cultural studies that have contributed to embedding a concept that gives concrete expression to sustainable development.
- Sustainable development has environmental, social, and economic dimensions that are intertwined and interconnected within an interactive framework characterized by regulation, organization, and rationalization.
- Sustainable development has objectives that it seeks to achieve through effective mechanisms and the principles on which it rests.
- Sustainable development employs rational methods for the exploitation of resources — whether renewable or non-renewable — in order to ensure a balance among its various dimensions.
- There exists a complementary relationship between the environment on the one hand and development on the other — a directly proportional relationship, with the two standing in a complementary and harmonious relation in order to achieve comprehensive development across all the various sectors.

3. Objectives of Sustainable Development

Sustainable development pursues several objectives, which may be summarized as follows:¹³

- **Increase in National Income:** The increase in national income is regarded as one of the most important objectives of sustainable development in developing countries, where the primary motive driving these countries towards sustainable development lies in their poverty and the low standard of living of their populations. This requires an increase in real national income through an increase in the goods and services produced by the various economic resources. Such an increase in income depends, however, on the capacities of the State: the greater the availability of capital and competencies, the greater the achievable rate of growth in national income.
- **Improvement of Living Standards:** The improvement of living standards is among the important objectives that sustainable development seeks to achieve. An increase in national income does not necessarily lead to an improvement in living standards: population growth at a rate greater than the growth in national income makes it difficult to achieve an increase in the average per capita income, while income distribution disparities may result in the greater part of the increase in national income accruing to a particular category of individuals, thereby failing to improve living standards. It is therefore necessary to link income growth with the regulation of population growth, the control of birth rates, and the achievement of an equitable distribution of national income. Sustainable development accordingly works to improve the quality of life of the members of society by focusing on the qualitative aspects of growth — through the satisfaction of the basic needs of current and future individuals, the improvement of quality of life by providing employment opportunities, education, healthcare and social services, and housing, in addition to respecting individual rights and enabling participation in decision-making.
- **Reduction of Income and Wealth Disparities:** The reduction of income and wealth disparities is among the important objectives that sustainable development seeks to achieve, and falls within the social dimensions of the development process. In this domain, developing countries suffer from major income distribution inequalities: the majority of the population owns a small share

¹³Mourad Nasser, 'Sustainable Development and Its Challenges in Algeria,' *Al-Tawasul Journal*, Faculty of Human and Social Sciences, Badji Mokhtar University, Annaba, No. 26, June 2010, pp. 138–140.

of wealth and receives a modest share of national income, while a small minority owns a large share of wealth and receives a disproportionately high share of income.

- **Rationalisation of Natural Resource Use:** Sustainable development works to improve human quality of life without doing so at the expense of the environment, through the conservation of natural resources and the prevention of their depletion by means of their rational use — ensuring that such use does not exceed natural renewal rates — in addition to seeking alternatives to these resources so that they may endure for an extended period and do not generate waste in quantities that the environment is unable to absorb.
- **Harnessing Modern Technology in the Service of Society's Goals:** Sustainable development seeks to employ modern technology in a manner that serves society's goals — by raising societal awareness of the importance of modern technologies in the development sphere, of how to use them to improve the quality of community life, and by finding appropriate solutions for controlling the risks and environmental problems arising from the use of such technologies.

4. Principles of Sustainable Development

The efforts directed at environmental protection reinforce and sustain development and ensure its continuity. It is this relationship between growth on the one hand and the environment on the other that has defined the fundamental principles upon which the concept and content of sustainable development are built. These principles are:¹⁴

- **The Polluter Pays Principle:** The polluter pays principle is the most widely accepted principle among economists and environmentalists by virtue of its logical consistency. The Organisation for Economic Co-operation and Development (OECD) was the first to adopt it in 1972, and it is considered fundamental in the allocation of costs related to pollution control. Since the Earth Summit held in Rio de Janeiro, Brazil, in 1992, the OECD member countries have expanded their intensive use of this principle to encompass the full internalisation of all external effects — known as 'externalities' or external costs — with the aim of compelling the polluter (establishment or individual) to bear all the costs of both pollution control and pollution regulation. The principle also aims to ensure that the surrounding environment remains within acceptable pollution levels, or more precisely that the costs of these processes are reflected in the cost of goods and services, thereby influencing their prices in order to arrive at the true social prices of those goods and services.
- **The User Pays Principle:** The 'user pays' principle represents the intellectual counterpart of the 'polluter pays' principle: it holds that the basis for the pricing of resources is that the beneficiary (user) must pay the corresponding amount. This principle is considered an effective instrument for charging for the exploitation of resources; it operates as the fundamental factor for limiting or rationalising the increasing use of resources, reducing the environmental effects of intensive use, improving the efficiency of resource utilisation, and providing practical resource management that links use to the associated social costs. This principle also forms the basis of the argument advanced by oil-producing countries towards Western nations: the latter are the users and beneficiaries of fossil fuels, and this principle should therefore apply to them.
- **The Precautionary Principle:** The precautionary principle was formally referenced for the first time in 1987, during the Second International Conference on the Protection of the North Sea. It is considered a fundamental rule for achieving sustainable development and one of the principal options in all environmental assessments, as well as in the adoption of any measures to prevent the causes of environmental degradation. Environmental impact assessment studies constitute a practical application of this principle.

¹⁴Muhammad Abd al-Ra'uf Abd al-Hamid, *The Green Policy for Balancing Energy and Environment Objectives (The Case of the United Arab Emirates)*, Emirates Centre for Strategic Studies and Research, Abu Dhabi, 2014, pp. 35–37.

- **The Subsidiarity (Supporting) Principle:** The subsidiarity principle supports the preceding three principles, which collectively cannot function in isolation from it. It has accordingly been incorporated as a foundational pillar of sustainable development, expressing the necessity of securing the broadest possible support and participation for any political decision serving the objectives of sustainable development, on the basis of the principles of 'polluter pays,' 'user pays,' and the precautionary principle. In other words, it requires that any political decision spring from the widest possible popular level. The objective is to secure the broadest social support for environmental decisions emanating from the layers of society with the greatest influence over political decision-making.

Theme Three: Applications of the Green Economy in Algeria in Pursuit of Sustainable Development

Following the United Nations' adoption of the green economy concept as a mechanism and pathway for achieving sustainable development, many countries — including Algeria — moved swiftly to embrace this concept with a view to improving their economic conditions, making optimal use of their resources, and escaping the economic, environmental, and social crises from which they suffer. Confronted with the aggravation of the environmental and social problems affecting it, Algeria has given priority to reconsidering its development approach and policy, and to accelerating support for the transition towards the green economy.

1. The Importance of the Green Economy for Algeria

The transition to the green economy can yield economic, environmental, and social benefits, which may be summarized as follows:¹⁵

1.1 Economic Benefits

- The green economy can contribute to the diversification of the Algerian economy through increased investment in green economy sectors.
- The green economy contributes to reducing energy shocks (declining oil prices), particularly since oil revenues are linked to global markets characterized by extreme volatility.
- The green economy serves as a lever for technological progress, which constitutes a fundamental element for improving the competitiveness of small and medium-sized enterprises in Algeria — enterprises that remain relatively closed to innovation and insufficiently attentive to environmental sustainability.
- The transition to the green economy in the Algerian industrial sector can reduce production costs, guarantee access to energy in the future, and thereby enhance competitiveness at the global level, while reducing the share of environmental damage caused by the industrial sector in GDP.
- Algeria's transition to the green economy will generate positive spillover effects for all industries that use energy, seek to reduce their waste outputs, or aim to compete in accordance with international environmental standards.

1.2 Environmental Benefits

- The transition to the green economy reduces the cost of environmental degradation in Algeria. The average cost of environmental degradation was estimated at approximately 4.8% of GDP in

¹⁵Ali Khannafar, 'Current Global Environmental Issues and Their Implications for the Competitiveness of the Algerian Economy and Its Transition to the Green Economy,' Doctoral Dissertation in Economic Sciences, Mohammed Khider University, Biskra, 2017–2018, pp. 276–279.

2003, comprising: 1% for the cost of air pollution; 0.8% for the cost of inadequate access to water supply and sanitation; 1.2% for land degradation; and 0.6% for the cost of CO₂ emissions. The total costs of environmental degradation in 2008 were estimated at USD 3.6 billion.

– The transition to the green economy signals a shift towards green growth (clean growth, low-carbon growth). At the United Nations Climate Change Conference COP23 in 2017, Algeria pledged to reduce its greenhouse gas emissions by 7% by 2030, with the possibility of that figure rising to 22% if financial support and technology transfer are secured.

– The transition to the green economy leads to efficient management of natural resources in Algeria.

1.3 Social Benefits

– The transition to the green economy provides cleaner air, which can improve citizens' health and raise life expectancy, in addition to improving the living standards of Algerians through support for economic growth, the improvement of quality of life, and making citizens happier. According to the Global Happiness Index — which is based on an inventory of a State's healthcare, prosperity, equality, and trust in government — Algeria ranked 53rd globally and 6th in the Arab world in the report published in 2017.

– The green economy is concerned with planning and organizational methods: more rational and sustainable housing and transport systems will reduce the time required for the transition to the green economy, thereby alleviating pressures. The environmental benefits and shortened transition times will translate into benefits felt by all citizens, and the transition to the green economy will accordingly provide a major stimulus for quality of life in Algeria.

2. Green Economy Achievements and Projects in Algeria

In addition to several completed projects within the green economy framework, the most important of which are:¹⁶

2.1 The Hassi R'Mel Hybrid Power Station (Solar–Gas)

Algeria's first hybrid power station (solar–gas) is located at Hassi R'Mel, approximately 494.5 km south of Algiers, covering an area of 130 hectares. It operates on natural gas and solar energy and has a production capacity of 150 megawatts — 120 megawatts generated from gas and 30 from solar energy.

– Connected to the national electricity grid, it is situated in the Tilghemt area, 25 km north of Hassi R'Mel — Africa's largest gas field — and will serve as an alternative and clean energy source.

– The environmental dimension occupies a prominent place in the project: CO₂ emissions have been reduced by approximately 33,000 tonnes per year compared with conventional power stations, resulting in savings of more than 7 million m³ per year.

– The site of this major project was selected in the Tilghemt area on account of three fundamental factors: its proximity to the Hassi R'Mel gas field; the availability of gas processing facilities; and approximately 3,000 hours of sunshine per year in the area.

– The implementation of this project falls within the framework of the effective launch of the National Renewable Energy Programme, which aims to increase the share of clean energy in national electricity generation to 40% by 2030.

2.2 Cement Plants Fitted with Bag Filters

¹⁶Yazid Taqrart et al., 'The Green Economy: Sustainable Development Combating Pollution,' Journal of Financial, Accounting and Administrative Studies, Faculty of Economic, Commercial and Management Sciences, Larbi Ben M'hidi University, Oum El Bouaghi, No. 8, December 2018, p. 580.

This is a wide-ranging programme for the renewal and modernisation of pollution-control equipment, implemented by the management association with the participation of cement plants and the Ministry of the Environment.

- In 2010, a filtration system was installed at the Chlef cement plant, marking a qualitative leap for Algeria in the domain of environmental protection and the preservation of citizens' health.
- In total, ten of the twelve cement plants in the country have been fitted with bag filter systems.

2.3 Beni Haroun Dam

- Algeria has 70 operational dams with a combined storage capacity of 6.8 billion m³, with fourteen additional dams under construction.
- The Beni Haroun hydraulic complex remains a major strategic achievement.
- Technically, the dam reaches a height of 120 m and has a normal storage capacity of 960 million m³; in addition, its hydraulic infrastructure encompasses three storage dams — Oued Athmenia, Keddiya El Medour, and Rkis — with individual capacities of 62, 35, and 65 million m³ respectively.
- It supplies drinking water to approximately four million inhabitants across five wilaya territories (Jijel, Constantine, Oum El Bouaghi, Batna, and Khenchela), and allows the irrigation of more than 400,000 hectares distributed across the plains of Tlelghmet, Roumiela, Ouled Fadhel, Chemora, Batna, and Ain Touta.

2.4 The Ain Salah / Tamanrasset Large-Scale Water Transfer

The Ain Salah/Tamanrasset project represents more than just a single headline for a proactive and resolute policy aimed at achieving one of the United Nations Millennium Development Goals — meeting the need for safe drinking water.

- It is considered the project of the century: the large-scale hydraulic transfer from the Bayan area (Ain Salah) to Tamanrasset, representing one of the major achievements that this vast region of the country has benefited from.
- In terms of its economic and social impact on the region, part of this transfer aims to supply the city of Tamanrasset with drinking water from Ain Salah over a distance of more than 700 km, enabling the continuous provision of safe drinking water 24 hours a day to 90,000 people.

2.5 Seawater Desalination Plants

- With regard to seawater desalination, national policy has comprised an ambitious programme for the installation of large-capacity desalination plants, nine of which are currently operational with a combined daily capacity of 1.39 million m³/hour.
- The spatial distribution of existing and projected seawater desalination plants is heavily concentrated in the west of the country, which partially reflects the 'water stress' experienced in this region.
- More broadly, the water desalination strategy serves the objective of securing drinking water supplies for coastal and inland cities, offering a dual planning benefit: it secures a substantial share of drinking water mobilisation (more than 25%) while freeing up traditional sources — in the form of existing dams previously dedicated to drinking water supply — for irrigation purposes.
- 1,169 master plans for household waste management.
- 120 technical landfill centres completed.
- 83 waste sorting units.
- Algeria produces 13.5 million tonnes of waste annually, of which 60% is recyclable.

2.6 Smart Architectural Design

- Modern architectural design integrates environmental sustainability and comfort values into smart buildings, such as the Cyberparc established in Sidi Abdallah.
- Certain buildings possess high environmental qualities, with an intelligent system ensuring coordinated and integrated management and computerised technological infrastructure — including air conditioning, water distribution, energy performance monitoring, connection to telecommunications networks, rainwater conversion to irrigation water, and security monitoring systems.

Conclusion

The world has come to regard the green economy as an essential means of supporting the implementation and activation of the sustainable development initiative. There are numerous indicators worldwide that the green economy offers an opportunity to redirect investment towards green projects and activities that contribute to improving economic performance over the long term, to reducing environmental risks, and to achieving social prosperity in the future. This cannot be achieved, however, except through the concerted efforts of both the State and individuals in pursuit of well-being, social progress, and protection against risks.

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