Renewable Energies and Sustainable Development: Major Challenges for Development and Economic Diversification in Algeria

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Abstract:

Sustainable development is a type of development that satisfies the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainable development presents new ways for businesses to approach industrial risks, worker health, and working conditions. Algeria entered the post-oil era in June 2014 with the drop in oil prices, a concerning situation as the country faces a crisis. To address the situation, Algeria relies heavily on renewable energy sources, which generate significant hopes.

The central objective of our study is to highlight the significance of promoting a culture of sustainable development for the emergence of the Algerian economy on the one hand and indicate that renewable energies offer a lifeline to cope with the decline in hydrocarbon production in Algeria on the other.

Keywords: Sustainable development; Renewable energies; Strategy; Human resources; Knowledge-based economy; Management.

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1. Introduction:

Sustainable development now prevails over the notion of growth. Once primarily viewed through an economic and quantitative lens, growth is no longer considered in isolation. GDP for countries and by company revenue or profit metrics typically measures it. However, employing the term "development" implies a more holistic approach to growth that incorporates values of human progress. Sustainable development is a heritage-based approach: stakeholders view themselves as custodians of economic, social, cultural, societal, or environmental assets. They consider it legitimate for these assets to be improved through the company's activities.

Algeria entered the post-oil era in June 2014 with a sharp decline in oil prices, a concerning situation that has led to a crisis: **How can we address a prolonged crisis?**

The only viable solution is to develop a diversified economy capable of increasing non-hydrocarbon exports and reducing imports by producing a considerable portion of the country's needs domestically. However, fulfilling diversification is a long and laborious process.

Algeria places significant hope in renewable energies to overcome this situation, which has generated high expectations. However, will renewable energies live up to these hopes and help the country navigate this challenging period?

In this context, sustainable development and renewable energies can be alternatives for promoting economic growth in Algeria.

Through our study, the problem statement is raised as follows.

- **What are the fundamental levers to be implemented for sustainable development and the expansion of renewable energies in Algeria?**

1.1. Study Objectives:
Several objectives are highlighted:

- Emphasize the significance of promoting a sustainable development culture for the Algerian economy's emergence.
- Generally, it highlights one aspect of managerial culture in Western companies: the concept of sustainable development.
- Indicate that renewable energies offer a vital solution to address Algeria's decline in hydrocarbon production.

1.2. Study Methodology:

We used a documentary approach, enabling us to draw on various books and documents to support our research on this study's topic. In our methodological section, we seek to develop some personal insights regarding the effective implementation of sustainable development and renewable energies while modestly contributing to promoting and deepening knowledge through new perspectives related to our topic.

In conclusion, we will emphasize our main results. Our study is structured around two fundamental sections:

- Sustainable development: a literature review.
- The fundamental levers to be implemented for sustainable development and the expansion of renewable energies in Algeria.

1.3. Sustainable development: A literature review

1.3.1. Significant events marking the rise of sustainable development:

The United Nations has shifted from utilizing an economic indicator like GDP per capita to the Human Development Index (HDI), which includes dimensions associated with the health and education of populations. The development concept is also relevant to businesses and is often related to innovation (research and development) or human resources.

For a company, sustainable development includes ensuring growth through a comprehensive approach to performance that is maintained over time, resilient to challenges, and respectful of an explicit system encompassing various internal and external stakeholders within a framework of continuous progress.

The concept of sustainable development has gradually taken shape and has yet to develop fully. (Stephany, 2003, pp65-82) demonstrates that Protestantism and Anglo-Saxon culture significantly created the first ethical funds at the beginning of the last century. The reasons are straightforward: aligning financial investments with the moral precepts of one's religion. The shift from the 1960s to the 1970s marks the appearance of movements that, in their own way, contributed to the development of aspects of sustainable development. Médecins Sans Frontières (MSF) was founded in France, while "Greenpeace" was born in the USA. During these years, two types of phenomena developed.

❖ **Pension Funds and Savers:**

Initially, this topic may seem distant from the concerns that would later centre around sustainable development: the appearance of pension funds in the USA. These funds were designed to secure employees' retirement and mobilized financial resources that grew to immense proportions, increasingly affecting financial markets and the lives of companies.

❖ **The First Ecological Disasters:**

For the first time, ecological disasters significantly affected Western societies, clearly defining corporate responsibility. The Bhopal disaster, alongside Chernobyl, was a significant event. Bhopal, in India, stands as the world's most severe industrial catastrophe, triggering an initial awareness within the chemical industry.

❖ **The First Convergence: 1987-1992**

Ethical funds-later known as socially responsible investments (SRI)-and the ecological movement started to converge between 1987 and 1992. These movements gained legitimacy, especially with the entry of Green parties into government coalitions in several European countries.

❖ **The Second Convergence: 1992 to the Present**

Major economic players, including multinational corporations and the labour movement, started to engage. The 1990s marked decisive steps toward an integrative approach, reflected in the adoption of "sustainable development."

1.3.2. The Involvement of Companies:

The Rio Conference in Brazil prompted multinational corporations, primarily Anglo-Saxon, to start reflecting on crises. At the dawn of the 1990s, two organizations were established:

- The Business Council for Sustainable Development (BCSD)
- The World Industrial Council for the Environment (WICE)

These organizations merged to form the World Business Council for Sustainable Development (WBCSD). Currently, this organization includes over 160 representatives from around 30 countries. Its objectives are to enhance sustainable development principles and facilitate the exchange of best practices among companies in this domain.

However, does a company's purpose consist solely of making a profit, or should it also seek to contribute to society within a broader dynamic of wealth creation?

1.3.3. The UN Principles on Sustainable Development:

In 1998, Kofi Annan, the former Secretary-General of the United Nations, addressed business leaders at the World Economic Forum in Davos, Switzerland. He emphasized the need to develop a more stable and balanced global market by encouraging the world of commerce and industry to integrate universally recognized principles into their strategies and daily practices. On this occasion, he launched the Global Compact—a moral contract that commits businesses to respect and apply these principles.

We summarized those principles as follows:

❖ **Human Rights:**

Companies must defend and respect human rights within their sphere of influence. They must ensure their operations are not complicit in any abuses in this area.

❖ **Labor:** Companies must respect:

- The freedom of association and the effective recognition of the right to collective bargaining.
- The elimination of all forms of forced labour.

- The effective abolition of child labour and the elimination of all forms of discrimination in employment.

❖ **The Environment:**

Companies must implement the precautionary principle concerning environmental risks. They should take initiatives to enhance greater environmental responsibility and encourage the development and spreading of technologies that protect the environment.

1.3.4. Decisive Issues for Companies:

The 1990s, marked by the collapse of the communist model and its planned economy, confirmed the unchallenged victory of the market economy and the companies that underpin it.

However, profound changes transform the business world and its relationship with the environment. Companies can no longer continue operating as before, not for ideological reasons, but because external pressures are increasing. Initially, there is pressure from citizens through NGOs (Non-Governmental Organizations), associations, and several movements that advocate for consumers, residents, or citizens towards companies. Other decisive issues also impact businesses.

❖ **Socially Responsible Investment:**

Socially responsible investment partially synthesizes these external forces that exert pressure on companies. This concept is just one facet of sustainable development, and its effect on corporate life becomes significant.

Recently, new types of shareholders have emerged. They choose their investments based on criteria that are no longer solely financial. Funds have been structured or redirected accordingly, and rating agencies have been established to offer information to investors, who now seek to refine their risk assessments.

❖ **Specific challenges facing the company:**

A company's social management is also subject to the challenges of sustainable development. The primary goal for any company is to fulfill performance superior to that of its competitors. However, optimization is no longer viewed strictly from a technical perspective; it also relies on political and ethical choices.

In recent years, several external and internal factors have emerged that have profoundly changed the problem and prompted a shift towards sustainable development. How can the desired level of performance be achieved or an existing level of performance enhanced? How can resource allocation be optimized? The relationship between the number of goods produced and the labour required to achieve this is no longer a satisfactory definition of productivity.

Thus, production volume is no longer a sufficient criterion; quality, innovation, and diversity-now essential-are poorly measured both at the macro and micro levels. Performance increasingly relies on systemic aspects and relationships between individuals rather than merely the sum of individual operations and efficiency. The rise of intangible or intellectual activities in the production process continues. One cannot compel an intellectual worker to perform well if they do not comprehend how they contribute to the value produced and the underlying values.

A responsible company gains efficiency through cost savings and innovation. Responsible production offers a framework for continuous improvement, optimizes material and skill flows, reduces costs, enhances resource productivity, increases efficiency, and ultimately improves financial performance. Therefore, does sustainable development represent a competitive advantage? The answer to this question is complex and immediate. The sustainable development market today represents a niche for most companies worldwide. Alongside market globalization, civil society has also been globalized. International NGOs now have a network of information that ensures the practices of a company operating in Country A or Country B become quickly known, with any potential abuses exposed in the press. It is also notable that efforts at standardization come from outside the company, especially in the West, and the rise of the idea of sustainable development corresponds to the appearance of new issues, which we will emphasize below.

1.3.5. Principles and Reference Standards of Sustainable Development

Principles and standards have a broader scope than the company's boundaries. Furthermore, the whole normalization effort, which has been evident over the past few years, has stemmed from outside the company in the West.

International organizations, professional associations, social rating agencies, NGOs, and consulting or auditing firms make proposals in this regard.

The current context drives the standardization of management systems. Determining the key standards and bodies around which the criteria for assessing or managing companies converge is essential. Here are a few examples of standards and norms :

- **ISO**: The International Organization for Standardization has produced the 14000 series dedicated to environmental management. ISO standards have already been implemented in many large companies. The company defines its objectives. In the table below, we reproduce the principles and standards that govern the global governance of companies.

Table N°1: the principles and standards of global governance

Governance Level	Standard or Norm	Content
General	ISO 9000 AA 1000 Global compact GRI	Product quality. Overall performance (ISEA). UN Reference Framework. Reporting Framework.
Internal Resources	ISO 14000 Investor in people	Environmental management. Personnel management (UK). Business ethics declaration and anti-corruption.
External Stakeholders	EMAS SA 8000 EFQM	European Eco-Audit. Worker respect according to ILO standards. European Foundation for Quality Management (EFQM).

Source: (Stephany, 2003)

1.3.6. Some Institutions Working on Sustainable Development:

❖ **The ISEA**

- The Institute of Social and Ethical Accountability (ISEA), founded in 1996, developed the Accountability 1000 standard, recently revised as AA 1000 S. This standard formalizes processes to ensure the effectiveness of sustainable development practices and subjecting the system to external review.
- The European standard for environmental management and auditing systems (SEMA) is similar to ISO 14000. Established in 1995, it initially targeted industrial activities. The SMEA II, operational since 2002, has expanded its scope to other sectors.

Reference frameworks are now proposed to perform evaluations on sustainable development to inform shareholders and stakeholders.

❖ **The CEPPA**

The Council on Economic Priorities Agency (CEPPA) produced the SA 8000 standard, which addresses social responsibility (Social Accountability), particularly concerning ethical principles related to forced labour or child labour in regions where these practices are more or less tolerated.

Economics or management, employing the status of a "science," has led to a hegemonic scientistic discourse focusing on the efficiency of economic agents but rejecting any dimension associated with goals and values. However, a different trend has emerged in recent years and is gradually strengthening.

1.3.7. Distinction Between Growth and Development

There is a distinction between development and growth. The increase in the overall product of some Southern countries has occurred without benefiting the populations because the conditions for development still need to be met.

According to (Stephany, 2003), development is characterized by qualitative dimensions of well-being, in contrast to the quantitative approach to growth. The concept of eco-development integrates social justice, ecological caution, and economic efficiency. A sustainable development strategy places social concerns at the forefront, with economics remaining an instrument, all under the condition of respecting ecology. Ethical notions, individual freedom, and social responsibility are essential in sustainable development, according to (Ouaret, 2009).

Some authors even propose the creation of a Chamber of Sustainable Development: such an institution would inevitably be criticized as undemocratic. However, it would be necessary to encourage other bodies to consider the interests of future generations. Its mandate would initially be consultative, notes (Attali, 2011).

2. Fundamental Levers for Sustainable Development and the Expansion of Renewable Energies in Algeria

After exploiting its oil and gas reserves for over half a century, Algeria struggles to maintain its level of production. If current trends continue, the country's energy supply satisfaction will eventually experience a progressive deficit.

2.1. The issue of renewable energy in Algeria:

(Terkmani, 2017) emphasizes that the government used the initial renewable energy development program in February 2011. The goal was to install 22,000 megawatts (MW) of renewable power by 2030, demonstrating an option for 10,000 MW for potential export. However, the project's progress has been slow, largely due to the disparity between its scale and the country's limited application capabilities.

Despite all these delays and setbacks, the same 2030 deadline remains in place to install 22,000 MW of renewable power. Even if the pace of progress were to accelerate to the initially anticipated rate, the accumulated delay would only be recoverable. According to (Terkmani, 2017), it would be prudent to extend the deadline to 2035 or 2040.

The widely accepted idea that renewable energies will solve the country's energy problems and alleviate the economic crisis by generating a new windfall from solar energy by 2030 is unrealistic. Indeed, renewable energies will eventually play a crucial role in the energy mix, but not in the immediate future. Certainly not by 2030. Furthermore, everyone agrees that the oil rent, which has already halved and will continue to shrink, will disappear around 2030, according to (Terkmani, 2017).

2.1. The Issue of Renewable Energies in Algeria:

The only sustainable alternative would be diversifying the economy by developing the country's several underutilized or untapped resources. However, such a neglected solution will only be ready for a short time. Meanwhile, the country will confront a long and challenging interim period without sufficient financial resources.

2.2. What Are the Temporary Solutions to Generate Required Financial Revenue?

The interim solution is to revitalize the hydrocarbon sector, the only resource capable of generating substantial financial revenue during the interim period. This will include intensifying efforts on three main fronts:

- Increasing reserves, stimulating production through investment, and encouraging partnerships.
- Fostering downstream activities to increase the share of value-added finished products at the expense of raw hydrocarbons exported.
- Enhancing energy efficiency and savings represents a vast untapped reserve of hydrocarbons and finished products.

According to (Terkmani, 2017), the goal of this action is to prolong the necessary evil of oil rent as long as possible, at least until a diversified economy capable of taking over can be developed.

If these efforts are successful, a new opportunity will arise to develop a diversified and sustainable economy encompassing renewable energies, which would free the country from its serious reliance on oil rent.

In the event of failure, resorting to international debt will become unavoidable, with conditions that could impact national sovereignty.

The solution to economic problems does not lie in the energy shift but rather in the economic transition towards a diversified economy, where renewable energies will only represent one element of this diversification.

2.3. Energy Transformation and Its Consequences in Algeria:

(Chitour, 2017) emphasizes that the energy shift is more urgent than ever. Following the impact of the drop in oil prices, Algeria now faces a powerful competitor in the European gas market: American shale gas. The global challenge is transitioning from a consumption model where everything is free, and no one is accountable to a model where every calorie is conserved through energy efficiency.

2.4. A 50% Renewable Energy Mix:

We should embrace progress with a proactive policy focused on energy efficiency, mirroring the approaches of developed countries. An ambitious strategy is required to be implemented promptly. Our energy model must be rooted in sustainable human development, ensuring a viable future for the generations of 2030. This requires reducing fossil fuel consumption through energy rationalization, managing water resources, and applying the 3Rs: recovery, recycling, and reuse of waste. Furthermore, wastewater treatment, forest management, and transitioning away from thermal fuels are essential.

It is a shift towards sustainable human development based on an energy strategy that should be flexible and constantly adaptable. This 50% renewable energy scenario by 2030 would save billions of cubic meters of gas. For instance, a 1000 MW solar power plant would save 1.5 billion cubic meters of natural gas. According to (Chitour, 2017), we need to move towards a gradual adjustment of energy and water prices through education.

The same reasoning must be applied to fuels, which should be reviewed upward. A World Bank study demonstrates that 15% of the gasoline consumed in Morocco or Tunisia comes from Algeria. This hemorrhage at the borders, combined with unprecedented energy waste-imported vehicles consume, on average, 20% more fuel than those in Europe-forces Algeria to import up to 3 billion dollars worth of fuel annually, sold to consumers at a price five times lower.

The remarkable revolution in electric transportation means that electricity will be increasingly utilized, and carcinogenic diesel will be phased out:

- Volkswagen will no longer manufacture diesel cars starting in 2025.
- France will eliminate diesel fuels by 2040.
- Manufacturers like Renault, Nissan, and others are developing low-cost electric cars that are currently being built in China.

We can take a step forward by embracing this electric revolution. The anticipated solar plan will transform the Algerian Sahara into an electrical powerhouse, supplying electricity for multimodal transport, encompassing cars, trucks, and rail. This solar electricity could replace natural gas for heating and domestic cooking, preserving gas and oil for future generations. We could envision new cities in the Sahara, where available water and energy would support agricultural activities and even a trans-Saharan network of rail and electric trucks, as suggested by (Chitour, 2017).

2.5. Managing Sustainable Development and Renewable Energies in Algeria:

Managing sustainable development requires linking formalized discourse with practical application through effective tools. Some companies employ Total Quality Management (TQM), which integrates various key concepts: the evolution of quality, prioritizing customer needs in work design, continuous improvement as a problem-solving process, total participation, teamwork, initiation strategies (including CEO engagement), and implementation, as well as integration into a broader social network.

2.5.1. Human Resource Management:

Human resource management must ensure that the organization has skilled and qualified individuals in the correct positions. This relies on determining needs, conducting recruitment actions, and applying training policies, as suggested by (Alary, 2010). In any organization, the individual plays a significant role as he is the bearer of knowledge, representing part of a whole viewed through the group. He embodies intelligence in its social affirmation, mainly through their behaviour towards knowledge, his abilities associated with relational skills, and cooperation. An individual's attitude is a source of knowledge as they create and transmit it within his professional environment. The theory of human capital begins from the observation that the wealth produced is only partially dependent on traditional variables such as capital and labour. However, several economists have later included the impact of intangible assets, whether it is research and development potential or, more broadly, the skills possessed within the company.

A responsible economy is concerned with how resources are utilized to serve the well-being of populations today and in the future. Public authorities and economic operators now recognize that the combination and integration of capital, knowledge, and human capital are essential in building competitive advantages, gradually replacing or complementing natural comparative advantages. In this regard, today's research expenditures are tomorrow's investments, generating future value and associated jobs, as demonstrated by (Mekideche, 2008). The economic dimension cannot be reduced solely to its financial aspects or the market value of transactions recorded in a company's books. Currently, capital modalities are evolving to include new elements such as reputation, responsibility towards stakeholders, and ethical, social, and societal commitments. Good performance in financial markets is a widely recognized indicator of a company's success. However, from a sustainable development perspective, a company's added value lies in its positive contribution to the common good. Public opinion, the economic press, and many business leaders have recently recognized a new dimension in the qualities required to lead an organization: moral sense. More precise terms encompass corporate ethics, business ethics, or deontology.

2.6. Research and Development: A Vital Necessity for Sustainable Development and the Emergence of Renewable Energies

Through research and development (R&D), technical progress, a source of development and advancement for contemporary societies, is spread. The technological disruption brought about by the digital revolution and biotechnology stemmed from R&D but profoundly impacts its future. R&D is the rational process that ensures the shift from knowledge to technical realization. The outcome of the R&D process profoundly alters the orientation of a company, its position in a competitive environment, and, consequently, its strategy. According to figures published by institutions such as the OECD, the IMF, and the World Bank, global investments in R&D in 2012 totaled around $1.402 trillion: the USA holds the top spot with $436 billion, of which $280 billion is contributed by the private sector. China has managed to secure the second position with $199 billion, as noted by (Bensahli, 2012).

2.7. Monitoring and Economic Intelligence: Significant Assets

In recent years, with the considerable evolution of the Internet, the volume of available information has grown increasingly large and diverse across all domains. This transition is linked to advancements in information technology, particularly telecommunications, which have revolutionized working methods, thinking, and reactions over the last decade. Any R&D strategy depends on the analysis of scientific and technical information needed by a company to safeguard, optimize, and enrich its intangible assets (Bernaoui, 2016).

Therefore, economic intelligence is a management tool supporting strategy through analyzing issues, defining needs, researching, processing, and using information. In this regard, it would be prudent to consider creating a central body tasked with developing tools, methods, analyses, and scenarios in priority governance and sustainable development areas at the state level and within Algerian companies. Information is mainly a source of wealth, particularly knowledge, in a competitive environment. (ontanel & & Fontanel, 2013), indicate that economic intelligence seeks to acquire all helpful information regarding the environment and the knowledge and know-how of companies. The holder of information can make better-informed decisions, making them more rigorous, coherent, and relevant to their objectives. Rigorous procedures for monitoring include researching and acquiring pertinent information, detection, and access to sources. Several types of monitoring correspond to different areas of observation, with economic intelligence being the advanced stage of all monitoring procedures undertaken by companies.

2.8. Innovation and Competitive Clusters

Our industry lacks competitiveness. The instability of the oil market and the fall in hydrocarbon prices, the main resource for our economy, have severely affected our foreign exchange reserves. Various reasons have been cited to justify the weakness of our industry. Emphasizing critical factors for industrial competitiveness, including innovation capacity through R&D, is the focus of competitive cluster policies conceptualized by Michael Porter, a Harvard academic, under the name of "clusters" (Bouchagha, 2016). Similarly, (Stiglitz, 2010) demonstrates that for knowledge to be freely spread, the state should be responsible for funding its production. Thus, it plays a crucial role in enhancing knowledge and innovation.

2.9. How Can Algerian Companies Commit to Sustainable Development and Increased Renewable Energy?

The development of a market economy in Algeria will involve various constraints and requirements that Algerian companies must integrate to survive and thrive, including those associated with sustainable development. The logic of sustainable development prompts a reevaluation of traditional methods of public action. It opens up opportunities for innovation in human resource management, which must promote creativity to foster new relationships between actors and territories. In cultures that are open to change, leaders stay attuned to shifts in the context and adapt strategies and policies to ensure the company remains aligned with the market. They prioritize individuals and processes that drive change, particularly management's ability to lead reforms. Innovation plays a crucial role in development, especially in enhancing competitiveness, serving as a key indicator in investment decisions and business establishment. Its contribution is vital for growth, improving productivity, and introducing new products.

2.9.1. Knowledge-Based Economy (KBE): A Vital Project for the Emergence of Sustainable Development and Renewable Energies in Algeria

(Lamiri, 2013) indicates that the knowledge economy includes entire sectors of a country's activities. This encompasses education (long-term training and retraining), ICT, research and development, innovation, communication, expertise, and consulting industries. The knowledge economy is akin to the blood that nourishes the human body. It helps to enhance the productivity of all other sectors and is a significant success factor for nations seeking emergence and development.

Moreover, the knowledge economy would be a crucial pillar for Algeria's economic diversification, with sustainable development being an important aspect.

Currently, Algerian companies face numerous and new challenges, including:

- The shift to a market economy with its own operational rules and requirements;
- Opening up to the global market with its consequences and constraints;
- A complex and turbulent environment.

Algerian companies must continuously monitor their environment and use contributions from several management schools of thought to promote a culture in this area, encompassing the culture of sustainable development. Furthermore, Algerian companies should adopt a genuine sustainable development policy, making it the foundation of their strategy and integrating it into their management systems.

2.10. Knowledge Economy Practices at the Company Level

The lack of awareness regarding the significance of intangible assets in companies represents a handicap and an untapped source of job creation. A survey of a sample of SMEs in Algeria demonstrates that nearly half (44%) do not invest in intangible assets. Most companies, especially SMEs, lack R&D departments. In comparison, French SMEs allocate between 3% and 4% of their revenue to R&D spending and contribute between 10% and 20% to GDP. Finland (58%), Sweden (37%), the USA (30%), Germany (30%), and Japan (22%) also indicate significant R&D investments, as emphasized by (Djeflat, 2014).

Mastery of science and technology is a crucial aspiration for our country, as it is the key to entering the economic and social development world. As indicated by (Biales, Leurion, & Riveau, 2007), an economy that invests heavily in research is more likely to fulfill strong economic growth than one that invests little.

2.11. Learning the Sustainable Development Approach by Algerian Companies

There is no better path or recipe for guiding Algerian companies toward sustainable development. Although the environment can be a starting point, sustainable development is mainly a learning process and a culture that companies should adopt. This approach expands and deepens quality by incorporating long-term factors, ethics, and stakeholder considerations. Both quality and sustainable development approaches share a common goal of continuous improvement.

Globalization imposes a performance level on companies that presents greater complexity in their management, primarily due to their growth, the diversity of their activities, and changes in their environmental contexts, as demonstrated by (Toudjine, 2013).

2.12. Conduct imperatives

Sustainable development and renewable energies must be based on certain imperatives. In this context, Algerian companies should apply a sustainable development management system that offers a vision and develops products and services reflecting the company's commitment to global responsibility. Algerian companies must maintain a high and visible profile as actors in sustainable development by:

- Developing a sense of responsibility among managers by offering opportunities for self-learning;
- Integrating sustainable development into the company's quantitative and qualitative objectives;
- Establishing clear goals and good governance, along with strong analytical and measurement capabilities, and promoting innovation, creativity, and initiative;
- Applying effective dialogue and internal collaboration in managing human resources, hygiene, health, quality, safety, and the environment, focusing on continuous enhancement and considering the product and service lifecycle.

2.13. Some Recommendations

Algeria should approach these goals according to its context and specificities for sustainable development and the expansion of renewable energies. In this regard, many Western companies follow sustainable development for the following reasons:

- Seizing market growth opportunities ;
- Gaining visibility in the domain of sustainable development;
- Building or restoring legitimacy through a unique corporate culture promotes ethical behaviour and responsibility practices while increasing value.

We recommend that Algeria integrate sustainable development into companies through technical and social dimensions. Sustainable development must be embedded in business processes and company techniques, focusing on the management system. Socially and societally, companies should integrate themselves into their local, national, and international environments. We highlight the significance of Algerian companies, as they are significant to wealth creation.

To integrate the pillars of sustainable development and the growth of renewable energies, Algerian companies must adhere to numerous fundamental principles:

- Shift from quality to sustainable development: Quality focuses on excellence and adherence to standards, seeking to satisfy customers' expressed or implicit needs. In the context of sustainable development, the concept of the customer expands to encompass all stakeholders who expect their needs to be addressed by the company.
- Before deciding to apply a sustainable development approach, Algerian company leaders should consider various questions, including:
  - Does this initiative provide short-term added value?
  - Is it financially realistic ?
  - Does it promote competitiveness ?
  - Does it impact the market?
  - Does it protect the company's reputation?
  - Is sustainable development legitimate only if a strategy supports it?
  - How can we determine if the company's efforts in sustainable development are sufficient?

Furthermore, Algerian companies should establish a system of innovation, good governance practices, a robust management system, and performance metrics with economic transparency and credibility.

3. Conclusion

At the end of our modest contribution through this research, we will summarize the main results.

To earn the legitimacy label now demanded, especially in the West, civil society, the company has no choice but to apply a genuinely sustainable development policy, making it the foundation of its strategy and integrating it into its existing management systems. Moreover, the company's environment is no longer a closed universe. Thus, the role distribution between a company focused on productive efficiency and satisfying solvable needs has reached its limits. The long-term issue has become a current problem.

Considering the long term should not be viewed as abandoning short-term issues. We believe that seeking a competitive advantage also relies on the ability of economic actors to offer comprehensive responses within their sphere of responsibility. Certainly, the company should pay attention to its primary function: meeting material and immaterial needs via the market rather than enriching it. Therefore, a redefinition of performance conditions and continuous improvement are also necessary.

The integrative approach to sustainable development enables greater collective efficiency in innovation, involvement, better resource allocation, and ultimately higher benefits for all actors. However, this does not automatically mean increased profitability. For Algerian companies, sustainable development requires different approaches:

- Developing a "sustainable development" culture within the company;
- Changing the management logic of the company;

- Structuring the sustainable development function within the company.

We agree with (Terkmani, 2017) that in Algeria, the solution to post-oil economic challenges lies not in merely shifting energy sources but in transitioning to a diversified economy where renewable energies are just one component of this diversification. Thus, (Chitour, 2017) vision could become a reality. As he states: 'It is not forbidden to envision a new territorial planning scheme that would enable the creation of new renewable cities, with access to water and electricity, facilitating agricultural development and a transportation policy utilizing electricity for vehicles, trucks, and rail, thus alleviating congestion in the north. This would transform the Sahara into a second California. It introduces a tremendous opportunity for endogenous development, making self-reliance the ultimate goal of this effort.'

This vision of sustainable development is expected to create tens of thousands of jobs. Start-ups led by young engineers and technicians will address social demand, particularly as training programs previously discontinued are reinstated. This represents a true form of ANSEJ (National Agency for the Support of Youth Employment) in the realm of intelligence. The energy shift is a concern for all ministerial departments; it will be facilitated through schools and eco-citizenship education. Vocational training and higher education will need to prepare thousands of technicians and engineers, and it is logical to reinstate the training programs that were previously eliminated.

The energy shift should have the consensus of the largest number, a national political consensus. The citizens will ensure the success of this strategy, as it is about not jeopardizing the future of coming generations.

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