

KPIs for Sustainable Development: The Greek Experience

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Received June 7, 2022; Revised August 6, 2022; Accepted August 20, 2022

Cite This Paper in the Following Citation Styles

(a): [1] Aspridis M. George , "KPIs for Sustainable Development: The Greek Experience," *Advances in Economics and Business*, Vol. 10, No. 3, pp. 51 - 58, 2022. DOI: 10.13189/aeb.2022.100302.

(b): Aspridis M. George (2022). *KPIs for Sustainable Development: The Greek Experience*. *Advances in Economics and Business*, 10(3), 51 - 58. DOI: 10.13189/aeb.2022.100302.

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Abstract After the Olympic Games of 2004, Greece was at the center of dramatic situations and faced serious economic and social problems, especially at the beginning of the 2010s. Initially, the economic and social crisis along with the memorandums and then the emergence of the Covid-19 pandemic affected the development of the Greek economy at both macro and micro levels. In recent years, many efforts have been made for the overall recovery and growth of the Greek economy. Seven sub-categories have been formulated by the Greek Ministry of Development and Investment, including multiple modules of modules and actions for the development of the economy. One of these sub-categories refers to sustainable development. Public policies such as the Sustainable Development Goals, Climate Change, Adaptation Planning and others are regarded as key formative actions for any country, let alone Greece. Key Performance Indicators (KPIs) are applied to monitor policies relating to sustainable development. These targets are the monitoring and key performance indicators of the development strategy for public policies, whose targets monitor and attest to the development strategy course of public policies. The aim of this article is to present, through literature review, the KPIs that are applied domestically and show how they will contribute to the dynamic growth of the Greek economy. The results have turned out to be significantly important and could contribute to the further integration of specialized KPIs in the country's development via the use and exploitation of the natural environment. The development of such secondary KPIs could prove to be a challenge for the environment and climate change disciplines. The topic is crucial and the context of Critical Success Factors (CSF)

and KPIs can be used by public and private sector employees, the academic community, and every researcher/theorist working on the specific topic.

Keywords Economics, Environment, Organizational Development, Public Policy, Strategy

1. Introduction

Ancient Greek philosophers believed that it is necessary for people to respect and protect the environment in which they grow up and from. Menander believed that the earth is the "mother of All, and a good trophos" (Gn. Mon. 617) [50]. The Homeric epics and the texts of Isiodos highlighted how the ancient Greeks perceived and acknowledged the environment's and its consecutive importance. Aristotle linked the natural environment and its elements (i.e. air, water and food) with the development of human beings, who are living organisms and at the same time members of the natural habitat [1, 16, 31]. Xenophon [20] highlighted the importance of agriculture, which he linked to animal husbandry and to seasonal and local festivals, but also to political power [1, 16, 31].

Throughout time, the environmental policy has been a strategic planning framework for the development of both states and organizations. Many institutions about the environment have been formed and likewise many conferences on this matter have been held globally. For example, the European Union in the Treaty on the Functioning of the EU and specifically in Article 191 (2)

that "the European Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay" [6,7].

Additionally, the United Nations Global Compact for Corporate Social Responsibility, in its third section concerning the environment addresses three principles for the protection of natural ecosystems by businesses and organizations, and has formed the basis for modern policies, i.e. subsequent UN actions on environmental protection [37].

The following three principles were introduced, for the first time, embodied in the Rio Declaration in 1992:

Principle 7: businesses should support a precautionary approach to environmental challenges.

Principle 8: undertake initiatives to promote greater environmental responsibility.

Principle 9: encourage the development and diffusion of environmentally friendly technologies [37].

The objectives of this article are: (a) to present the link between KPIs and the growth of the Greek economy in terms of sustainable development, (b) to review previous studies and public policies about the measurement of sustainable development in Greece and lastly (c) to present a holistic approach of CSF and KPIs focused on sustainability.

The research questions that need to be addressed concern the inventory of the main CSFs and KPIs related to sustainable development; the need to link target setting and especially the SMART(ER) system with organisational performance indicators related to sustainable development; and finally the definition of indicators that contribute to the improvement of environmental protection and service efficiency. Within the SMARTER system the objectives must be linked to the indicators and be measurable and unique to each case. It is worth mentioning that especially when we refer to services, we refer to intangible goods, where citizens are actively involved, there is heterogeneity in the outcome provided and there is no concept of ownership in the natural environment. Additionally, when referring to the standards of benchmarking between the individual objectives, all this venture exercise should fit in the context of Total Quality Management [22].

In order to achieve this objective, the methodological tool of literature review was used. Many publications about the link between KPIs and the sustainable development of the Greek economy were scrutinized (study of primary and secondary sources, such as studies of international and national organizations, articles, expert reports, books and other sources), which underpin the holistic approach of this topic. This paper will provide different consideration views for the application of KPIs according to the sustainable development of the Greek economy [3, 4, 17].

The analysis of these data can be useful to public and

private sector executives, the academic community, undergraduate, postgraduate and doctoral students of the Greek Universities and finally the researchers/experts dealing with the specific topic.

2. Literature Review

The aim of this article is not to present the governments' policies, but to discuss the public policies that are being formulated both at the national and international level (distinguishing between the political leadership and the technocratic level of administration). Public policies are independent of the administration in question; in Greece they are directly linked to the European Union environment to which the country belongs and can serve as an example for implementation at the international level. The importance of the issue is also demonstrated by the fact that in the Greek academic community many University Departments (Forestry, Environment, Energy Systems and others) are dealing with the issue of sustainable development, environmental conservation and the circular economy.

Public policy is defined as the management of an area based on the agenda of the responsibilities and obligations of public authority. It consists of a system that includes action plans, the institutional framework, the methods of financing and the participants in the process. Public policies are embodied in the Constitution, the institutional framework and the case law of the courts [23], and they are the result of European policies as defined by the central EU institutions.

To be clear, the term policy refers to the total of measures taken by the present government and is intertwined with the power and strength of political parties [24].

The concept of sustainable development was used for the first time in the 18th century, initially for forest management, and became widely known in 1987 from the specific references to the Brundtland Report [29].

Sustainable development policies are part of the European Green Deal, which aims to make the EU climate neutral by the middle of the 22nd century, with specific objectives to significantly reduce the emissions of hazardous gases of EU Member States [10]. According to the Brundtland Report [25:16] "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

The 2030 Agenda for Sustainable Development is addressed to and by all countries of the world, encouraging them to align their development efforts with the Agenda goals and to promote prosperity and protect the planet [21].

In the last decades, sustainable development has been particularly developed in Greece and contributes to the improvement of the quality of life within the environment where humans live, in order to increase, among other things, their well-being [30]. According to the website of

the European Commission, “The concept of sustainable development refers to a form of development policy which seeks to satisfy society's economic, social and environmental needs in terms of well-being in the short, medium and - above all - long term. It is founded on the assumption that development must meet today's needs without jeopardizing the welfare of future generations. In practical terms, this means creating the conditions for long-term economic development whilst ensuring due respect for the environment. Sustainable development is an overarching objective of the EU, which has published its own Sustainable Development Strategy. In the context of cohesion policy, sustainable development is a key principle identified in the Common Provision Regulation, which provides the policy framework for all programs co-financed by the European Structural and Investment Funds” [41, 44].

The officials of the Greek Ministry of Environment and Energy have tried to list the main definitions- in a glossary- for the issues related to environmental policies and the rational management of natural resources. The Sustainable Development Goals (SDGs) contribute to an effective response by all countries to address the problems of the world with the aim of sustainable development, social well-being and environmental protection. To achieve this, the circular economy has been developed, which aims to produce products and services with fewer but greener resources and by minimising or even better, eliminating waste. The circular economy encourages the use of secondary materials and waste as productive resources and useful materials. In this context, it contributes to tackling climate change, i.e. taking measures to reduce greenhouse gas emissions and adapting these indicators both globally and regionally. In order to tackle climate change, it is necessary to take measures on the green economy, green management, sustainability and other sectors [45].

KPIs define the key performance areas that are the most important for the organizations to achieve their goals. They are defined by higher management practices and must be clear so as to provide a reference point for all participants. Organizations, overall, should ensure consistent high performance and the achievement of long-term objectives. KPIs should be simple and understandable, based on target setting and ability to provide feedback. They may include quantitative, qualitative and predictive indicators [13].

For example, Hongtao Bai et al. [26] applied multiple indicators to capture and highlight energy policy related to environmental protection in China's Regions. In the same year, Kylili et al. [27] recorded KPIs related to environmental sustainability. Finally, Riexinger et al. [28] formulated a holistic model with dynamic KPIs that are environment and economic development-oriented.

3. The Greek Experience

History repeats itself like a farce, as Karl Marx mentioned. Unfortunately, this is true for the Greek

experience. At the end of the 19th century, Greece went bankrupt - in the midst of wars and the Olympic Games- various means of the International Financial Control was imposed.

Greece became a full member of the European Economic Community (EEC) [later called European Union (EU)] on the 1st of January in 1981, but in the late 2000s, early 2010s, Greece was again subjected to the imposition of a new International Financial Control. As a result, several economic measures were imposed for many years, the economy collapsed and there was a significant decline in economic resilience. While the economic and social situation improved in the late 2010s, the coronavirus pandemic emerged which halted the course of economic growth. During this period, Greek governments turned to the sustainable development as a strategic policy to create better conditions for the economic growth.

The Constitution of Greece [52] in Article 24 mentioned that “The protection of the natural and cultural environment constitutes a duty of the State and a right of every person. The State is bound to adopt special preventive or repressive measures for the preservation of the environment in the context of the sustainable development principle. Matters pertaining to the protection of forests and forest expanses, in general, shall be regulated by law. The compilation of a forest registry constitutes an obligation of the State. Alteration of the use of forests and forest expanses is prohibited, except where agricultural development or other uses imposed on by and for the public interest prevail over the benefit of the national economy”.

The first substantial effort was the Law 4430/2016 for the social and solidarity economy [38, 51].

In relation to sustainable development in Greece, seven (7) KPIs have been defined in order to highlight the impact of strategic government policies. They have been formulated based on the forecasts of the Fiscal Strategy Framework and the likely future growth dynamics. The impact of the former specific policies and the developmental reforms strategy has also been taken into consideration in shaping them.

KPIs aim to achieve a sustainable and climate-neutral economy by 2050 and ensure that the natural environment remains resilient, is protected and adequately protected. These indicators are qualitative, measurable, continuously monitored and can give feedback. KPIs are good practices that can be used in public administration. It is an attempt at a holistic development strategy which contributes to pulling the country out of the doldrums of the last decade. According to the announcements and commitments by the Greek Ministry of Development and Investment, there are seven (7) KPIs, which refer to the effort for monitoring and evaluating public policies for the Sustainable Development Goals, as follows [40]:

- (i). Sustainable Development Goals
- (ii). Circular Economy
- (iii). Energy

- (iv). Digital Energy
- (v). Forest Maps
- (vi). Climate Change Mitigation
- (vii). Climate Adaptation.

According to the World Business Council for Sustainable Development [35], the assessment's criteria related to the first KPIs can be defined according to the following:

- (i). Forest management
- (ii). Energy
- (iii). Climate
- (iv). Health and safety
- (v). Social impact
- (vi). Water stewardship
- (vii). Landscapes

“The Sustainable Development Goals (SDGs) are our pathway toward a fairer, more peaceful and prosperous world on a healthy planet. They are also a summons to inter-generational solidarity. We have no greater duty than to invest in the well-being of young people so that they can realize their potential. I am determined to ensure that an effective, reformed United Nations is up to the task in enabling people everywhere, today and tomorrow, to meet their needs and realize their aspirations according to António Manuel de Oliveira Guterres (UN Secretary General) [18, 34].

The countries that have adopted them - including Greece-must formulate the appropriate ideal institutional framework and push the business world by implementing best practices through an integrated system of monitoring the specific objectives. The SDGs cover a broad range of actions ranging from climate change to the eradication of poverty and hunger, the promotion of innovation, sustainable consumption and many more [2, 12, 14, 41].

As far as circular economy is concerted, the Greek Government seeks to introduce green criteria in public procurement. The circular economy is a green model of development aiming at producing products and services using fewer resources, on the one hand, and using "greener resources", on the other hand. It minimizes or even eliminates waste at the stages of the production process and at the end of the life cycle of products. It encourages people to use secondary materials and waste as productive and useful resources, thus, reducing dependence on non-renewable resources, saving costs and creating new and more modern jobs [19, 35, 39].

Next KPI refers to energy. According to it, 32% of total consumption is targeted to come from Renewable Energy Sources by the beginning of the next decade. Wind, solar, biomass and biofuel energy and geothermal energy seem to be the most suitable and eligible solutions to reduce greenhouse gas emissions and dependence on fossil fuel markets. The target is to meet 40% of demand from renewable energy sources by 2040. Greece can exploit these sources, albeit in different ways per region. For

example, wind energy in the South Aegean, solar energy in all regions throughout the year, etc. Greece is in the unfortunate position of having two power enterprises among the thirty most polluting plants in the European Union (in the first and fourth place of the ranking) [42, 43, 46].

Digital agriculture (Agriculture 4.0) aims to support half of the total areas of arable land via digital tools in the current decade. Through this innovation, farmers will produce different products using new techniques while reducing pesticides, increasing the efficiency of the food supply chain and eventually incorporating more technologies and applications for professions related to agriculture [9].

Forest maps record the specific areas and depict the undergone changes with the aim of protect and utilize the forests. They were first established in 1998. The land will be used for tourism-related activities, there will be more effective protection against fires and better use will be made of the “fruits born” by the forest [11].

The Greek Constitution [52] in the interpretative clause of the Article 24 mentioned that “By forest or forest ecosystem, meaning the organic whole of wild plants with woody trunk is meant of better on the necessary areas of the landscape are meant where the fauna and flore interact and co-exist and constitute, means of their mutual interdependence and interaction, a particular biocoenosis (forest biocoenosis) and a particular natural environment (forest-derived). A forest expanse exists when the wild woody vegetation, either high or shrubby, is sparse”.



Source: Personal archive of the author

Figure 1. The Vicos Gorge in the Pindus Mountains of Greece

The European Union has developed the idea of the New Forestry Strategy (2013) to unleash the potential of forests for the future of all people and is constantly being redefined. The European Green Deal refers to the creation

of an ethical society through the use of natural resources, resulting in a modern competitive economy. The most important goal of the European Green Deal is to coordinate businesses and industries in a circular and clean economy so that countries perhaps, since we are talking about a European Deal continents should be climate neutral by 2050 [8]. It is based on the EU Biodiversity Strategy, till 2030. The aim of this policy is to pinpoint and emphasize the role of forests and the people who are involved with them, taking into regard the natural ecosystem chain [6].

The last two indicators for assess public policies relating to climate change mitigation and climate adaptation. These two KPIs contribute to a reduction of the greenhouse gas emissions of more than 20% by the end of the decade and to the completion of the Greek regions' climate change adaptation plans over the current decade [39, 40].

From the aforementioned concerning the undesirable actions of enterprises on environmental pollution, one can easily conclude that the impact on climate change is intense. Rising temperatures, melting ice caps, flood risks and others are all the more leading to the elimination of certain species of biodiversity. The results of increased mortality rates and deaths and the reduction of water in Southern Europe, have taken a heavy toll on society and economy. According to the European Green Deal, it has been decided to reduce carbon dioxide emissions by 55% by the beginning of the next decade and to adapt to circumstances and needs for environmental protection. The goal is to protect the ecosystem, to increase funding for the environmental protection and finally to create new positions of employment that will help to increase the competitiveness for both the public and private sectors [39].



Source: Ministry of Development & Investment – Greece: A growth strategy for the future [40].

Figure 2. KPIs for a Sustainable Development

According to the Greek Ministry of Development, success of application lies within the following guidelines [5]:

- (i). continuity in the actions of the administration,
- (ii). procession of reforms that relate to the business environment,
- (iii). reinforcement of the developmental institutions of the Greek state,
- (iv). improvement of the coordination and cooperation between public and private sector organizations.

4. Discussion

KPIs pose as the most important objectives of public policies for sustainable development and the main points for the implementation of green businesses. Environmental protection becomes an important topic in strategic business. It contributes to the formation of positive attitudes of enterprises towards the environment in both products and services constructed. Companies that have incorporated green policies into their actions maintain a positive attitude and green procedures and methods towards the environment [15].

In recent years - and under the pressure of the economic crisis - significant progress has been made in e-government and in monitoring the performance of public organisations. Through sustainable development, Greece can formulate actions for joint actions in the context of the implementation of the Sustainable Development Goals, i.e. cope with the reduction of pollutants from businesses, adapt to climate change and leave a better environmental footprint. These policies can also be achieved through the absorption of EU funds. Greece can use all the natural and renewable resources at its disposal to formulate a strategic development policy and a modern business environment that respects the natural ecosystem. Updating the benchmarks will help to redefine the main objectives and develop new core strategic objectives. The implementation of KPIs will lead to the development of public policies and investments that will create new employment and employability schemata and lucky profits. At the same time, the production model will change to a better financial environment [5].

The CSF and KPIs are specific, can be used accurately in each case and provide general guiding principles. It is necessary that they are applicable to both customers and the organisation itself, are clear, understandable, unambiguous, open for improvement and allow for feedback (like SMARTER targets in the context of performance management). For the goal setting and the formulation of future objectives and vision, feedback from stakeholders, assessment of subject matter knowledge and management decisions are required. Indicators should be simple and understandable for all stakeholders, be based on target setting and provide effective feedback and quantification of objectives, in order to avoid confusion of

responsibilities, complexity and bureaucratic dysfunction [2, 47].

In order to implement organisational performance indicators in the context of environmental and sustainable development policies, a number of criteria should better be used, such as the role of the leader, the participants in the implementation process (especially the employees), along with the enforcement of the indicators from, and in cases where they cannot be implemented effectively, the management of change, the singularity of the CSF - KPIs in each case and finally the technical support that the administration must receive.

5. Conclusions and Recommendations

This study has been based on the method of literature review. In the future, field research will be conducted in order to study the viewpoints of the stakeholders about the KPIs for sustainable development and whether they have essentially helped the development of the Greek economy after the last crisis. Human actions and activities relating to green entrepreneurship and sustainable development will be recorded and evaluated.

People's drivers and interventions actions and interventions in ecosystems are often based on greed. Decisions need to be made with great care and society as a whole should be extra careful of their agenda that has an impact on the natural environment. The myth of Erysichthon, the King of Thessaly (the one who wounded the earth) is very similar to the current situation, because it has been proven that nature reacts to our actions and the balances between the elements that constitute it are disturbed [31, 36, 49].

The transition to sustainable development and sustainability remains incomplete and the handling of environmental issues is underdeveloped not only in Greece, but in many countries of the EU. Nevertheless, it is necessary for the western world to improve the quality of life, the economic development of the countries through sustainable development and to overcome the environmental crisis. The educational and enrichment of all stakeholders process will also help to improve this situation [32, 48].

The main limitation of this paper is the fact that it is bibliographical and refers exclusively to the Greek experience. In the future, comparative research could be carried out at the European level in order to formulate commonly accepted indicators within the EU framework.

Acknowledgements

I am extremely grateful to my colleagues Ioannis Kazoglou, Labros Vasiliadis, Mary Viterouli for their appropriate and constructive suggestions to improve this article. I am also thankful to Panagiota Zarra and Dimitrios

Leontis, PhD students at University of Thessaly, Department of Forestry, Wood Sciences and Design for their comments. Lastly, I would like to mention the three anonymous reviewers, which helped me to revise the manuscript.

The article is part of the postdoctoral research, about KPIs, carried out at the Department of Financial and Management Engineering, University of Aegean, Greece.

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