

## **Efficient Quality Management for Agricultural Food Productivity**

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### **Abstract**

In this study useful solutions are presented for total quality management within projects for sustainable development and public health protection due to climate change. Particular analysis is being carried out on principles of quality management related to agricultural productivity and public health protection. Useful conclusions are presented in emerging technologies not only for sustainable development but also to protect public health.

**Keywords:** Quality management; sustainable development; geo-health; public health protection; sustainable construction designs; bioclimatic design; ecological health; geoinformation utilities; agricultural food; nutrients.

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## 1. INTRODUCTION

Nowadays, despite the growing awareness of the serious issue of climate change, there is still a significant deficit at the level of sustainable designs for energy consumption; biotechnologies within agricultural productivity; quality management utilities; public health protection; renewable resources; bio-fertilizers; sustainable construction designs in agricultural facilities and cooperation in adopting both integrated and practical strategies to address it.

In recent years sustainable development has been a key strategic objective of the EU. The decisions of the 2015 UN General Assembly on the so-called 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals (SDGs) have given a new impetus to the pursuit of sustainable development at European and global level [36, 38].

This Agenda is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom. It is recognized that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable agricultural food industry development [8, 9, 10, 11, 12, 13, 14, 29, 30, 31, 34, 35, 37, 39]. All countries and all stakeholders, acting in collaborative partnerships, will implement particular quality management utilities for agricultural food productivity. It is resolved to free the human race from the tyranny of qualitative agricultural food products and food security on our planet. It is determined to take the transformative and bold steps, which are urgently needed to shift the world on to a sustainable and resilient path. However, effective application is necessary of proper geoinformation utilities; biological fertilizers; innovative sustainable designs; efficient clean technologies within circular economy; quality management implementation tools and ISO standards

so as to achieve sustainable agricultural productivity [1, 2, 3, 4, 5, 6, 7, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 32, 33].

Nowadays, are necessary the Sustainable Development Goals and associative targets, which are presented below so as to demonstrate the scale and ambition of the relative universal Agenda for Sustainable Development [36, 38]. They seek to build on the Millennium Development Goals. They seek to realize the human rights of all and to achieve gender equality and the empowerment of all women and girls within sustainable development activities. They are indivisible, integrated and balance the three dimensions of sustainable development: the environmental, social and economic. The reative Goals and targets will stimulate action over the next 15 years in areas of critical importance for humanity; good health and wellness; clean water – sanitation; agricultural industry on innovation and infrastructure; and sustainability on the planet.

## 2. UTILITIES AND METHODS - LITERATURE REVIEW

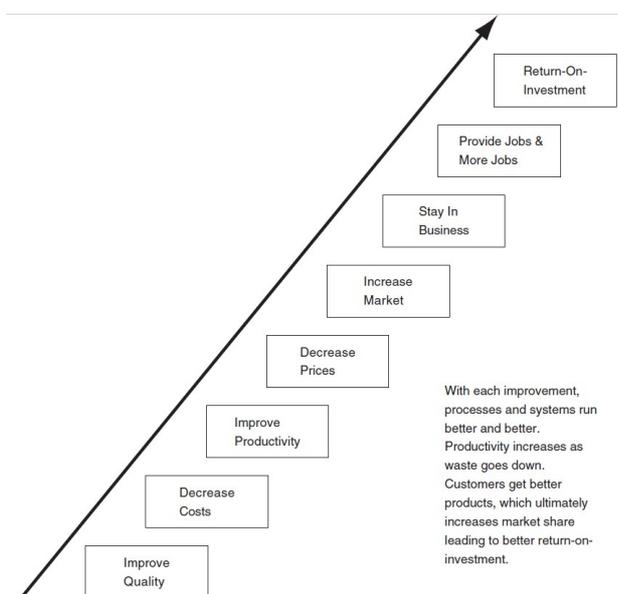
Nowadays, the EU has set up an advanced monitoring system, based on the 17 Sustainable Development Goals and 99 relevant indicators. Thirty-seven of these indicators are multidimensional and relate to more goals [36].

The 17 Sustainable Development Goals that identified by the UN are monitored and promoted by the EU, which are listed below:

1. Not in poverty;
2. Eliminate hunger;
3. Good health and wellness;
4. Quality education;
5. Gender equality;
6. Clean water and sanitation;

7. Affordable and clean energy;
8. Decent work and economic growth;
9. Industry innovation and infrastructure;
10. Reduce inequalities;
11. Sustainable cities and communities;
12. Responsible consumption and production;
13. Climate action;
14. Life under water;
15. Life on Earth;
16. Peace, justice and strong institutions;
17. Partnerships for Sustainable Development Goals.

Moreover, there are some main reasons that explain the emphasis on sustainable development in the EU and in Greece. Firstly, EU has successfully tackled the financial crisis that culminated in 2012. Nevertheless, Greece has been left behind on many social issues and there is a need to increase public and private investment in basic infrastructure and the preparation of the future.



**Figure 1. Productivity stages - Deming’s “Chain Reaction.”. Source: [4].**

The Sustainable Development Goals are now a key priority and this explains Eurostat's very good work in monitoring the relevant indicators. Efficient quality management utilities are necessary for safety in agricultural food; ; clean technologies; efficient project management utilities; proper quality management tools; sustainable designs; renewable resources for efficient agricultural productivity [3, 14, 15, 21, 22, 29, 30, 31, 34, 35; 37, 40].

### 3. PUBLIC HEALTH FRAMEWORK METHODOLOGY

Nowadays, the European Commission under the chairmanship of von der Laien has set as its primary strategic objective the transformation of the European economy and society through the so-called 'Green Deal'.

The implementation of the new strategy is based on the achievement of specific goals for sustainable development [36]. Funding for national and European projects and programs now depends on promoting sustainable development. This has to do with various programs and investments, ranging from the energy transition to modernizing the infrastructure and turning into more environmentally friendly management procedures, quality control within agricultural development [15, 18, 22, 29, 32, 33, 37, 39].

Furthermore, the EU has neither the political influence nor the military capability to fill the void left by the US withdrawal from various parts of the world of strategic importance. But it has the means and the political will to lead the world in sustainable development.

Moreover, Greece is not doing well in meeting most of the goals for sustainable development. But there is a will to turn its

weaknesses into additional opportunities. However, over the past few months, the financial and business environment has improved, interest rates on the 10-year and five-year bonds issued by the Greek government have fallen sharply and investor expectations have risen.

Undoubtedly, are necessary the sets of ambitious goals for sustainable development. Proper application is necessary of geoinformatics tools; ICTs; project management tools; sustainable construction designs; monitoring tools; ISO standards implementation; total quality management for efficient sustainable agricultural food productivity [2, 3, 11, 12, 15, 16, 17, 21, 22, 23, 24, 25, 26, 37, 39].

Hence, there are huge state investment funds in the efficient quality management services implementing properly ICTs and sustainable designs for agricultural food productivity, public health protection and promoting sustainable development.

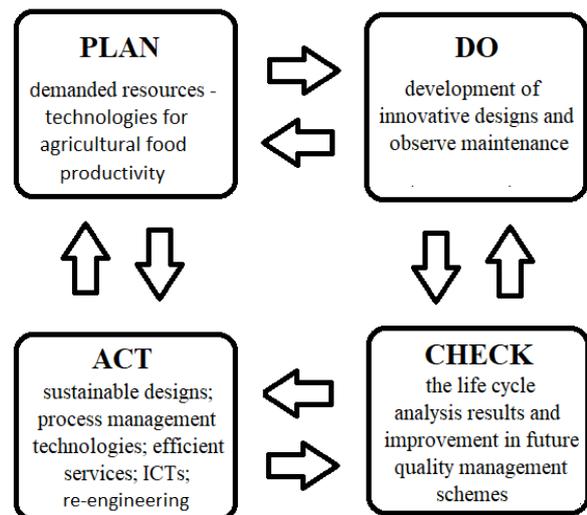
In Figure 2, based on the above, is presented a working framework for efficient quality management control for agricultural food productivity that, firstly, benchmarking is considered an eternal process (a closed loop) meaning that as soon as the benchmarking procedure is implemented and the improvements started, a new plan and search for improvements starts. The relative benchmarking is implemented in four natural stages:

1. PLAN: planning the demanded resources; biotechnologies for qualitative agricultural productivity; technologies in food storage;
2. DO: development of innovative designs and observe maintenance; ISO standards; HACCP monitoring schemes;
3. CHECK: analyze the life cycle analysis results and improvement in future quality management schemes for agricultural food productivity; check food manufacturing standards;
4. ACT: adapt sustainable designs; process

management technologies; efficient services; ICTs; qualitative agricultural food products and carry through improvements; re-engineering.

The planning stage (Plan) comprises the initial activities in connection with benchmarking. The stage will typically consist of the following four points:

1. Determination of what shall be benchmarked.
2. The determination of methods for data collection.
3. The determination of criteria for the selection of benchmarking partners.
4. The determination of use of resources.



**Figure 2. Working framework in efficient quality management control for agricultural food productivity.**

As regards the choice of a partner, the criteria must be determined on the basis of the superior consideration that the particular applied know-how for sustainable agricultural food productivity; particular metrics; relative results in datasets found in quality management projects will

be transferable to a stakeholder one's own company and at the same time, the practice found should reflect 'world class'. In this way probable operational and maintenance problems for particular projects could be solved and improved in time.

The above presented working framework for efficient quality improvement within sustainable agricultural productivity should be the base for investments in: emerging green agricultural products; clean technologies; innovative ICTs; accurate agricultural projects; minimizing their operational and maintenance costs; improving their environmental management systems; recovering properly waste emissions; supporting renewable resources - circular economies and social low-income communities. The higher magnitude in consumption of renewable resources within quality management implementation, the better the performance within the sustainable performance of a designed project related to safe agricultural food productivity and environmental health protection.

#### 4. CONCLUSIONS

The development of proper monitoring schemes, auditing, risk assessment tools, and efficient environmental technology not only will control but also it could manage better the

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environmental impacts but also will promote environmental protection and sustainable development within the food industry.

For an effective food quality and safety should be taken into account the next: integrated geoinformation simulation tools are necessary for stakeholders within the building capacity of optimum operational management and operational design of manufactures; right equipment selection in clean technologies; use proper environmental technologies for recovery of waste emissions; efficient designs in sanitary engineering; recovery of energy; effective designs of construction materials in reclamation works and clean technologies; risk assessment of environmental resources – public health protection and project management of equipment, machines of landfill gas exploitation to

The above presented solutions for total quality management improvement are necessary for business sector in agricultural food industry in countries like in Greece or other ones in Europe or in other continents, overseas.

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