

Interreg

Greece-Bulgaria

EnvironmentYou

European Regional Development Fund



EUROPEAN UNION

WP5: Design & Implementation of Networking & Clustering Actions

Deliverable X.X.X: International Exchange Visits

Prepared by

Hellenic National Youth Council

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Project Information

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HNYC Guide of the Study Visit in Thessaloniki | 12-15.10.2021

Environmental Management Enhancement by Youth-run SMEs



OBJECTIVES OF THE STUDY VISIT

The study visit aims to contribute to enhancing the active participation of beneficiaries, promoting interaction between all participants and enhancing cooperation between them.

The specific objectives of the Study Visit in Thessaloniki are:

- the theoretical reinforcement of the experiential method through the interconnection of theory with practical application
- the active and participatory learning process
- to familiarize participants with the use of "good" practices
- the understanding of their environmental and economic benefits
- the revision of misconceptions and the application of the newly formed theory in practice

EXPECTING RESULTS

The individuals who participate in the study visit will have the opportunity to get to know new methods, strategies in the agricultural sector which apply to all levels of education but also to small and medium enterprises in Greece and in Thessaloniki in particular.

Furthermore, the programme will give to the participants the opportunity to meet with school directors and professors, with business managers active in the primary sector and with public key policy makers operating in the agricultural sector and share with them experiences, problems and best practices.

ROLE OF HNYC AS HOST ORGANIZATION

Hellenic National Youth Council (HNYC) organize the mobility initiative at local level.

The HNYC will take care of the preparation, planning, organization and implementation of the study program and in particular the visits to pilot companies as well as the training program which will cover thematic modules related to environmentally friendly entrepreneurship and "good" practices and methods.

In addition, HNYC will undertake the provision of transportation, catering and accommodation services of the participants while part of HNYC obligations is to ensure the perfect organization and completion of all actions included in this project, through the provision of excellent secretarial and administrative support services.

PREPARATION

The participants involved in the Study visit in Thessaloniki, before the beginning of the mobility project must have the following documents to enter the country:

- Either a **negative PCR** certificate from a testing laboratory, for a Covid-19 test taken no later than 72 hours before arrival **or a negative antigen** (rapid) certificate taken no longer than 48 hours before arrival.
- Proof of a negative test is not required however for all travelers that have completed their vaccination and hold a **vaccination certificate**.
- Proof of a negative PCR test is not required if the traveler **was tested positive with COVID-19 in the past 30 to 180 days**. This can be proved either by presenting a positive PCR molecular or an antigen test result performed by an authorized laboratory or a medical certificate confirming that the holder was tested positive with SARS-CoV-2 virus infection.
- All travellers must complete their **PLF** before entering the country, providing detailed information on their point of departure, the duration of previous stays in other countries, and the address of their stay while in Greece. In case of multiple stays, they are required to provide the address for the first 24 hours at least. The PLF can be found on the **Visit Greece app** and at **travel.gov.gr**.
- **Passport or ID card**

THE HOST ORGANIZATION

The National Youth Council (HNYC) was founded in July 1998, after a great and long-term effort of the youth of the political parties and youth social organizations of our country and acquired an elected administration in November of the same year. The HNYC is an independent, non-governmental, non-profit federation of youth organizations.

Today it is made up of fifty-nine youth organizations (six political party youth and a large number of non-governmental youth organizations), ie most of the organized Greek youth. Its aim is to strengthen the role and coordinate the actions of its member organizations. The HNYC according to the number of members of its organizations, it represents over three hundred and fifty thousand organized Greek young men and women.

The HNYC is the official representative of the Greek Youth abroad and the interlocutor of the government at the domestic level. It is the official national youth structure of our country. He represents the Greek youth at home, participating (institutionally) in the Interministerial Committee for Youth, in the Organizing Committee of the Parliament of Adolescents, in the National Volunteering Committee, etc., while at the same time participating in dozens of networks and gatherings of Greek Civil Society. Abroad HNYC represents the Greek Youth participating in the European Youth Forum, the Mediterranean Youth Forum, the International French-speaking Youth Council, the UN General Assembly, the UNESCO Youth Council.

The member organizations of HNYC make it one of the largest and most representative in Europe. Maintaining their autonomy, they participate in HNYC equally, without exclusions based on religion, race, diversity, sexual preference, thus forming a very wide field of dialogue and highlighting the issues of concern to the youth of our country. The HNYC transcends partisan, ideological, social commitments in order to seek solutions and proposals, drawing up a new policy for the Youth, from the Youth.

Aiming at the continuous training and information of young people on issues that concern them, HNYC implements workshops, conferences, cultural and other programs, seminars and actions that directly target young people.

Training Material for the Study Visit in Thessaloniki | 12-15.10.2021

Environmental Management Enhancement by Youth-run SMEs



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1. INTRODUCTION

The **EnvironmentYou - Environmental Management Enhancement by Youth-run SMEs** project focuses on developing specially designed promotion and organisation procedures aiming in the successful diffusion and effective implementation of EMSs in enterprises. The SMEs will be the ones operated by younger people in the cross-border region of Greece and Bulgaria and that are focusing on agricultural activities.

The EnvironmentYou project was launched in June 2019 and will be implemented for two years, in the framework of the Cooperation Programme Interreg V-A “Greece-Bulgaria 2014-2020”, which is co-funded by the European Regional Development Fund (ERDF) and by national funds of the countries participating in the Interreg V-A “Greece-Bulgaria 2014-2020” Cooperation Programme.

This section provides an overview of the contents of this booklet. More specifically the material that will be available to participants of the International Exchange Visit in Thessaloniki provides further information regarding:

- The Project Aim And Its Objectives
- The Cross-border Partnership And The Area of Intervention
- The Project Beneficiaries And Target Groups
- The EnvironmentYou Project Outputs
- The EnvironmentYou Partnership
- The EnvironmentYou Work Packages
- The International Exchange Visit Agenda
- The International Exchange Visit Educational Material

Overall, the aim of the International Exchange Visit, which is organised by Hellenic National Youth Council (HNYC), is not only to familiarize the participants with the project and its activities, but also to provide the stepping stone for being introduced to the concepts and practices of Circular Economy. A series of field trips and lectures will take place and will give the chance to the participants to exchange knowledge, best practices and finally promote cross-border partnership and collaboration.

2. THE PROJECT AIM AND ITS OBJECTIVES

All the **EnvironmentYou** project actions aim in seeding an eco-friendly business culture and practice the philosophy of sustainable development to young professionals. The project's goal is the initiation of a transition process for business operations from a "profit only" business approach to an environmental resource' protection and enrichment process. This approach will secure the area's environmental capital, but it will also create rigid foundations for a strong but most important, sustainable economic growth. An overall goal is to cultivate environmentally friendly business culture to youngers in the cross-region area, focusing on those who are working with soil and water, and especially those who are near or affect Natura areas. The Strategic Objectives of the proposed project are the following:

- The establishment environmental quality principles for cross border youth SMEs.
- The integration of sustainable development principles and environmental capital protection in the cross border productive model.
- Promotion and exchange of good practices inside Regional territory but also towards neighboring regions.

The Project specific objectives are briefly described below:

- Promoting SMEs conformation with European environmental legislation and promotion of its uniformity among the two sides of the borders.
- Seeding total quality management principles in youth SMEs.
- Decrease in energy consumption.
- Decrease in natural resources consumption.
- Advancement in management of soil and water deposits.

3. THE CROSS-BORDER PARTNERSHIP AND THE AREA OF INTERVENTION

The geographical area of the EnvironmentYou project's activities covers a big portion of the total Greece and Bulgaria eligible area. All Greek partners are located inside the Central Macedonia Region, with the administrative body of the Region being part of the consortium. The region is the second most populated region of Greece, but also one of the most productive in the agricultural field. The landscape is a combination of flat fertile areas and mountainous varying environments. The same counts for the side of Bulgarian border area.

The total of the intervention area is active in agricultural sector. The population is suffering from internal migration towards the cities and the rural areas are facing a lack of youths to actively take over modern open area activities. Also, for the total of the INTERREG eligible area, human activities are posing a threat for the environment, combined with climate change and global warming.

In relation to the above challenges, the project is aiming to tackle them by incorporating the novel approach of adopting eco-friendly practices that will not only maximize economic performance, but also serve as a driver for environmental protection and enrichment.

4. THE PROJECT BENEFICIARIES AND TARGET GROUPS

The EnvironmentYou project targets among others in the following groups:

- Adult Counsellors
- Local Development Agencies
- Business Associations
- Chambers of Commerce
- Labour Employment Services
- Adult Education Policy-Makers
- Higher Education Institutes
- Trade Unions
- Business Incubators

- Business Accelerators
- Social Enterprises

5. THE ENVIRONMENTYOU PROJECT OUTPUTS

During the implementation of the EnvironmentYou project, the following outputs are expected to be delivered:

- 5 Local piloting EMSs implementing networks.
- More than 500 participants in training seminars on EMS, eco-friendly Business and Natural Resources protection through business activities.
- One template for Environmental Management System for cross-border rural areas based on the EMAS standard.
- A model focusing on sustainable agricultural activities in environmental sensitive areas.
- One operational e-EMS Knowledge Resource Center, operating as a distinctive office in each partner's premises in the area of intervention.
- A total of 30.000 square Km surface area of habitats will be supported, in order to attain a better conservation status. The area of intervention includes the Region of Central, Blagoevgrand, Smolyan and Haskovo Provinces.

6. THE ENVIRONMENTYOU PARTNERSHIP

The strategic partnership was set based on the expertise and the diverse activities of the consortium members, as each partner brings a complementary knowledge related to the project. A brief description of the partnership members is available below.

LB: Hellenic National Youth Council | Website: <http://www.esyn.gr/en/>



**Εθνικό
Συμβούλιο Νεολαίας**
Hellenic National
Youth Council

The Hellenic National Youth Council (HNYC) was founded in July 1998, after strenuous efforts by Greek political and social youth organizations and obtained an elected administration in November of that year; it is an independent, non-government, non-profit federation of youth organizations.

Today up to fifty-nine youth organizations (six political youth parties and numerous non-government youth organizations) are members of HNYC. Thus, most of youths belonging to an organization are part of this federation. Its aim is to strengthen the role and coordinate the actions of its member organizations. The HNYC, according to the number of members in its organizations, represents over three hundred and fifty thousand young Greek men and women.

The HNYC associates with the Greek government concerning domestic matters and is the official representative of young Greeks in Greece and abroad. At the international level it participates in the European Youth Forum, the Mediterranean Youth Forum, the International French-Speaking Youth Council, the General Assembly of the UN and the Youth Council of UNESCO. HNYC is one of the largest and most represented youth federations in Europe.

HNYC overcomes political, ideological and social commitments in order to address challenges faced by youth at a national, European and international level. Aiming at continuously training and informing young people on issues that concern them, the HNYC implements workshops, conferences, cultural and other programs, seminars and activities that directly target young people.

PB2: Agricultural University of Plovdiv | Website: <https://www.au-plovdiv.bg/en/>



The Agricultural University of Plovdiv (AUP) is established in 1945 as a national centre for agricultural science and education in Bulgaria. The AUP is the leading institution in proving competences in agricultural business, science and education. The University is equipped with modern research laboratories, experimental and demonstration fields and greenhouses, lecture halls, computer rooms and libraries, sport-halls and play-grounds. The AUP provides education for obtaining BSc, MSc and PhD academic degrees as well as postgraduate Lifelong Learning (LLL) for enhancing qualifications of professionals. Bulgarian and foreign students enroll both as full-time and part-time students in degree courses of agronomy, plant protection, animal husbandry, agroecology, horticulture and viticulture, agricultural economy, agro-tourism, etc.

The Agricultural University is among the first Bulgarian Universities awarded an Erasmus Charter as early as 1999 with the accession of the country to Socrates/Erasmus programme. In 2007, the University received an Extended Erasmus Charter, which allows the students the opportunity to take part in international practical placements. In 2014, the University joined the Erasmus+ programme with a vast network of contacts with almost all European countries. Nowadays we have Bilateral Agreements signed with over 80 higher education institutions and companies. The AUP participates in international educational and research projects and projects financed by national and transnational Operational Programmes of EU.

PB3: Regional Development Fund of Central Macedonia | Website: <https://www.rdfcm.gr/el/>



The Regional Development Fund of Central Macedonia (RDFCM) was established in 1997 and is supervised by the Ministry of Interior. From 2011, the Regional Development Fund of Central Macedonia came under the jurisdiction of the Region of Central Macedonia. It is a Private - Law Legal Entity and is administered by the Management Board (MB) of nine (9) members, whose President is the Governor of the Region of Central Macedonia. The rest of the members of the Management Board are General Directors from the Region of Central Macedonia, representatives of the political parties of the Regional Council and representatives from local Chambers and the Local Workers Union. The RDFCM is responsible for a series of tasks and mainly include the following:

- The management of credits pertaining to the Program of Public Investments of Greece; the management of funds which stem from public bodies, legal persons, the European Union Programs and other International Organizations Programs regarding the regional, local and spatial developing programs that take place in the Region of Central Macedonia.
- The checking, authorization and payment of expenses made by the Region of Central Macedonia and other bodies in the region which are included in the National Strategic Reference Framework 2014-2020 (NSRF 2014-2020)
- The provision of technical support, know-how and funding for the integrated elaboration of studies, surveys, towards the most efficient implementation of programs for the Region of Central Macedonia.
- The implementation of EU funded Projects.

- The cooperation with the Region of Central Macedonia in preparing and submission of proposal for EU funded Projects.

PB4: Youth Forum 21st Association | Website: <http://www.mforum21.org/>



Forum 21st Association (YF 21) is a non-government organisation, established on 1 November 1999 by a group of young people and supported by the Confederation of Independent Trade Unions in Bulgaria (CITUB). The organisation is a full-right member of the National Youth Forum in Bulgaria (member of European Youth Forum) and actively involved in the work of the Youth Committees of European Trade Union Confederation (ETUC) and International Trade Union confederation (ITUC).

Youth Forum 21st Century Association has 20 years' experience in the realization and reporting of a verity of youth activities, initiatives and projects on local, regional and national, as well as on European and international level. Some of the association's activities have been realized in partnership and with the support of different local, national and international organizations and foundations. These activities have been directed mainly towards increasing the awareness of young people of their main human, labour, social and European rights, possibilities for their career and labour market realization, as well as raising young people's awareness of civil and non-formal education issues; volunteer work, etc.

Some of the activities in the field of work of the organization are:

- conferences, round tables, seminars and other discussion forums at national, regional and international level;
- training courses;

- informational and educational campaigns about labour, social and trade union rights;
- youth surveys;
- face-to-face meetings with young workers;
- free of charge labour advices by young lawyers;
- outside youth actions;
- youth competitions and exhibitions (photo, graffiti, etc);
- sport and charity activities; etc.

PB5: EUROREGION Nestos – Mesta | Website: <https://nestosmesta.gr/>



The EUROREGION (surface: 5651 km², inhabitants:230.000) covers the Drama Regional District in the Region of East Macedonia - Thrace in Greece and the River Mesta Region in the Region of Blagoevgrad in Bulgaria. EUROREGION Nestos - Mesta structure comprises of two units that of the Bulgarian Side and that of the Greek Side respectively. The EUROREGION was founded in 1992 and is registered in the two countries as non-Profit non-Governmental organizations according to the national legislation of each country.

The objective, which the EUROREGION Mesta – Nestos has set itself, is to encourage and promote regional partnerships, to support the exchange of experience between institutions, economic entities and cultural association. To reach its aims, it relies on local organizations that demonstrate the traditional spirit of solidarity, which shows itself in times of crisis.

The aim of future activities includes the strengthening of the partnership and the exploration of the possibility to establish a EGTC. The two sides have elaborated and developed a common

action strategy. The strategy calls for the implementation of certain actions and activities categorized in six major fields. The six fields of activities that are under constant development in the Euroregion 'Nestos-Mesta' are:

- Activity Field A: Communication, Exchange of Information and Networking
- Activity Field B: Economic Cooperation Transport and Infrastructure;
- Activity Field C: Tourism – Entertainment;
- Activity Field D: Culture and Society;
- Activity Field E: Environment and Agriculture;
- Activity Field F: Transfer of Technology

PB6: Regional Center for Vocational Education & Training to CCI-Blagoevgrad | Website:
https://cci-bl.org/en/en_home/



The association is founded to achieve the following goals:

- Establishment and functioning of a vocational education and training system.
- Meeting the needs of the labor market of qualified competitive work force.
- Access to lifelong learning opportunities.
- Information and consultation of people about the labor market.

- Representation of the interests of lifelong learning, professional education and qualifications in front of state, regional and local authorities.
- Stimulation of employment and reduction of un-employment in economic weak regions.
- Enhancement of marketing and advertisement activities of its members.
- Participation in national and international projects and programs.
- For achieving the main goals of the organisation, the following means available:
- Collaboration with commercial organizations, other NGOs and national and local authorities for implementation of projects.
- Participation in national and international partnerships.

PB7: Association for Regional Social & Economic Development | Website:
<https://www.arsed.eu/en/>



The Association for Regional Social and Economic Development is a privately owned non-governmental organization established in mid-2014. The Association works on a partnership basis with a network of over 20 organizations at local and national level.

Mission:

- To support the sustainable regional social and economic development.
- Subject of activity:

- Organisation of meetings, seminars, consultations, trainings, internships, charity events, donor campaigns, cooperation with state institutions and NGOs in Bulgaria and abroad.
- Preparation and participation in national and international programmes and projects with European and other donor's funding.
- Organisation and participation in local, national and international fora and discussions.
- Organisation of events, trainings and implementation of educational and information programmes.

Areas of functional expertise:

- Rendering of technical assistance and capacity building to public institutions.
- Project Cycle Management – development and management of projects funded by the European Structural and Investment Funds.
- Elaboration of (pre-)feasibility studies.
- Institutional development.
- Regional and economic development.
- Realization of social initiatives.
- Delivery of trainings – thematic and functional.
- Carrying out marketing researches.
- Development of sectoral analyzes.
- Entrepreneurship development.
- Transfer of knowledge and technology

7. THE ENVIRONMENTYOU WORK PACKAGES

The EnvironmentYou Work Packages (WPs) with the relevant Deliverables are described below:

WP 1: Project Management & Coordination

Deliverable 1.1: Preparation Activities

Deliverable 1.2: Design Action Plan - Project Kick off Meeting

Deliverable 1.3: Management & Reporting

Deliverable 1.4: Audits

WP 2: Communication & Dissemination

Deliverable 2.1: Design of Publicity Plan

Deliverable 2.2: Specific Publicity Actions: Attracting Stakeholders

Deliverable 2.3: Internet & Electronic Media Promotion

Deliverable 2.4: Publicity & Promotion actions in the Mass Media

Deliverable 2.5: Final Conference

WP 3: EMS Development & Pilot Application

Deliverable 3.1: Current Status Study

Deliverable 3.2: Development of EMS Manuals and Software

Deliverable 3.3: Establishment of e-EMS Knowledge Center

Deliverable 3.4: Pilot Operation

Deliverable 3.5: Evaluation & Redesign of EMS

WP 4: Design & Implementation of Vocational Trainings

Deliverable 4.1: Electronic & Printed Training Material

Deliverable 4.2: Training Seminars

WP 5: Design & Implementation of Networking & Clustering Actions

Deliverable 5.1: International Networking Workshops

Deliverable 5.2: International Exchange Visits

8. THE INTERNATIONAL EXCHANGE VISIT AGENDA

Day	Time table	Contents
Day 1 Tuesday 12.10.2021	18:30-19:30	Welcome to the Participants & Ice-breaking Time <i>Venue: Lobby, Grand Hotel Palace</i>
	19:30	Bus Transfer to the City Center from the Hotel
	20:00	Welcome Dinner <i>Venue: Elia Lemoni & Bakal Restaurant</i>
Day 2 Wednesday 13.10.2021	09:30	Bus Transfer to the Training Venue <i>Venue: EUROTraining Educational Organization</i>
	10:00-11:30	Workshop I: Eco – friendly Business <i>Speaker: Kessanidou Panagiota, Environmental Consultant & Youth Entrepreneur</i>
	11:30 – 11:45	Coffee Break
	11:45-13:15	Workshop II: Environmental Management Systems <i>Speaker: Kessanidou Panagiota, Environmental Consultant & Youth Entrepreneur</i>
	13:15-13:45	Light Lunch
	13:45-15:15	Workshop III: Natural Resources Protection through Business Activities <i>Speaker: Efthimiadou Evgenia, Agronomist & Training Expert</i>
	15:15-15:30	Coffee Break
	15:30-17:00	Workshop IV: Bio – agriculture mainly in Mountainous Area <i>Speaker: Efthimiadou Evgenia, Agronomist & Training Expert</i>
	17:00-19:30	Free time
	19:30	Bus Transfer to the City Center from the Hotel
	20:00	Participant’s Dinner <i>Venue: Palati Restaurant</i>
Day 3 Thursday 14.10.2021	10:00-12:00	Environmental Awareness & Eco Practices for Youth <i>Field Visit: School of Nature, Thessaloniki</i>

	12:00-14:00	Sustainable Practices in the Agricultural Sector Field Visit: American Farm School of Thessaloniki
	14:00-15:00	Break & Light Lunch Venue: Ergon Agora East Restaurant
	15:00-17:00	Innovative Business Models in the Agri-food Sector Field Trip: Ergon Agora East Complex
	17:00-19:30	Free time
	19:30	Bus Transfer to the City Center from the Hotel
	20:00	Farewell Dinner Venue: Ouzeri Agora
Day 4 Friday 15.10.2021	09:30	Bus Transfer to the training venue Venue: EUROTraining Educational Organization
	10:00-11:00	Sketching the Recent Scientific Trends Speaker: Balafoutis Thanasis, Researcher & Senior Expert Institute of Bio-Economics & Agro-Technology, National Center for Research & Technological Development
	11:00 – 11:15	Coffee Break
	11:15-12:15	Mapping Best Practices across Europe Speaker: Balafoutis Thanasis, Researcher & Senior Expert Institute of Bio-Economics & Agro-Technology, National Center for Research & Technological Development
	12:15-12:30	Coffee Break
	12:30-13:30	Interactive Workshop I: Learning from Doing Speaker: Efthimiadou Evgenia, Agronomist & Training Expert
	13:30-14:00	Light Lunch
	14:00-15:00	Interactive Workshop II: Learning from Doing Speaker: Efthimiadou Evgenia, Agronomist & Training Expert
	15:00-15:30	Study Visit Closure & Sum Up

9. THE INTERNATIONAL EXCHANGE VISIT EDUCATIONAL MATERIAL

This section includes all the educational, training and informative material that will be used during the International Exchange Visit. More specifically it contains the notes that will have been design for the following educational themes:

- ✓ Eco – friendly Business
- ✓ Environmental Management Systems
- ✓ Natural Resources protection through business activities
- ✓ Bio – agriculture mainly in mountainous area

9.1. Eco – friendly Business

Auxiliary Terminology for ECOFRIEDLY

Biodiversity

The word "biodiversity" is an abbreviation of the term "biological diversity". According to Article 2 "Definitions" of the Convention on Biological Diversity, "biological diversity means the diversity of living organisms of all origins including, inter alia, terrestrial, marine and other aquatic ecosystems and ecological complexes of which they are a part. It also includes diversity within species, between species and ecosystems." In a few words, biodiversity is defined as the diversity of life in all its forms (plants, animals, fungi, etc.) and at all levels of its organization (genes, organisms, ecosystems).

The concept of biodiversity therefore embraces all life on Earth. It includes the way of expressing or appreciating the diversity that exists at the various levels of the organization of life. It reflects the number, variety and variability of living organisms and the systems that make them up.

Biodiversity is usually considered at three levels:

Genetic diversity: It expresses the range of inherited characteristics of a particular species. The greater this range, the greater the ability of the species to survive against external pressures (stress) such as epidemics, climate adversity, etc. Natural species have a much wider range of inherited ancestry, therefore, they show a much greater ability to adapt and survive than "artificial" or genetically improved species. In Greece, due to various factors, both plant species (especially trees) and animal species, show great genetic diversity, a fact that gives particular importance to the country as a "bank" of genes and genetic material in general, which must be investigated and maintained.

Diversity of species: It expresses the number (amount) of species (plants, animals, fungi, etc.) that can be found in a specific area or ecosystem. Species diversity affects the ecological balance, stability and function of the reactive mechanisms of an ecosystem. The more species involved in the composition of an ecosystem, the greater the stability of the ecosystem, the denser the network of food chains and biosystems, the smoother the biomass and energy flows and the recycling of nutrients and the better and more efficient the reactive mechanisms work. In addition, many species in their ontogenetic evolution are closely related to each other and the existence of one depends on the existence of the other. In conclusion, it is obvious that: a) the extinction of a species can have unpredictable consequences and b) sustainable management cannot be exercised without protecting and conserving the diversity of the species.

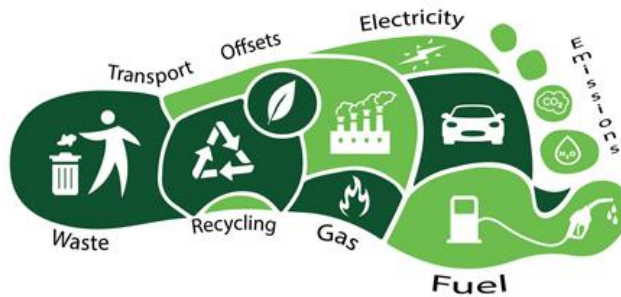
Diversity of ecosystems: It expresses the number (amount) of ecosystems that can be found in a particular area. The number of ecosystems and the way they are distributed in the area, ie the

mosaic of ecosystems, characterizes and gives its stamp to the landscape of an area. The protection of ecosystems ensures not only the protection of the species that compose them but also the preservation of the physiognomy of the landscapes.

Environmental Footprint

The environmental footprint is a way of measuring the effects that human activities have on Earth. It is the measure of demand and consumption that estimates the coverage of the needs of a society, as well as the waste and greenhouse gases that it produces daily in areas of productive sea and land surface. It also estimates all the natural resources needed to support the material needs of a population or an individual based on the technology, lifestyle and habits of each country. The unit of measurement of the ecological footprint is 1 hectare, which is equal to 10 acres or 10,000 square meters respectively.

Environmental (or ecological) footprint is a term of ecology and is used as an indicator of human disturbance in the Earth's ecosystems. It is a standard measure of the impact of people on their natural environment, in terms of consumption of natural resources and pollution. It compares the demand for vital needs with the ability of the planet's ecosystems to regenerate. It represents the area of biologically productive land and sea areas required to produce the resources consumed by a human population and at the same time to absorb and inactivate the pollutants and waste it generates. Using this description, it is possible to estimate by scientific methods how much land is needed to support the total human population with its particular way of life. For the year 2013, the total environmental footprint of humanity was estimated at 1.5 Earths.



In other words, it took one and a half Earths to meet the needs of the total human population (in food, clothing, housing, etc.), in a renewable way (that is, for nature to be able to regenerate and continue to produce at the same rate). Both biocapacity and ecological footprint are measured in global hectares, gha, a common unit that comprises the average productivity of all biologically productive land and sea on the planet in a given year.

It has been calculated that, in order to strike a balance between the productive capacity of the planet and the needs of its inhabitants, the environmental footprint for every human being on Earth should not exceed 1.8 gha, which occurs in only a few, extremely poor countries, mainly in Africa and Asia. But globally, the average environmental footprint per capita in 2010 was about 2.2 gha. Based on these figures, we estimate that the current needs of the world population in productive land are 18 billion gha. But our planet, unfortunately, has only 12 billion gha! This difference represents in quantitative terms the "environmental problem" of our time and the impasse to which it leads if no action is taken.

Green Marketing

The idea of environmental protection first appeared in the mid-1960s in the United States. This movement led to the creation of the Council on Environmental Quality, the Department of Environmental Protection, and the creation of many environmental laws during the 1970s. All of the above have resulted in the US becoming a pioneer in environmental reform since it was the first to show the necessary interest and sensitivity. Green marketing began in the late 1980s and early 1990s.

The second attempt to reconcile the public with the idea of green marketing began in the late 1990s, much more organized and with more positive results. These efforts led to the creation of a global "green" movement, which exists up to this day. Society, citizens, social groups and businesses have begun to increasingly consider the impact and issues of the environment and to prioritize their actions in order to find a solution to this problem. But we must not forget the Kyoto Protocol, which entered into force on 16 February 2005. This Protocol is an agreement between 183 countries, including Greece, which aims to reduce the harmful pollutants that contribute to its creation of the ozone hole, to a point that these pollutants are environmentally sustainable. Through various processes and mechanisms, each of the 183 countries must control and ultimately reduce as many environmental pollutants as possible. Since 2005, Europe has reduced its total emissions by 8%, the US by 7%, Japan by 6% and Russia by 0%.

Throughout this process of change and adaptation to the new conditions, Greece followed a slow but steady pace. During 1980, when the first wave of "green marketing" struck, Greece was practically uninvolved and did not take any action as any move in this direction was considered out of fashion and unworthy of attention. So when the second wave struck, Greece began to read the signs of environmental catastrophe, resulting in immediate mobilization on its part in this global movement. This happened because several important multinational companies operating

in the country passed on to the local community the principles and values of green entrepreneurship, ecology and the green mentality in general.

This tendency in mobility and this immediate response in Europe, especially in the business sector, is the central theme of the present work. The ways and methodology used have been observed in other surveys of foreign companies.

Ecology, ecological consciousness and green development are ideas that must be analyzed and assimilated by all ordinary citizens, especially in the business sector, which plays an important role in the daily life of consumers in a society.

Summary

In this unit concepts supporting ECOFRIENDLY BUSSINES are mentioned and analyzed. Specifically, we can see that biodiversity is defined as the diversity of life in all its forms (plants, animals, fungi, etc.) and at all levels of its organization (genes, organisms, ecosystems). It includes the way of expressing or estimating diversity that exists in the various levels of organization of life. It reflects the number, variety and variability of living organisms and the systems that make them up. Biodiversity has social, economic and ecological benefits.

We can also see that an ecosystem is a dynamic complex of communities of plants, animals and microorganisms, as well as elements of their abiotic environment that interact as a functional unit.

Sustainable use means the use of components of biological diversity, in a manner and proportion so that it does not cause long-term limitations to biological diversity.

The environmental footprint is a way of measuring the effects that human activities have on Earth.

According to the American Marketing Association, "green marketing" is the marketing that designs and creates environmentally friendly products.

What is ECOFRIENDLY? Current situation in the EU

Purpose

The purpose of this training unit is to inform and explain to the trainees what Eco-friendly Business means while at the same time present in detail the current situation in the European Union regarding this field.

Expected results

Upon completion of the training unit the trainees will know:

- What an Eco-friendly Business is
- What a circular economy is and what are its prospects
- What the biodiversity strategy is and how it is related to the restoration of nature in our lives

Key concepts

- Eco-friendly Business
- Circular economy

Eco-friendly Business

In recent years, terms such as "green" and "environmentally friendly", have become very popular in shows, advertisements and product packaging. The term "environmentally friendly" has been used for so many products and practices, that its meaning is in danger of being lost. By understanding the true meaning of "environmentally friendly", we can apply practices that will lead to a healthier life for the planet and its inhabitants, both young and old.

Definition

Eco-friendly literally means earth-friendly or not harmful for the environment. This term usually refers to products that contribute to green living or to practices that help preserving resources such as water and energy. Eco-friendly products also prevent air, water and soil pollution. They can engage in environmentally friendly habits or practices with a greater awareness of how to use resources.

Product qualifications

The construction of a truly environmentally friendly product keeps in mind both environmental and human safety. At least the product is non-toxic. Other environmentally friendly features include the use of sustainable cultivated or augmented ingredients, produced in ways that do not damage the ecosystem. Organic ingredients or materials are grown without toxic pesticides or herbicides. "Recycled" products contain glass, wood, metal or plastic that is recovered from waste and made into something new. Biodegradable products are broken down by natural decomposition, which puts less on landfills and the ecosystem as a whole.

With this as a given, in a relevant Eurobarometer survey, 94% of citizens in all EU Member States state that environmental protection is important to them. In addition, 91% of citizens said that climate change is a serious problem in the EU. European legislation must necessarily protect the environment, according to 83% of respondents.

The Eurobarometer research shows that citizens want more to be done to protect the environment, and that they believe that large companies and industries, national governments and the EU, as well as the citizens, are responsible for that. Citizens asked believe that the most effective way to deal with environmental problems is to "change the way we consume" and "change the way we produce and conduct our business".

The Commissioner for the Environment, Oceans and Fisheries, Virginijus Sinkevicius, said: "We are not surprised by the results of this research. These are precisely the concerns of the citizens to which we want to respond with the European Green Deal. It is encouraging to see that there is support for the fundamental changes we are going to make in our society and our economy, and that people want to play an important role in this change."

Climate change, air pollution and waste are the three most important environmental issues, according to the research findings. More than three quarters (78%) of respondents believe that environmental issues have a direct impact on their daily lives and health. More than eight in ten people are concerned about the effects of chemicals on everyday products.

Citizens recognize that fundamental change may be needed. From the answers given by more than 27,000 respondents, there is firm support for all the proposed measures aimed at reducing plastic waste and waste generation. The findings also show that citizens believe that products should be designed to facilitate the recycling of plastics, industry and retailers should make efforts to reduce plastic packaging, individuals should be trained in ways to reduce plastic waste, and local authorities should provide more and better collection facilities for plastic waste.

The research also examined attitudes towards the clothing industry and found high levels of concern about environmental issues and working conditions. Respondents express a desire for longer-lasting clothing made from recyclable materials.

Finally, support was expressed for other measures, such as investment in research and development, better information and education, encouraging businesses to engage in sustainable activities and stricter legislative control.

Circular Economy

There is only one planet Earth, however, by 2050 people will be consuming as if there were three planets. Global consumption of materials such as biomass, fossil fuels, metals and minerals is expected to double over the next 40 years, with annual waste production projected to increase by 70% by 2050.

Given that 50% of total greenhouse gas emissions and more than 90% of biodiversity loss and pressure from water resources are due to resource extraction and processing, the European Green Deal has launched a coordinated strategy for a climate-neutral approach, resource efficient and competitive economy. Upgrading the cyclical economy from the pioneers to key economic players will make a decisive contribution to achieving climate neutrality by 2050 and decoupling growth from resource use, while ensuring the EU's long-term competitiveness without leaving anyone behind.

In order to fulfill this ambition, the EU must accelerate the transition to a model of regenerative development that returns more to the planet than it takes away from it, move towards maintaining resource consumption within planetary limits and, therefore, make efforts to reduce the consumption footprint and double the rate of use of circular materials over the next decade.

As far as businesses are concerned, working together to create a framework for sustainable products will offer new opportunities inside and outside the EU. This progressive but irreversible transition to a sustainable economic system is an integral part of the EU 's new industrial strategy. According to a recent study, the application of the principles of the circular economy in the EU

economy provides the possibility of increasing the EU GDP by an additional 0.5% by 2030, creating about 700,000 new jobs. There is clear business interest in individual businesses as well: as manufacturing companies in the EU spend on average around 40% on materials, closed-loop models can increase their profitability by protecting them from resource price fluctuations.

The circular economy - by taking advantage of the single market and the potential of digital technologies - can strengthen the EU industrial base and promote creation and entrepreneurship among SMEs. Innovative models based on developing a closer relationship with consumers, mass adaptation to customer needs, sharing economy and collaborative economy, enhanced by digital technologies such as the Internet of Things, mass data, the chain Arrays and artificial intelligence, will accelerate not only the cyclical but also the dematerialization of our economy, reducing Europe's dependence on raw materials.

In terms of citizens, the circular economy will provide functional, safe and high quality products that are cost-effective and affordable, last longer and are designed for reuse, repair and high quality recycling. A whole new set of sustainable services, product models as a service and digital solutions will create better quality of life, innovative jobs and upgraded knowledge and skills.

The circular economy provides a future-oriented agenda for achieving a cleaner and more competitive Europe, in cooperation with economic actors, consumers, citizens and civil society organizations. The aim is to accelerate the transformational change required under the European Green Deal, while taking advantage of the circular economy actions implemented after 2015. This will ensure, on the one hand, the optimization of the regulatory framework to make it suitable for a sustainable future, and, on the other hand, the maximization of the new opportunities that will arise from the transition, while minimizing the burden on citizens and businesses.

The plan presents a set of interrelated initiatives to establish a strong and coherent policy framework that will make sustainable products, sustainable services and sustainable business models a common practice and transform consumer standards so that waste is not generated

from the beginning. This policy framework will be implemented gradually, while value chains will be addressed as a matter of priority. Further measures will be taken to reduce waste and ensure that the EU has a smooth internal market for high quality secondary raw materials. The EU's ability to take responsibility for its waste will also be strengthened.

Europe will not achieve transformational change on its own. The EU will continue to show the way to a global cyclical economy and will use its influence, expertise and financial resources to achieve the 2030 Sustainable Development Goals. It also aims to ensure that cyclical economy works for citizens, regions and cities, fully contributes to climate neutrality and offers opportunities for research, innovation and digitization. It envisages actions for the further development of a strong monitoring framework, which will contribute to the measurement of prosperity beyond GDP.

What is biodiversity strategy and how is it linked to the restoration of nature in our lives?

Biodiversity is the great variety of life on Earth: from the world's largest rainforests to small parks and gardens, and from blue whales to tiny fungi. We humans are part of this tissue of life and are completely dependent on it: it gives us the food we eat, it filters the water we drink and it provides the air we breathe. Nature is equally important for our mental and physical well-being, as well as for our society's ability to cope with global change, health threats and disasters. We need nature in our lives.

Biodiversity Strategy



By giving nature the space it needs, we will have healthy and resilient societies. The recent COVID-19 pandemic makes the need for nature protection and restoration even more urgent. The pandemic raises awareness of the relationship between human health and ecosystem health. It demonstrates the need for sustainable supply chains and consumption patterns that do not exceed the limits of the planet. This reflects the fact that the risk of developing and spreading infectious diseases increases as nature is destroyed. The protection and restoration of biodiversity and the proper functioning of ecosystems are, therefore, crucial to strengthening our resilience and preventing the emergence and spread of future diseases.

Investing in nature conservation and restoration will also be vital to Europe's economic recovery from the COVID-19 crisis. When restarting the economy, it is vital to avoid falling behind and obsessing over destructive old habits. The Europe Green Deal - the EU's growth strategy - will be the compass for recovery, ensuring that the economy serves citizens and society and returns to nature more than it receives. The business argument for biodiversity is imperative. Industry and business rely on genes, species and ecosystem services as critical inputs for production, especially for medicines. More than half of the world's GDP depends on the nature and services it provides,

with three key economic sectors — construction, agriculture, and food and beverages — relying heavily on it.

Conserving biodiversity has potential direct economic benefits for many sectors of the economy. For example, conserving marine stocks could increase the seafood industry's annual profits by more than EUR 49 billion, while protecting coastal wetlands could save the insurance industry around EUR 50 billion a year by reducing losses from flood damage. The total benefit / cost ratio of an effective global wildlife conservation program worldwide is estimated to be **at least 100 to 1**. Investment in natural capital, including the restoration of carbon-rich habitats and climate-friendly agriculture, is recognized as one of the five most important financial recovery policies, which offer high economic multipliers and have a positive impact on the climate. It will be important for the EU to make use of this potential to ensure prosperity, sustainability and resilience to recovery.

Biodiversity is also vital to safeguarding EU and global food security. Biodiversity loss threatens our food systems, endangering our food security and nutrition. Biodiversity also supports a healthy and nutritious diet and improves agricultural livelihoods and agricultural productivity. For example, more than 75% of the world's food crops depend on animal pollination.

Despite this urgent moral, economic and environmental need, nature is in a state of crisis. The five main immediate causes of biodiversity loss — change of use of the soil and the sea, overexploitation, climate change, pollution, and invasive alien species — are causing the rapid extinction of nature. We see changes in our daily lives: concrete blocks are being erected in green spaces, wildlife is disappearing before our eyes and more species are in danger of extinction than at any point in human history. In the last four decades, the world's wildlife populations have shrunk by 60% due to human activity. Nearly three-quarters of the Earth's surface has been altered, squeezing nature into an ever-shrinking corner of the globe.

The biodiversity crisis and the climate crisis are interrelated. Climate change is accelerating the destruction of the natural world through drought, floods and forest fires, while the loss and unsustainable use of nature are in turn the main causes of climate change. But like any crisis, the solutions are interconnected. Nature is a vital ally in the fight against climate change. Nature regulates the climate; nature-based solutions, such as the protection and restoration of wetlands, peatlands and coastal ecosystems, or the sustainable management of marine areas, forests, grasslands and agricultural land, will be essential to reduce emissions and adaptation to climate change. Tree planting and the development of green infrastructure will help us reduce the temperature in urban areas and mitigate the impact of natural disasters.

The loss of biodiversity and the collapse of ecosystems are among the greatest threats facing humanity in the next decade. They also threaten the foundations of our economy, as the cost of inaction is high and is expected to rise. From 1997 to 2011, about 3.5-18.5 trillion EUR were lost worldwide per year in ecosystem services due to the change of land cover, while it is estimated that 5.5-10.5 trillion EUR are lost per year due to soil degradation. In particular, biodiversity loss results in reduced crop and fish harvest yields, increased economic losses from floods and other disasters, and the loss of potential new sources of medicines.

The EU stands ready to show its ambition to reverse the loss of biodiversity, to lead by example and action, and to contribute to the agreement and adoption of a Post-2020 Global Biodiversity Framework at its 15th Conference of the Parties of the Convention on Biological Diversity. This should be based on the primary ambition to ensure the restoration, resilience and adequate protection of all global ecosystems by 2050. The world should commit to the principle of "net profit" in order to return to nature more than they receive. In this context, the world must commit itself not to cause the extinction of species, at least when this could be avoided.

This strategy sets out how Europe can contribute to this goal. As a milestone, its goal is to ensure that Europe's biodiversity is recovering by 2030 for the benefit of our people, the planet, our

climate and our economy, in line with the 2030 Agenda for Sustainable Development Goals and the objectives of the Paris Agreement on Climate Change. It addresses the five main causes of biodiversity loss, sets out a strengthened governance framework to fill remaining gaps, ensures full implementation of EU law and brings together all existing efforts. This strategy provides motivation and is characterized by an inventive spirit of action. It reflects the fact that nature conservation and restoration will require more than just regulation. They will require action from citizens, businesses, social partners and the research and knowledge community, as well as strong partnerships at local, regional, national and European level. This strategy is in line with the ambitions and commitments set out in President von der Leyen's policy guidelines and the Europe Green Deal.

The current strategy, adopted in the midst of the COVID-19 pandemic, will also be central to the EU's recovery plan. It will be vital to prevent and develop resilience to future epidemic outbreaks of animal diseases and to provide immediate business and investment opportunities for the recovery of EU economy.

All new initiatives and proposals will be supported by Commission tools for better regulation. Impact assessments, based on public consultation, and environmental, social and economic impact assessment, will help ensure that all initiatives achieve their objectives in the most effective and least burdensome way and abide by the green oath of "doing no harm".

Summary

Eco-friendly literally means earth-friendly or not harmful for the environment. The construction of a truly eco-friendly product takes into account both environmental and human safety. The Eurobarometer survey that followed proved the shift of citizens towards products that respect the environment.

As for circular economy, the transition to this kind of productive process will be systemic, profound and transformative inside and outside the EU. It will sometimes have a negative impact, so it must be fair. It will require alignment and cooperation of all stakeholders at all levels - EU, national, regional and local, and international.

It also emerged from the above that the protection and restoration of biodiversity is the only way to maintain the quality and continuity of human life on Earth. The commitments proposed in this strategy pave the way for ambitious and necessary changes — changes that will ensure the well-being and economic well-being of present and future generations in a healthy environment. The implementation of these commitments will take into account the diversity of challenges in all sectors, regions and Member States, it will recognize the need to ensure social justice, a sense of justice and inclusion according to the Europeans, and a sense of responsibility and strong joint efforts by the EU, its Member States, stakeholders and citizens.

To ensure full political ownership of the strategy, the Commission will propose a permanent point of progress to the Council and the European Parliament. It will review the strategy by 2024 to assess progress and whether further action is needed to achieve its goals.

It is more relevant than ever, and due to the COVID 19 pandemic, the shift of companies, producers and all those involved in the production and business chain to more environmentally friendly approaches.

How to make a business ECO-FRIENDLY – Success examples

Steps to create an Eco Friendly business

There are many steps that can be taken in order to make a business Eco Friendly. Whether your business is small or large, there are steps you can take immediately to reduce your environmental impact. See below the ways to make your business more environmentally friendly.

1 - Switch to reusable office supplies

In the United States, more than four million pens are thrown away every day. Simply switching to reusable pens which you can refill with ink, could help your business keep a lot of plastic away from landfills.

Limit paper waste by replacing notebooks with desktops, tablets, or laptops with mini dry erasers. Taking notes online is another eco-friendly option.

Appoint someone to monitor the static cabinet in an effort to help the office turn green. Having someone to pay attention to what products are used and wasted the most, it may be easier to identify the extra changes you can make.

2 - Practice green procurement eco-friendly business tips

One of the easiest ways to reduce the environmental impact of your business is to practice green procurement. Take a look at your suppliers and look for suppliers that provide products that have been produced in a sustainable way.

Avoid suppliers who use excessive packaging. Make sure the consumables are free of toxic substances that are harmful to the environment and buy only materials that can be recycled or reused. Paying attention to where your supplies and goods come from is a simple way to make your business more environmentally friendly.

If possible, find suppliers in your area. In addition to supporting your local economy, this could reduce the carbon footprint, eliminating the need to ship your products and supplies from remote locations.

3 - Choose Green Web Hosting

Did you know that running all servers in the United States is the equivalent of running five nuclear power plants? Servers need to be up and running continuously, and this increases a lot of environmental damage.

By choosing green web hosting, you can ensure that at least some of the energy required to power your site comes from a renewable energy source. This is much more environmentally friendly and very affordable.

Since the hosting company has already saved money by choosing to generate its own energy, it is able to transfer savings to consumers. This usually makes green hosting more affordable than traditional web hosting. It's a great way to make your business more environmentally friendly, while at the same time it helps you gain the trust of your customers. Green hosting is also reliable, so you do not have to worry about your business while your offline.

4 - Reduce energy consumption

There are countless ways to reduce energy consumption in offices and other workplaces. You can replace incandescent light bulbs with LED bulbs and lights. If possible try to work in your office using alternative energy sources. Wind, solar and geothermal energy are all viable options.

As wind and solar energy become more affordable, green energy incentives have become widely available to businesses of all sizes. Business owners can choose to buy green energy at reduced

rates. In this way, they can reduce their environmental impact while possibly reducing their operating costs.

5 - Make recycling a priority

Recycling is one of the most important steps you can take to make your business more environmentally friendly. Whether you work in an office, warehouse or any other type of workplace, there is a big chance you will generate a lot of waste.

Committing to a recycling program rather than sending all of the waste to landfill can make a huge difference.

Start by paying close attention to the types of things you throw away. It is possible for your office to generate more recyclable waste than you realize. Paper products, cardboard packaging, beverage bottles, etc. are all items that are obviously recyclable.

However, there are also many less obvious items that we you can avoid sending to the landfills through recycling. Ink cartridges and toner cartridges, for example, can be sent for recycling or remanufacturing. With over 350 million cartridges ending up in landfills each year, your option to recycle can have a huge impact.

There are also ways to recycle old computers and accessories. When upgrading, ask the seller if he accepts old equipment for recycling. Companies like HP and Dell offer such programs.

You may also be able to recycle electronic online at your local office supply store. If you need to get rid of computers that are up and running under the age of five, you may be able to donate them to a charity that will renovate them.

Examples of Eco Friendly business

Thanks to Al Gore and the "Reduce, Reuse, Recycle" campaigns promoted during the 1990s, we all know that caring for our environment is essential.

With climate change being a growing problem and Earth Day being very close, there has never been a more important time to collectively realize how we are impacting the planet - as individuals, companies and businesses.

This was quickly realized by some businessmen. One of them is Elon Musk. He is one of the most successful entrepreneurs in the world. He makes billions of dollars every two minutes almost exclusively through green companies like Tesla and SolarCity. Now other companies are starting to follow.

Let's take a look at environmentally friendly brands that positively impact our planet and have a huge commercial success in the process.

- 1) TOMS
- 2) Patagonia
- 3) Beyond Meat
- 4) Wipro EcoEnergy
- 5) Lush Fresh Handmade Cosmetics
- 6) Numi Tea
- 7) Apple
- 8) Seventh Generation
- 9) IKEA
- 10) Unilever
- 11) Panasonic
- 12) Allergan
- 13) IBM

14) New Belgium Brewing

15) Adobe

16) NIKE

Eco Friendly business benefits

From retailers to manufacturers, from financial and high-tech companies, most companies can now enjoy the abundant financial rewards that lead their business in an environmentally friendly direction.

Your company can benefit from tax exemptions, government subsidies, savings from environmentally friendly practices and increased popularity and demand through your behavior as a green company. So, whether you offer insurance or technology services, or run a restaurant or dry cleaning business, environmentally friendly business practices are cost-effective, smart and responsible business goals.

Consumers are increasingly demanding natural products and social responsibility from suppliers and retailers through sustainability and green practices. Most importantly, many are willing to pay more for these values and requirements. Nielsen's global online survey this year identified that 66% of its respondents worldwide commit to environmentally friendly products, services and businesses. The following green factors were mentioned as the top eight decisive factors:

Products from natural, fresh, organic ingredients

Eco-friendly brand

A brand recognized for its social value

Eco-friendly packaging

Ads that highlight the connection of environmental and social benefits to the brand

Summary

An introduction to the steps that a company must take in order to be classified as Eco Friendly.

Specifically, it highlighted that the most important steps are:

- Switching to reusable office supplies
- Practicing green procurement eco-friendly business tips
- Green Web Hosting
- Reducing energy consumption
- Recycling

Successful examples of companies that developed this philosophy in their production process included: TOMS, Patagonia, Beyond Meat, Wipro EcoEnergy, Lush Cosmetics, Numi Tea, Apple, Seventh Generation, IKEA, Unilever, Panasonic, Allergan, IBM, New Belgium Brewing, Adobe, Nike.

The benefits of transforming a company into eco-friendly are multifaceted. Businesses like this have tax exemptions while they have access to several financial instruments.

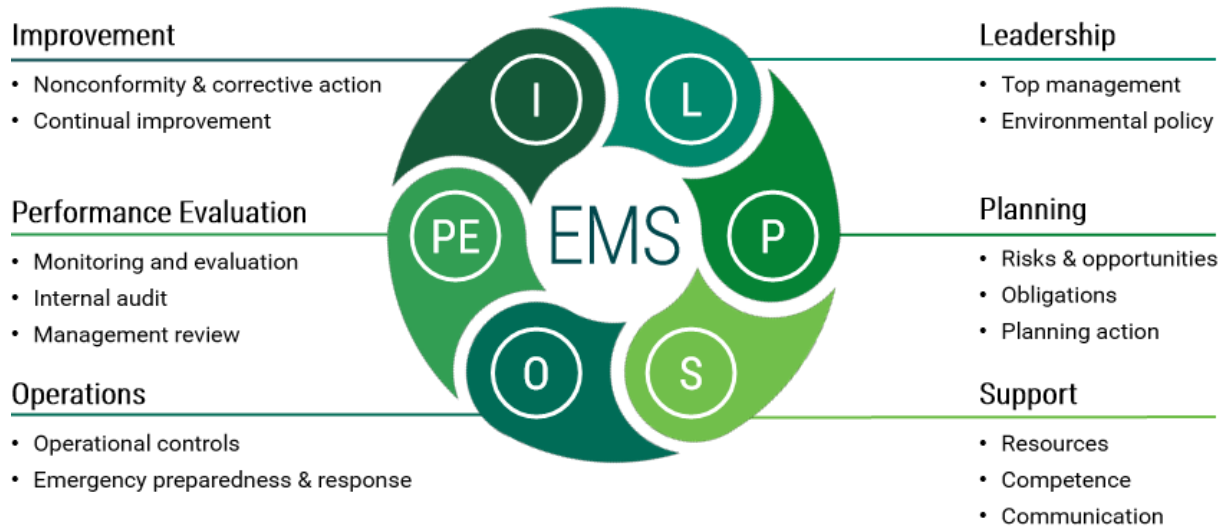
9.2. Environmental Management Systems

Environmental Management Systems

The implementation of Environmental Management Systems is now an urgent need for businesses. An Environmental Management System (EMS) is a structured management framework designed to help a business reduce its impact on the environment using a variety of business practices. This section addresses the causes that led to the development of environmental management systems, their implementation methodology and problems that may arise and affect their effectiveness, while it explores the incentives and benefits of adopting an integrated environmental management system. It discusses the structure that an EMS needs to have in order to ensure the continuous improvement of the environmental perfection of a company.

With the aim of accreditation, the parameters that must be included in order to ensure the optimal operation, the various strategies that companies can follow in order to establish an EMS and the challenges that arise during the integration of an EIA in the company are examined. The ways of categorizing and predicting the effectiveness of different environmental management approaches through systems modeling are recorded and different case-examples are presented of how different companies have implemented their environmental management systems, their approaches and the problems they encountered.

Complying with the ever-growing public interest in environmental sensitivity and the legal requirements of each country, businesses are gradually recognizing the benefits of environmental protection. Thus, the environmental management system becomes necessary for companies in order to reduce their environmental risk. The performance of each business in the environment affects its share price, its accessibility of funds and its business reliability.



Motivations and goals behind the EMS

EMS is a useful tool that ensures that the environmental improvement goals set by the company are achieved. The different ways in which companies commit to environmental improvements suggest a wide range of incentives for them, which may differ from case to case. Specifically, these include: (a) energy efficiency, (b) waste minimization, (c) business prestige, (d) competitive advantage, (e) pressure from supply lines, (f) current legislation for the protection of the environment, (g) employee morale and, (h) corporate social responsibility.

Every organization that introduces an EMS to serve the environmental requirements must first understand what exactly the environmental requirements are that concern it. In addition to improving the company's environmental performance, an effective EMS will offer other benefits, depending on the company's willingness to (a) take precautionary measures and (b) increase its capabilities in education, innovation and environmental integration.

The positive environmental contribution of the EMS stems from the fact that it is a systematic approach to environmental management. Its implementation is a detailed integration of

environmental issues in every aspect of the company's management. The impact of environmental actions on the operation of the company is significantly influenced by the existence of a standardized environmental management system, the ultimate goal of which is to produce a corporate environmental plan that will lead to the improvement of the environmental performance of the company.

The operation of the EMS

Monitoring and evaluating the effectiveness of the EMS and consequently the continuous modernization of the environmental plan of the company is the key to the successful environmental improvement of the company. For this purpose, the EMS measures (a) the use of verification checks - both internal and external, (b) the active understanding of the dimensions and effects of the business and (c) the establishment of objectives with the ultimate goal to achieve the corporate environmental plan. In order for a company to achieve continuous environmental improvement, its environmental plan must be systematically checked and reviewed. The reviews should cover the whole EMS and not focus on individual issues.

Various issues may arise during the implementation of an EMS, which can either facilitate or complicate it. A review of existing environmental management systems suggests that a potentially significant barrier may be the management mentality and the extreme focus on management, while companies that achieve growth and innovation in environmental performance are usually those who give their employees the freedom to act on their own. The successful implementation of the EMS is based on its integration into existing business activities and management. Thus, the unsuccessful and incomplete integration of the EMS in the company involves a high risk while usually the managers who undertake the environmental management do not have the required training. On the other hand, companies that trust the responsibility of

their employees usually succeed in adopting a culture of environmental improvement, with innovational ways being the key to developing long-term solutions to environmental problems.

The environmental management system offers a framework of action and certification for each company to develop continuous environmental improvement, but the specific environment of each company and the different obstacles it encounters require a different environmental strategy per company. In addition, there are companies that perceive environmental protection as a threat and only comply with local environmental regulations. Still other companies spontaneously introduce environmental management in order to achieve steady improvement and gain a competitive advantage through it. The categorization of different business behaviors and the assessment of their environmental performance arise from the need to understand the aspects of environmental management and the ways in which the problems and motivations of each business affect it.

The implementation of the EMS leads to lower environmental risks, and minimizes operational disadvantages, but companies in which the application for some reason 'freezes' or fails to obtain full certification face increased environmental risk. Loss of certification usually results from inadequate monitoring and verification of EMS procedures and data. In this case, all the effort and all the resources that were channeled for the adoption of the EMS are lost since this cannot guarantee the compliance of the company with the environmental requirements.

In the case where the EMS is applied partially and not as a whole in the company, there is a lack of communication and commitment to the overall strategic goal by the individual departments and the administration gave less importance to it than to the operational requirements of their department. This usually leads the strategy of achieving continuous environmental improvement of the business in failure.

Summary

The environmental management system should be a tool for decision-making in each individual part of a company. It provides communication between departments, the lack of which is usually an obstacle in most cases and the adoption of the appropriate model for each company can lead to improved adaptability of its various activities.

Briefly, an EMS interconnected with the overall business strategy goes beyond the simple management of environmental risks, enabling environmental systems to adapt to the operational needs, market complexity and the company's competitive strategy.

Theory of environmental management systems

The reasons behind environmental management

Every organization that adopts an EMS to achieve its environmental objectives must first understand which the environmental requirements are. This is not always easy, otherwise there would be more commitment to developing environmental management systems and identifying the elements that the system must include in order to achieve its goals (Kirkland and Thompson, 1999).

The EMS not only improves environmental performance, but also offers additional benefits, depending on prevention or the willingness to grow in knowledge, innovation and environmental integration of each business. The different ways in which each business seeks environmental improvement suggest that there are different incentives for environmental improvement on a case-by-case basis (Gonzales-Benito and Gonzales Benito, 2005).

Various incentives such as legislation, lawsuits, government policies, banks, investors, accounting systems, employees, the market, costs, the public, environmental NGOs, industry standards, self-restraint and international factors have been identified by Kirkland and Thompson (1999). These can be classified into seven categories:

- 1) Energy efficiency
- 2) Waste minimization
- 3) Corporate green prestige
- 4) Competitive advantage
- 5) Supply chains
- 6) Environmental protection legislation
- 7) Employee morale and corporate responsibility

The incentives for each business are so different that some companies do not even recognize their need for environmental management (Walley and Whitehead, 1994)

Incentives and interventions

Businesses are moving towards environmental management either because they fear penalties for violating the law or because they realize that improving their environmental performance is an opportunity to improve the business itself. The type of interventions that the management will make in the company also depends on the driving force behind the willingness for environmental compliance (Khanna and Anton, 2002).

In the first case, where the company is simply afraid of the law, it mainly adopts internal management procedures such as development of compliance policies, checks, institutionalization of corporate criteria, budgeting of funds for mandatory compliance costs and insurance, and assigning environmental responsibility to the staff. The actions of these companies usually stop here.

However, if the company perceives environmental performance as an opportunity to improve, then it proceeds to extroverted interventions in its processes, such as the revision of its supply chains, while increasingly involving its suppliers, employees and even its customers or authorities in each area in which it operates, in improving environmental performance through training seminars, publishing environmental reports and producing environmental policy. However, keeping contact with customers and strengthening innovation and competitiveness require actions and interventions in both directions mentioned above.

Economic success or environmental improvement?

Therefore, while the main goal of economic development is to gradually improve the lives of today and future generations, the goal of environmental protection is to avoid, or reduce the problems of pollution, neglect and desertification, loss of ecosystems and wildlife, arising precisely from the improved standard of living resulting from human activity. So when the cost of preventing environmental degradation is considered restrictive for economic activity, companies that adopt this short-term perspective feel limited and in conflict with the environmental sensitivity of the world.

However, as the problems of depletion of natural resources and pollution become more visible, companies realize that in the long run the benefits of environmental protection outweigh the financial costs. However, a lack of environmental awareness and misunderstanding of the company's operating principles can lead executives to the misconception that environmental management cannot be a significant corporate activity. Thus, the required interventions find an obstacle on the lack of commitment and acceptance of the need for environmental management and responsibility by the company. That is why the authorities, in addition to environmental legislation, must point out the benefits that environmental management offers to businesses and

the benefits of reducing waste, reusing resources, recycling and improving energy efficiency, thus leading to integrated environmental management systems.

Managing the environment

The general public and all managers are now familiar with the term "environmental management", but do not have a complete picture of its importance or use, its benefits and its proper implementation. The business world is moving fast and managers are not finding the time to train themselves on new ideas and techniques. Moreover, although environmental management is another business management strategy that leads to improved efficiency, the lack of basic knowledge for its introduction to the company is obvious. This is mainly due to the lack of environmental education and the corresponding literature from the training course of managers (Ackroyd et al., 2003).

Thus, while the business management manuals describe the management's obligation to provide stability to the business and to ensure a satisfactory level of revenue and profitability with the least possible disruption to the company, this cannot be applied in the case of environmental management. The main role of environmental management, in direct contrast to the above, is to make changes, not to manage stability. However, the management department of the environment needs the support of the other departments of the individual departments of a company in order to achieve its goals.

Corporate environmental plan

In addition to reducing environmental risks, developing an environmental management plan helps a business discover new business opportunities. As a communication tool, the corporate environmental plan can include all the company's management actions related to the environment in a coordinated action plan that is easily transferred to all executives of the

company. In addition, it helps the management to make explicit and detailed informed decisions, and through systematic processes leads the company to gain a significant position and prestige, to live long and grow and to obtain sustainable competitive advantages within predetermined timeframes.

Every successful environmental management plan must:

- Reduce environmental risks and improve management audit for the future of the business,
- Give directions and instructions for the introduction of innovative products,
- Indicate the benefits of innovation in product design and processes to replace existing ones,
- Contain thorough information on the company's environmental management objectives, activities and directions so that the required actions by the employees or the management are implemented correctly and daily, where required,
- Provide thorough information on the environmental actions of the company to all employees and describe the importance of environmental management for the development of the company,
- Encourage team spirit and strengthen the corporate identity, increasing the motivation of all employees, whether or not involved in environmental management through the process of the company's environmental plan,
- Be ahead of competitors.

Development of environmental management systems

The introduction of environmental legislation has pushed companies to look for ways to reduce their exposure to environmental risks. The introduction, in all their business activities, of an integrated management system is the most effective way of managing and minimizing environmental risks, minimizing the use of resources and creating an organization chart of 'environmental responsibility' (Huietal., 2001; Gonzalez-Benito and Gonzalez-2005). By definition, the environmental management system is "the organizational structure, responsibilities, practices, procedures and resources needed to implement environmental policy".

- 1) Security check
- 2) Total environmental quality management
- 3) Ecological audit
- 4) Environmental management systems

The standard ISO14001

Following the success of the ISO9000 standard for quality, the standard 14001 for environmental management was created in 1996 (Morrow and Rondinelli, 2002). One of its goals was to replace the many and often conflicting criteria of "environmental quality" that appeared in each country. The model does not simply address pollution reduction but includes the processes involved in creating, managing and eliminating pollution (Melnuk et al., 2003).

<i>Standard</i>	<i>Description</i>
14000	Principles, systems and supporting techniques of environmental management
14001	Environmental management systems - specifications and methodology of use
14010	Environmental audit methodology - General principles
14011	Environmental audit methodology - Audit procedures
14012	Environmental audit methodology - Qualifications of environmental controllers

The introduction of the international standard ISO14001 led to the abolition of the individual standards or criteria that were applied per country. Table 2.1 shows other ISO14000 standards that apply simultaneously on an international level. ISO 14001 is essentially a process and not just a performance standard. It describes a whole system that will lead the company to achieve its environmental goals. It believes that by helping the company to focus on its production process, it will improve its environmental performance (Melnyk et al., 2003).

The latest innovation for achieving the ISO14001 certification is the gradual implementation of the EMS by the company. This provides greater flexibility in achieving the ISO14001 standard by dividing the overall environmental management process into small sub-sections. This follows six levels of integration of the EMS in the business:

- 1) Commitment to the standard and establishment of a recording base for continuous improvement.
- 2) Compliance with customer needs and legal obligations of the company.

- 3) Identification of significant environmental dimensions and impacts to enable the identification of the objectives of a management plan.
- 4) Management of the most important environmental dimensions by implementing the above management plan.
- 5) Audit document, review of the environment management system.
- 6) Extrovert communication with the aim of obtaining full certification through an internationally recognized standard EMS.

With the implementation of each phase of the scheme, the company can either carry out self-assessment through internal audits, or seek evaluation from its main customers, or turn to third parties that will evaluate it, to ensure that the prerequisites of each phase have been completed (Trust, 2005). External audit offers benefits to both customers and suppliers (if it is an intermediate link), since its results can be used by them to avoid further audits in their own supply chain (Gascoigne, 2002). Although full ISO14001 certification is not required to be a link in a supply chain business, adhering to the above gradual adaptation scheme is sufficient, more and more companies are seeking international certification to be recognized for their commitment to environmental issues.

Summary

Any human action has a positive or negative effect on the environment. However, this is no excuse for companies not to implement a solid environmental strategy to avoid, or reduce, pollution, neglect and desertification, and the loss of ecosystems and wildlife. The adoption of an EMS does not simply improve environmental performance, but also offers additional benefits depending on prevention or willingness to grow in knowledge, innovation and environmental integration.

It contributes to energy efficiency and waste minimization, increases the green prestige of the company, offers competitive advantages, allows them to participate in supply chains where more and more proof of environmental responsibility is required, ensures and proves compliance with legislation and improves employee morale.

As the problems of depletion of natural resources and pollution become more visible, companies realize that in the long run the benefits of environmental protection outweigh the financial costs. Nevertheless, the business world is moving fast and executives do not have a full picture of the importance of its benefits and its proper implementation. This implies the constant need for information and training, vertically, in the whole company. It is important to remember that the management department of the environment needs the support of the other individual departments of a company. The environmental company plan can include all the company's management actions related to the environment, in a coordinated action plan that is easily communicated to all the executives of the company.

The environmental management system is "the organizational structure, responsibilities, practices, procedures and resources needed to implement environmental policy". Its key components are the management of audit policies, internal resources, procurement, product and service design, information dissemination and staff training. Result of decisions taken by the environmental management department to mitigate or avoid the effects on environment, as well as the involvement of environmental management in the day-to-day operation of the business.

Every effective EMS must promote the quality but also the commitment of each organization and its employees to the "environmental ethics" of the time. The introduction of the international standard ISO14001 led to the abolition of individual national standards or criteria. ISO14001 is essentially a process and is not just a performance template. It describes a whole system that will lead the company to achieve its environmental goals.

➤ Implementing an environmental management system

EMS is a transparent, systematic process aimed at implementing environmental policies, taking responsibility, achieving goals and exercising control over all of them (Steger, 2000). Its implementation is an extensive process taking into account the environmental dimensions of each aspect of the business. Achieving quality, after all, goes through the effective control of every dimension of the business, including environmental complications (Hale, 1995). This audit is achieved when:

- It identifies where audit is required,
- The appropriate audit method is designed,
- An audit system is applied and
- The system is constantly under control.

The implementation of the EMS must ensure that all four aspects of audit are implemented and that the required attention is given to all environmental issues, along with the economic and quality dimension. These usually have a positive effect on the performance of the business by providing a mechanism for continuous improvement of resource use, meeting the considered needs of customers and ultimately the financial performance of the business. The contribution to the business performance of environmental actions stemming from standard EMS systems has proven to be crucial. It is considered that this is due to the active participation of all employees in the environmental compliance of the company. Valuing third party contributions is also a driving force for improvement. Benefits also arise as the company focuses on identifying processes that can provide long-term improvements in pollution levels and business performance (Melnuk et al., 2003).

The basic elements of an EMS are outlined in Figure 3.1. Systems such as ISO14001 are based on the Deming's cycle summarized in Plan-Execution-Control-Action (Ammenberg and Sandin, 2005). The ultimate goal is always to create a business plan that will improve the environmental performance of the business. Monitoring and evaluating the effectiveness of the EMS and regularly reviewing the company's environmental plan lead to improving the company's environmental performance.

Administration's commitment

The success of the EMS presupposes the full commitment of the administration. The exclusive participation of at least one member of the management in the project is necessary, as well as providing the necessary staff and the necessary resources. When possible, it is necessary to hire an exclusive director for the working group of the EMS. The implementation of an EMS also raises a significant number of policy issues, which are more easily resolved when addressed by the same, specialized, environmental manager. On the contrary, a lack of management support will make the implementation of the process not only difficult, but also impossible.

Environmental audit

It requires the analysis of the existing environmental risks and the position of the company in relation to them. It is a prerequisite for the company to determine its future goals and procedures to achieve them. Through this process, information and conclusions are drawn about the company that will lead to a realistic assessment of the company's impact on the environment and potential actions that can reduce this impact. Targeting these actions will be the basis of the corporate environmental plan.

Environmental audit includes the analysis of all internal and external parameters. External factors can be the environment itself, customers and / or competitors. Usually external factors are related to situations that the company cannot intervene directly and include a wide range of factors such as the economy, the buyers, the competitors and the operating policy.

Environmental audits are usually lengthy and the analysis of dimensions and impacts must include all correlations and implications. Due to this lengthy procedure, the audit report is not usually included in the business plan of the company. In cases where the report is required, it is included as an attachment for reference and not in the main text of the draft.

Internal audit

Its purpose is to evaluate the current products and services of a company and the impact of its activities on the environment. This creates a list of all the operational activities of the company as well as the effects of each one on the environment. It allows management to determine the extent of the impact of each dimension of the business and how important it is in relation to the business and its operation. The results of this study will form the basis of the further analysis of the environmental dimensions of the company.

External audit

As external environment is considered to be all forces and factors outside the company that affect its operation, but which cannot be influenced, controlled or regulated directly by the company. The main problem is to identify the key factors related to each department or unit of the business. This includes environmental issues that already exist and may, or may have, some form of impact on the business.

The main issue that concerns companies today is the development and revision of environmental legislation that requires changes in their environmental policy and decision-making process. Nevertheless, it is necessary to identify groups of environmental factors that are likely to affect the business. These may include various environmental groups and their power in society, which can potentially damage the prestige of a business that does not take environmental issues seriously. Environmental education of the company's consumer public is also one of the parameters of external audit. Finally, competitors who also implement environmental policies are one of the factors investigated in the external audit process.

Dimensions and impact

An important step in improving the performance of the EMS is the preparation of reports on the various departments of the company and the impact of each one of them on the environment. The identification of the environmental impacts resulting from this analysis will be the basis for the institutionalization of the objectives of the environmental business plan. The complete analysis worksheet is essentially the recording of the impact on the environment of the company's processes, but also of incidents, possible accidents and emergencies that may occur. It is a record of the positive and negative actions of the company and becomes a guide for the processes of monitoring the effects, as well as for the development of the necessary processes of prevention or decontamination.

Recording of legislation

During the external audit, the current legislation that has a daily and/or potential impact on the activity of the company is usually recorded. All subsections of the legislation that affect the business are included - not only the environmental one.

It is important for the company to fully understand the legislation that concerns it in order to comply with it and a key part of the planning and implementation is the recording and continuous updating on the laws and regulations that concern it. It is important to include it in the environmental file of the company. The list should be clear and follow the structure below:

- *Number:* The specified serial number of the report
- *Law:* Title and brief description of the law
- *Issuing authority:* Detailed reference to the authority that issued the law
- *Date:* The date of enactment of the law
- *Application:* The functions, actions or procedures to which it relates

It is therefore important that the company has the appropriate know-how in order to collect and recognize the legislation concerning it and affecting its operation.

Organization and responsibility

With the completion of the audits, the recordings and the evaluation of the operation of the company and its environmental influence, the definition of the EMS begins with the creation of a list of goals and aspirations and the development of the administrative and operational procedures that carry them out. At this point, it is good to identify the appropriate staff who will undertake the procedures of the EMS, as well as to determine the level of involvement of each

employee in the company. The organization chart must describe for each employee his involvement, specific actions in which he is involved and responsibilities. At the same time, the resources available in the EMS must be determined in order to ultimately assess the achievement of the objectives. Finally, there should be a detailed reference to the training processes and information dissemination programs that will ensure the required knowledge and the required empathy of the staff.

Procedures and environmental management

Two types of activities are involved in environmental management: operational and administrative actions. Operational actions are those that implement processes to achieve the objectives while the administrative ones provide audit and regulation and ensure that the EMS is constantly monitored and reviewed, and any errors that arise are effectively corrected. The introduction of fully outlined environmental actions leads to the achievement of environmental objectives. Through these actions, the company complies with the requirements of the ISO14001 standard and their detailed description must be included in the environmental plan to ensure the effective operation of the EMS.

The five basic environmental administrative procedures are:

1. Non-compliance control
2. Administrative review
3. Error correction actions
4. Text and data control
5. Internal audit

The description of each process must include its objective, its content, the person who will be responsible for its implementation and the administrative procedure that concerns it.

Monitoring and evaluation

An important part of maintaining an effective environmental plan is the daily confirmation that the company's environmental impact is under its control. The monitoring and evaluation process provides the appropriate evaluation information of the control and the continuous improvement of the company. The monitoring procedures and measurements of the parameters under investigation are performed at regular intervals of the implementation of the EMS. By setting the right goals and making them responsible for the operational and administrative procedures we can monitor and evaluate the entire EMS so that the control process can evaluate its effectiveness.

Possible areas for monitoring and evaluation of the EMS are:

- the annual reports of the environmental manager
- reviews of the environmental plan and regulatory procedures
- definition of environmental indicators
- risk and opportunity analysis
- evaluation of previous environmental plans

Audit of the environmental management system

In the early stages of implementation of the EMS, environmental audit is mainly concerned with the assessment of internal and external environmental problems of the company. However, its real object, which must be achieved later and throughout the life of the company, is to assess the compliance of the environmental management system with its objectives and the requirements of the ISO14001 standard. Usually, the recommendations for the revision of the EMS are based on the results of this audit, which should be the subject of discussion and factor for decision-making in the board of directors.

Review by the management

Achieving continuous improvement of the environmental performance of the company requires regular study and review of the environmental plan. It should not be limited to subsections but always consider all the dimensions of the EMS.

Senior management should review the system annually to recognize its continuing suitability and effectiveness. This annual review will highlight the potential need to review policies, procedures, arrangements and objectives, or other related issues, based on audit results, conjunctures - including changes in legislation, and the explicit need for ongoing improvement. At the same time, new goals for next year will be set. This review demonstrates the commitment of senior management to the environmental plan and that any decision taken within is automatically accepted by the company as a whole.

In the context of this annual review, the current policy and the company's declaration of conformity are examined and revised appropriately in order to intensify the company's commitment to the continuous improvement of environmental performance.

The first environmental review should lead to the creation of the Environmental Working Group (EWG), which will be headed by a senior management or a specialist manager. The EWG must meet at least once a month to discuss emerging issues and progress on environmental issues. Meetings can be much more frequent, especially when the company wants to quickly introduce and implement the EMS.

The minutes of the EMS review conference by senior management provide sufficient evidence that the conference took place and addressed all the issues raised by the EMS.

The involvement of employees in environmental issues is of utmost importance for the company to be able to adopt and maintain a successful EMS. The same goes for their contribution to proposals for improving the environmental performance of the company.

Every employee of the company can and should report any existing or potential environmental non-compliance issues. All non-compliances must be reported directly to senior management, either in writing or orally. Management should discuss the report with the employee who did it and assist in accurately recording non-compliance. In the event that this is recognized as a critical non-compliance (immediate risk to safety or environmental protection), immediate action should be taken on deterrent actions and the person responsible for their implementation should be appointed. In this case, an extraordinary meeting may convene to approve the action plan. Otherwise, any non-compliance is reviewed by the regular board of directors and corrective actions are decided as well as their prerequisites.

The environmental plan of the company

The environmental plan of the company is the highlight of the audit process. Having defined, recorded, analyzed and prioritized the dimensions of the business and its environmental impacts, the objectives that will form the basis of the environmental plan emerge. But environmental

policy-making must be dynamic and open to new goals and aspirations. The main objectives that will be set during the introduction of the EMS will have been achieved by the date of obtaining the ISO14001 certification. One of the main priorities should be to establish an environmental management model.

As the goals and aspirations are completed within a deadline, they are deleted from the environmental plan and replaced with new, realistic goals. Also, an administrative review of the project is carried out once a year, therefore it is possible that during this period the operations of the company will change, a fact that will lead to the introduction of new aspirations and goals in the environmental plan. The process of reviewing the objectives of the environmental plan offers the possibility of continuous operational and environmental improvement.

Audit of environmental plan objectives, policies and actions

From time to time, the company should conduct comprehensive reviews of the management, policy and actions of the environmental management. These reviews are usually the most comprehensive approach to assessing environmental management effectiveness. The review aims to study and evaluate the achievement or not of the environmental objectives and policies and the environmental factors that contributed to the success or failure of the implementation of the environmental plan.

Environmental project budget

The budget of the environmental plan is a critical parameter and forms the basis of environmental strategies and their financial support. It is therefore important to be accurate and presented clearly. The recording of the financial elements of the project should also describe

their correlation with the previous environmental objectives. It must show exactly the capital required, the objective pursued and the estimated impact on the profitability of the business.

The funds and resources are pre-determined in a way that meets the objectives of the business and the environmental management and brings the overall environmental plan to success. For example, “well-behaved” products need to be treated differently from those that show little compliance with environmental requirements, and therefore require completely different actions and have completely different costs of dealing with their non-compliances.

Often the costs shown in the environmental plan are a significant part of the overall operating costs of the business. Therefore, they should be budgeted in a systematic way and their potential impact should be evaluated, in order to monitor their use as much as possible. The budget should be short and concise. It must be understood as well as the budget of the company of which it is a part. Many elements are common and can be transferred as is from the business budget.

ISO14001

The cost of introducing ISO14001 in the company is summarized below. It consists of direct and indirect costs:

Direct cost

It is easily calculated. It includes registration fees and annual check-in costs. The first one is the fee for signing up to join the system and covers administrative and bureaucratic costs. It is not refundable in case the process stops or if the accreditation company changes.

Indirect cost

The range of indirect costs depends on the mood of the business and the size of the environmental budget. It also depends on the size of the working group, the frequency of their meetings, and their duration.

One method for speeding up the implementation process and reducing the likelihood of failure is to precede stages 2 and 3 of an additional evaluation day. The pre-evaluation is done by a single evaluator and the benefit that results from it is found in the possible reduction of indirect costs due to the acceleration of the process. The extra day maintains the motivation of the employees even more, thus making the revision of the implementation schedule more unlikely.

Maintaining the standard and continuous improvement requires an annual audit, which introduces the annual audit costs. For the first two years after certification, the standard requires audits twice a year, so the annual budget must include two annual audits.

Summary

The EMS is a transparent, systematic process aimed at implementing environmental policies, taking responsibility, achieving objectives and controlling all of them. Achieving environmental quality goes through effective control of every aspect of the business, including environmental complications.

The success of the EMS system presupposes the full commitment of the management. Management commitment of the company is described in a signed document-statement on environmental policy. It is the backbone of the EMS and indicates, both within the company and to external institutions, that the company takes environmental protection seriously.

Environmental audits require the analysis of the existing environmental risks and the position of the company in relation to them, including an analysis of all internal and external parameters, as

they are prerequisites for the company to determine its future goals and procedures to achieve them.

The purpose of internal audit is to evaluate the existing products and services of a company and the impact of its activities on the environment, in order to record all the operational activities of the company and the impact of each on the environment. It includes finance, staff, research activity, technical studies and of course environmental management.

External audit evaluates all forces and factors outside the business that affect it, but cannot be directly influenced or controlled and regulated by the business, such as environmental issues that already exist and present, or may present, some form of impact on the business. It takes into account pressures from environmental organizations, consumers, competitors and of course environmental legislation.

The analysis of the business dimensions and their impact leads to the recording of the positive and negative actions of the company for the environment and becomes a guide for the processes of monitoring the effects, as well as for the development of the necessary processes of prevention or decontamination.

The definition of the EMS begins with the creation of a list of objectives and aspirations and the development of the administrative and operational procedures that carry them out and the resources available to it are determined in order to finally assess the achievement of the environmental objectives. Through these actions the company complies with the requirements of the ISO14001 standard and their detailed description must be included in the environmental plan. The basic administrative procedures are non-compliance audit, administrative review, error correction, data control and internal audit.

A key component of the environmental plan is the daily confirmation that the company's environmental impact is under control. The monitoring and evaluation process is the one that provides the appropriate evaluation information for controlling and improving the company.

Monitoring consists of the reports of the environmental management, the control of the environmental indicators, the analysis of the risks and opportunities, the evaluation of the previous environmental plans and the relative costs of the environmental management regarding sales.

EMS audit leads to the assessment of the compliance of the environmental management system with its objectives and the requirements of the ISO14001 standard. It examines the whole system and covers all the operations of the company. The audited staff must be informed in order to be prepared. This ensures that the staff studies the manuals so they have the necessary knowledge and information for the implementation of the environmental plan.

Having defined, recorded, analyzed and prioritized the dimensions of the company and its environmental impact, the objectives that will form the basis of the environmental plan emerge. Environmental policy design must be dynamic and open to new goals and aspirations. Achieving continuous improvement of the environmental performance of the company requires regular study and review of the environmental plan. Senior management must review the system annually to recognize its ongoing suitability and effectiveness.

The budget of the environmental plan is a critical parameter and forms the basis of environmental strategies and their financial support. It includes total revenue and expenses related to the EMS, even if they are allocated to the operation of the company and the allocation of the environmental budget in the environmental management plan.

Organizational barriers

Identifying key organizational barriers helps management to properly allocate the company's limited resources and is a necessary step in establishing corrective countermeasures. Technical organizational barriers, such as available technology, are obvious. Other organizational barriers

can be the very structure of the organization, the decision-making mentality, the employees themselves but also the attitude of the management towards the changes.

Success in environmental development and innovation is greater when management provides employees with responsibility and self-action. A democratic administration encourages employees to participate in the decision-making process, keeps them informed and shares responsibility for the solution. This increases flexibility and adaptability to new opportunities but also to the risks that arise while ensuring high quality work. It is considered the most appropriate for the implementation of the EMS, in contrast to the authoritarian mentality that is effective only when dealing with environmental risks which requires detailed instructions and guidance (emergencies).

The implementation of the EMS is difficult if the management is not informed about its necessity and its results, and is not fully committed to the environmental plan. There is no "quick implementation" of an environmental system in a company. Incomplete and casual design is a dangerous tactic. Environmental issues usually pose complex problems and therefore their response plans must adequately analyze them down to the simplest of elements to reduce the likelihood of management errors leading to a rapid loss of credibility of the EMS by creating obstacles to its introduction, and/or in the loss of accreditation.

The decision-making process and the acceptance of promising environmental innovation can be dominated by prejudices making it difficult to implement the EMS. Innovation that is easily accepted is usually the one that achieves more in competitive than in environmental benefits. Slow pace and low priority in innovation enable competitors to present similar products and services almost simultaneously. Nevertheless, groundbreaking ideas are often met with resistance due to the resources they require, inadequate planning and lack of understanding of production and product promotion requirements. The creative spirit of employees contributes significantly to a company's innovation and is a valuable source of solutions.

The lack of training and information in a business is a major obstacle. As current business behaviors and standards are reviewed, some employees may feel threatened. That is why it is necessary to conduct seminars and information meetings, distribute leaflets and create working groups. The company must also adequately communicate its environmental sensitivity to its consumers. This is the only way to gain 'green prestige' and competitive advantage.

Staff training and encouragement to adopt responsible behavior is an important factor in applying a culture of continuous environmental improvement. The competitive advantage of environmental improvement is only possible by companies that empower their employees to be self-active, thus using their learning ability and giving them the tools to apply their knowledge in all areas of the business.

Due to the speed, breadth and complexity of environmental issues, businesses need to embrace and organize policies and programs according to their long-term goals. Adaptation of the business mentality to the modern situation creates long-term benefits for companies, but it is a field of resistance to the implementation of the EMS when management reacts to this change. Efforts to "beautify" and communicate existing environmental issues, however, usually fail.

Every company differ in both mentality and methods of implementing business activities. The EMS must be relevant to the prevailing political, operational and financial needs of each company.

Many environmental problems of companies are based on the choice of their equipment. It is obvious that the use of modern, environmentally friendly technology ensures the most efficient use of resources and minimizes waste and emissions.

The more complex the strategy that a company tries to implement, the more friction there is in its implementation. The environmental strategy is effectively implemented in the company if it agrees with the other management strategies that prevail in it. Lack of budget and human

resources training, and lack of incentives from the company can be a significant obstacle to the implementation of the EMS.

The nature of the environmental issues that actually interact with the business usually leads to a rearrangement of its structures. The change of the organizational structure requires the elaboration of plans but definitely the allocation of resources in them.

In the case of small and medium-sized enterprises, obstacles to the implementation of the EMS are dealt with in a special way due to their specialized structure. The main benefits of small and medium-sized enterprises are commercial, environmental and in regards to communication. Small and medium-sized enterprises face stronger barriers to finding, understanding, implementing and supporting EMS, and are more vulnerable to unexpected developments. This often cancels the implementation of the EMS from the very first stages, since the benefit that results from this is not clear or seems too long-term at the limits of small or medium-sized enterprise.

Environmental management strategy and business strategy

The environmental management system is essentially the framework for the implementation of environmental improvements, the mixture of needs and incentives that push the company and the obstacles within it. At the same time, the EMS is an accreditation tool but also a method of continuous improvement of the environmental behavior of the company. Its success, however, presupposes that the standard system is harmonized with the business.

There are companies that see ecology as a threat and only implement strategies to comply with environmental legislation. Others are voluntarily embarking on transformations in environmental management to gain a competitive advantage, and others are adopting environmental strategies to gain credibility.

Environmental management must remain active and explain and demonstrate the benefits of environmental policy to the operation of the business. The goal of the environmental team may be rational but it is certainly not clear to the management, which aims to grow profit. An environmental strategy that fits the current business strategy uses business language instead of technical and scientific terms and is an integral part of the day-to-day business, is easily accepted. It does not essentially dictate the optimal environmental performance of the company but describes a system that helps the company develop and achieve its own environmental goals.

Environmental design is the new design trend and leads to sustainable innovation and functional transformation. The integration of product design and development in the EMS leads to the continuous improvement of products by introducing ecological design in the company's strategy. Integrating environmental issues into the core of the business, however, requires compromises, as not all environmental benefits can be achieved without cost.

By adopting an environmental policy, companies must establish a formal strategy and structure their operational goals and communication within them. The introduction of EMS challenges the traditionally conservative corporate culture. Thus, they are forced to redefine their goals, change their organizational boundaries and structures, create new value systems and identify and support new types of management. The management must maintain stability by introducing changes gradually.

The categorization of EMS into four basic models leads to a better understanding of their importance and results depending on the approach of the company. These not only indicate the obstacles but also indicate the ways in which they may occur in each case, provide additional information on the possible outcomes of the EMS and suggest that the EMS can become a development tool that will offer competitive advantages.

The implementation of an EMS will undoubtedly result in organizational and operational advantages and disadvantages. The study of general models can help in choosing the best model

for each company, depending on its aspirations and the mentality of the management. Finally, the recognition of the EMS model used by competitors, as well as suppliers, provides the opportunity to assess both the competitive advantage and their possible response to changing economic conditions.

9.3. Natural Resources protection through business activities

Natural Environment and Natural Resources

Natural environment is the set of abiotic (soil, air, water, etc.) and biotic factors (animals, plants, etc.) that affect and determine life. The natural environment is made up of biosystems that are powered by solar energy and include forests, rivers, meadows, lakes, seas and oceans. The natural environment is "self-sustaining" and "self-sufficient" (Karameris, 2008).

The natural environment consists of four (4) basic spheres: the biosphere, the atmosphere, the hydrosphere and the lithosphere.

The term "**natural resources**" has been interpreted in various ways such as the following:

(Βούτσινος, κ.α. 2016):

- Characteristics of the natural environment able to meet human needs.
- Goods or materials provided by nature.
- Primary and non-human transformed components of nature that can be used to cover basic human needs.
- The primary basic and not man-made goods.
- Anything in nature that man needs for himself or his descendants.

The above interpretations have two common features (Voutsinos, κ.α. 2016)

- Relate natural resources to the satisfaction of basic human needs.
- They refer to the natural creation and existence of these resources.

Another interpretation of the term is the following (Voutsinos, κ.α. 2016):

"Natural resources are essentially the productive forces or the result of the productive forces that exist and act in the natural environment and that, for the present or for the future man, can be used to meet his needs."

Natural resources are categorized according to the criteria considered (Papamanolis,2015):

- Based on their origin:
 - In abiotic, i.e. those that correspond to non-living elements, such as water, air, ores, etc.
 - In biotic, i.e. those that come from the biosphere, such as crops, forests, animals, fish, etc. (Fossil fuels, such as coal, oil, gas, are often included in living resources, insofar as they were formed from organic fossils during geological time.)
- From an environmental point of view:
 - In finite or non-renewable, i.e. those whose total quantity is finite, and therefore exhaustible (e.g. rocks, metals, fossil fuels).
 - In renewable, i.e. those whose quantities are practically inexhaustible (e.g. sun, wind) or are constantly reproduced by natural processes (e.g. flora, fauna).
 - In potentially renewable, i.e. those whose quantities are potentially inexhaustible but their exploitation takes place at faster and more intensive rates compared to their renewal rate.

For example, contaminating water to such an extent that it cannot be used by humans is essentially depleting a renewable natural resource. The same goes for soil desertification and biodiversity loss.

- In terms of exploitability:
- In active resources or stocks, i.e. those whose quantities are determined and their exploitation is advantageous given the existing technologies.
- In potential resources or reserve base, i.e. those that have been identified but, at present, their extraction is not possible, easy or intentional.

Environmental and Natural Resources Management (EM & NRM) includes the development of processes and strategies that focus on:

- The allocation and conservation of resources with the ultimate goal of regulating anthropogenic impacts on the environment (natural or artificial per case) (Alexander, 2007).
- Taking advantage opportunities, avoiding risks, mitigating problems and preparing people for the inevitable difficulties by increasing the adaptability and durability of the systems under study (EricksonandKing, 1999).

The main tasks of the management are the following (Grigg, 1996):

- **Planning:** It is the process that defines the goals and objectives as well as the creation and recognition of a series of alternative actions, proposals, programs, strategy and policy by the administrator to solve problems in the future.
- **Organization:** It is a management element that refers to the set of rules and actions with which the factors of production and consumption are harmonized in a specific time and

space, in order to achieve the maximum possible efficiency. Essentially, the plan is implemented through organization.

- Administration: It is extremely important for the assignment of tasks and the evaluation of results.
- Audit: It is an integral part of the organization and is necessary to evaluate the overall objectives of the management. This is why it can often be applied by different entities, bodies or organizations.

EM & NRM is essentially a process that deals with human-environment interactions and seeks the recognition of the environmentally desirable outcome taking into account the physical, economic, social and technological constraints and barriers. (El-Kholy, 2001). Alternatively, EM & NRM deals with the solution of practical problems arising from the coexistence of man and nature (Alexander, 2007).

It typically consists of a combination of scientific, political, social and economic practices. It deals with the regulation of both socio-economic practices and the effects of human activities on the environment and the effects caused by the environment on humans.

- In the first case, effects such as pollution or the deterioration and degradation of the environment from the construction of certain structures such as dams, roads or other infrastructure and facilities, etc. are included.
- In the second case, situations such as floods, landslides and other natural disasters are included.

In general, EM &NRM has the following characteristics (Barrow, 2006):

- Often used as a general term
- Supports sustainable development

- It is a dynamic process
- Requires an inter scientific, interdisciplinary or even "holistic" approach
- It must integrate and reconcile different views on development
- It must coordinate science, social needs, policy making and planning.
- It incorporates the principle of prevention.
- It must recognize opportunities and threats and resolve problems
- It emphasizes on management and not exploitation
- The time scale of the process exceeds the short-term limits and the spatial coverage covers a wide range (local - global).
- It deals with the environment that is affected by humans

The scope of its applications covers (but is not limited to) the following topics (Alexander, 2007):

- Bilateral and multilateral environmental conditions (cross-border ecological management).
- Development of environmental policies and voting (participatory planning and public consultation on environmental programs).
- Assessment, analysis, and management of environmental risks (risk perception and communication studies).
- Development of environmental regulations and rules (for waste disposal, pollutant emissions, resource extraction, control and enforcement and compliance control).
- Impact and management of leisure and tourism (design and implementation of environmentally friendly programs).

- Conservation of natural resources (characterization and management of parks, shelters and other protected areas, characterization and protection of wildlife areas).
- Environmental economics (financial justification for investments in environmental protection).
- Promoting positive environmental values through education, dialogue and dissemination of information.
- Reduction of negative effects on the environment.
- Evaluation and management of resources.
- “Demarcation” and environmental impact investigation (design of policies, rules and procedures for mitigation).
- Strategies, methods and programs for the restoration of ecologically degraded areas.

Degradation of the Environment and Natural Resources

Anthropogenic or Artificial Environment is defined as the environment that was and is created exclusively by human interventions (Pavlogeorgatos, 2003; Papamanolis, 2015; Vakasiri, 2016). At the same time, the Anthropogenic Environment includes agricultural areas, managed and controlled forest areas, artificial lakes, etc. (Vakasiri, 2016).

However, its most obvious form is the residential environment, ie settlements and cities and various technical projects, such as roads, networks, dams, ports, etc. (Papamanolis, 2015). The residential environment, despite the small part of the Earth's surface that it occupies, gathers many activities that have far-reaching effects on the natural environment. Components of the residential environment are the population, the social and economic activities it hosts, the land usage, the constructions and the transport and infrastructure networks (Papamanolis, 2015).

The Anthropogenic Environment is distinguished in (Karameris, 2008; Skoullou, 2012; Vakasiri, 2016):

- Technological (Artificial or constructed): It refers to know-how, technology, infrastructure, etc. It includes cities, industrial complexes and transportation systems (roads, airports, etc.).
- Social: It refers to the human interaction with other people. As humans adapt and create relationships with other people, thus forming human society, they shape another environment, the social environment. The social environment of humans is delimited by social and economic institutions, laws and social organization, elements that are constantly changing and evolving. The social environment is dynamic and not static, and is determined by beliefs, manners and customs, skills and behaviors. As it is inextricably linked to evolution, it is obvious that the form of the social environment changes over time.
- Spiritual: It refers to the worldview, the relationship with the divine, etc. It includes philosophy, metaphysics, religions and quests on a spiritual level.
- Cultural: It refers to knowledge and culture. Humans, in their effort to understand the world around them, acquire knowledge and develop ideas. These characteristics, in combination with material crafts and social institutions, are inherited and change from generation to generation. They thus constitute another environment, the cultural one, which is neither fixed nor unified, but varies from place to place and from season to season.

Examples of types of anthropogenic environments (Karameris, 2008):

- Agricultural Holdings
- Industrial Environment
- Artificial Lakes
- Mining areas
- Structured Environment

Difficulties in managing environmental problems caused by human activities have led to their designation as "**Unsolved Problems**" (Rittel and Webber, 1973; Ludwingetal, 2001). The reason that led to this characterization is the uncertainty that characterizes the reactions of the various environmental systems to the occurrence of problems. Based on the published literature - articles, there are many sources and types of uncertainty (eg. Burgman, 2005; Norton, 2005). In general, however, the management of environmental problems is affected by at least four factors (Williams, 2011):

1. Environmental diversity: It is the most widespread source of uncertainty, and it is largely uncontrollable. It often has a dominant influence on natural resource systems, through various factors such as random climate variability.
2. Partial observation: This refers to the uncertainty about the state of resources. An obvious expression of partial observation is the sampling variation that results in resource monitoring.

3. Partial controllability: This expresses the difference between the actions announced and the actions implemented in practice. This uncertainty usually arises when indirect methods (e.g. regulations) are used to implement an action (eg setting a crop or productivity rate), and can lead to the possible misleading of management interventions and, consequently, to an insufficient accounting of the impact of these actions on the behavior of the systems under management.

4. Structural or procedural factor: This uncertainty refers to the lack of understanding (or lack of agreement) regarding the structure of biological and ecological relationships that promote the dynamics of natural resources.

This section outlines the most important of these problems. Specifically:

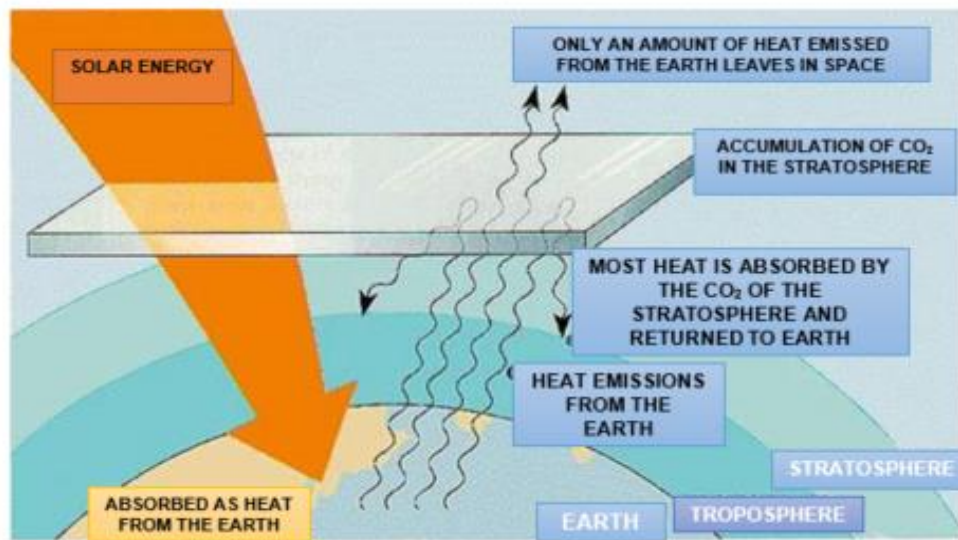
- Population growth and urbanization
- Pollution - contamination of the environment
- Reduction of biodiversity

A very important environmental problem, among others (eg acid rain) is also climate change. However, this arises from the structure of the atmosphere in conjunction with its pollution. In other words, it is a derivative problem.

According to the Intergovernmental Panel on Climate Change (IPCC, 2007a; 2013), the energy balance of the planet's climate system can be affected by a number of factors. Some of them are changes in the concentration of specific gases in the composition of the atmosphere, fluctuations in solar radiation and changes in land use.

The first factor (the change in the concentration of specific gases in the composition of the atmosphere) is referred to in the literature as the "greenhouse effect".

In fact, this term means the inhibition of infra-red radiation emitted by the earth to radiate into space and its absorption by atmospheric gases. As a result, there is an increase in the temperature of the lower atmosphere and the surface of the earth (Figure 1). The absorption of radiation is mainly due to carbon dioxide (CO₂) but also to other gases.



Environmental and Natural Resources Management Systems

Environmental Management System (EMS) is defined as the part of the overall management system of an organization that includes the necessary organizational structure, activities, procedures, roles and responsibilities, appropriate practices, processes and resources to address

the environmental impact of products, services or functions of this organization (Aravosis, 2000; 2002; MorrowandRondinelli 2002, Mandaraka 2004).

An EMS belongs to the category of tools based on market demands, which push producers and consumers in the responsible use of natural resources and in the minimization or elimination of pollution, and aim at utilizing the ingenuity of companies and directing them to improve the environmental performance of their products and processes in a different way from the traditional “order and control” of environmental legislation.

The success of EMS as a tool is based on the simple assumption that the market will reward companies that are the first to incorporate the requirements of an EMS into their operations and therefore market pressures will encourage more and more companies to follow.

An effective EMS is based on the ideas of Total Quality Management and is essentially an extension of the existing management system in a company, through which environmental issues are introduced in the management operation of the company. The first step is to identify the problems and the cause. The correction of these malfunctions leads to the improvement of the environmental and in general of the overall operation of the organism.

In terms of Total Quality Management, it is worth mentioning that it is a way of managing an organization that is focused on quality, based on the participation of all its members (staff of all departments at all levels of the organizational structure) and aims at long-term success through customer satisfaction and the provision of benefits to all members of the organization and society. The values on which the implementation of Total Quality Management is based are: responsiveness, cooperation and participation.

The **ISO** International Standardization Organization is a global federation consisting of respective national standardization bodies in more than 130 countries.

Specifically:

- In Greece it is represented by ELOT (Hellenic Standardization Organization)
- In Germany by DIN
- In the US by ASTM

ISO was founded in the 1970s in Geneva, Switzerland to promote the development of safe standardization and similar activities. The most widely known of the ISO series standards is ISO 9000 (and its derivatives), which has been adopted by many companies around the world, in order to show customers and other stakeholders that their business has been submitted in a complete analysis of its organizational structure, which (at least in theoretical level) guarantees quality assurance. An ISO certified company has not simply adopted the ISO series standards, but has received its certification from an independent and approved body (e.g. TUV, etc.).

The ISO 14001 standard was first published in 1996 and mainly includes the requirements of an environmental management system. It applies to those environmental aspects that the organization has control over and in which it is expected to have an impact. On November 15, 2004, the revised version of this ISO was published, i.e. ISO 14001: 2004. This revised standard appears to be quite improved compared to the previous one in terms of ease of understanding, emphasis on compliance and compatibility with the ISO 9000: 2000 quality management standard.



The **European Union Eco-Management and Audit Scheme (EMAS)** is an administrative tool for businesses and other organizations that aims to improve their environmental performance. Companies have been participating in EMAS since 1995 (Regulation No. 1836/93, date of voting by the European Council 29/6/93). Initially, only companies from the industrial sector could participate. From 2001, however, and after its revision (Regulation No. 761/2001, date of voting 19/3/01), EMAS is available for implementation to all organizations in all sectors and

industries, including public and private services. In addition, EMAS has been strengthened by the implementation of ISO 14001 as the standard environmental management system required by it. EMAS, however, unlike ISO 14001, is accompanied by an attractive logo, with which the organizations that apply it, show their certification in non-EU countries (Figure 2). Participation is voluntary and applies to any public or private sector organization committed to improving its environmental performance.

9.4. Bio – agriculture mainly in mountainous area

A world overview of organic agriculture

Historical background

Agriculture is the primordial art created by man to satisfy in a stable context his needs for nutrition, clothing and the supply of raw materials for all kinds of other products. It includes all the efforts aimed at improving the quantity and quality of plant production through the cultivation of the land and the improvement of the breeding of farm animals, whose food is based on plant products. Modified natural ecosystems, agro-ecosystems, are formed through agriculture.



The growth of capitalism, the rapid technological development and the increase of the world's population had a huge impact on agriculture as well. Conventional agriculture - in its most common form - especially from 1930 onwards, greatly alters the structure and operation of animal ecosystems. The productivity and mobility of organisms increase, many species in the food chain are threatened, genetic and biological diversity is reduced, biogeochemical cycles are opened and the stability of the ecosystem is deregulated.

Organic farming in the world

Organic farming is applied in many countries of the world, the areas of which are constantly increasing with the main criterion being the increasing demand for organic products mainly in Europe, the US and Japan.

In Latin America, the region with the greatest biodiversity and microclimate in the world, producers use the knowledge inherited from the Inca era, and cultivate millions of acres with many different species and varieties of potatoes. Microclimate and biodiversity favor organic farming.

In a short period of time many producers' associations were created and the small organic farmers are maintained. In Brazil, in particular, agricultural products from producers are collected by the associations and transported either to the larger markets or distributed directly by basket to consumers' homes, as the latter have prepaid a percentage to the producers and share the risk of organic farming. In countries such as Brazil, Argentina and Peru, organic products are sold at the same price as conventional ones, leaving the choice to the consumer.

Most Latin American countries have places for consumers to get acquainted with organic products, and they are usually sold in public markets, supported by local councils. Paraguay,

Argentina and Brazil are the largest producers and exporters of corn and wheat, with organic farmers facing a major problem with the also widespread cultivation of genetically modified soybeans and maize. In some parts of Peru, 30% of the crop is organic. Argentina, Brazil, Peru and Colombia are the Latin American countries with the highest rates of organic farming. Legislation is being developed, producers are being supported scientifically and commercially even though governments are not providing financial support.

In Africa, organic production has little effect. Although most of the production is close to the standards of organic farming, there is a lack of certification, relevant legislation and the products are sold as conventional. It is generally gaining ground on the one hand due to the growing demand observed in developed countries and on the other hand due to the effort to prevent soil erosion and desertification. A shift to organic farming is observed in countries where there is an inability to dispose the overproduction of conventional agricultural products, as well as in cases such as Burkina Faso, which is unable to import chemical fertilizers and pesticides for economic reasons. It is worth mentioning that the Ministry of Agriculture of South Africa is expected to establish rules for production and certification.

In Asia, the proportion of organically grown land is very small. Japan has a 1% organic farming program for 2003. Turkey and Israel also produce organic products (mainly fruits and vegetables), as well as China, India, Sri Lanka and Korea (cocoa, coffee, greens, spices, rice, tea, vanilla).

In Oceania, Australia has had national standards for organic farming since 1992. Today, 70.7 acres, the largest in the world, belong to the church and are used for grazing. Australia also supplies Europe with fruit and vegetables in the winter.

More than 10.3 million acres are organically cultivated in North America. The US, Canada and Mexico show significant percentages of organic farming and export many of their products.

The status of the international market

In most developed countries, organic products cover the full range of the food market. They are available in supermarkets, food stores, special stores for natural and organic products, in special public markets and in the farms where they are produced or delivered by the producers themselves to the homes of consumers in boxes.

The picture below is from the State of Washington in the US (Hazel Dell Farmers Market), where with a "landscape" architectural thinking a model local "farmers market" was designed for small producers, with the prospect that most of the products come from organic crops and productions and with a sufficient space, infrastructure, opportunities for urban agriculture in the area, greenhouses, imitation of the forest landscape with the possibility of producing forest flavors, playgrounds, event spaces, covered and open market of fresh produce, etc....



For the year 2001, the retail sales of organic products are estimated at around 21 billion dollars worldwide, while they represent a small percentage (1-3%) in relation to the total sales and present very great dynamics.

Developing countries are expected to penetrate more into the markets of developed countries. Buyers of organic products, mainly in Europe, Japan and North America, are expected to increasingly turn to organic production in the developing countries of Africa, Asia and Latin America.

The reasons are: a) products such as coffee, tea, cocoa, tropical fruits and vegetables, spices, herbs, dried fruits and nuts are not produced in the countries where the main markets exist, b) the need to consume non-seasonal organic agricultural products by developed countries, (c) consumption of seasonal products when there is a relative shortage, and (d) consumption of country-specific or higher quality products.

The need for internationally recognized standards

Consumer demand for organic products is constantly increasing and has been linked to the response to the mad cow crisis, bird flu and the spread of genetically modified organisms (GMOs). Typically the visionary Steiner in 1923 had written the prophetic text "What could happen if instead of plant food cattle started eating meat?". The most important thing is that their body would be filled with uric acid and uric acid salts, which affect the nervous system and the brain. The animals would go crazy. The crisis of 1929 and the economic catastrophe of many farmers in America helped spread organic farming to this continent.

After all, in Europe there are many who consider organic farming important for the protection of the environment. It is not only a method of agricultural production, but also a complete proposal

for life. A proposal that covers the essential human needs for healthy eating, natural living and participation in the commons.

Because, therefore, the field of organic farming is threefold: it is at the same time a social movement, a scientific field and a productive field, it contains economic interests. A retailer or a conventional crop producer could call their products organic in order to profit from the added value. It is therefore necessary that the meaning of these relevant terms be clear and that organically produced products meet them.

The need for specific and harmonized rules to protect and inform producers and consumers led to the establishment of various private bodies, such as the IFOAM (International Federation of Organic Agriculture Movements) in 1972, and state authorities. The FAO (Food and Agriculture Organization) and WHO (World Health Organization) of the United Nations and the European Union (EU) were also involved. IFOAM adopted in 1998 the General Specifications of Organic Agriculture and Processing, which are not mandatory, but are a guide to EU Regulations and the legislation of the various countries.

It is indicative that in 2008, 69 countries already had their own regulations for organic products and 21 were in the process of drafting regulations. In 2007, organic product standards were agreed between the countries of East Africa and the East African Organic Mark was created.

Summary

Organic farming, although it has a history of thousands of years as a continuation of traditional agriculture, it has only developed as a result to the food scandals of the 20th century in many parts of the world and is cultivated in a small percentage of areas with increasing rates of expansion. Awareness of the problems posed by conventional agriculture, sensitivity to the

protection of the natural environment and consumer demand for quality food lead to the need to create internationally recognized standards of organic farming.

Organic Agriculture in Europe

Community Legislation

The need for specific and harmonized rules for the protection of organic farming has led to a control system that secures products, producers and consumers. It consists of a body or bodies and a process of controlling the observance of the cultivation specifications and the certification - labeling of the products. Characteristics of this process are impartiality, objectivity and scientific adequacy of potential and infrastructure.

It aims to protect the interests of the consumer from counterfeit products and the organic farmer from unfair competition of such products, as producers are treated with the same measures and the same strictness, to facilitate the free movement of organic products in the EU and to formally acknowledge and recognize the benefits of organic farming in rural development planning at various levels.

The spread and development of organic farming in many countries of the European Union had begun in 1980, such as in Austria, Switzerland, Germany and Spain, where due to the lack of a Community Institutional Framework, these countries had adopted national laws, as well as programs for financial support for organic farmers. An institutional framework for organic farming and animal husbandry was first adopted in 1980 in France, and by the early 1990s it had

undergone a period of intense controversy. The European Union (EU) is the first international market to develop a specific institutional-economic framework for organic farming.

The first level concerns the Standards, as described in the relevant legislation, ie in terms of what or to what criteria we refer today to an organic product. It is a set of written instructions that clearly define the context in which the producer will move and concern the methods and means of production: what is required, what is proposed, what is allowed and what is forbidden. Although the producer may resort to sophisticated ecological practices, such as biodynamic products or the protection of wildlife around the crop, it may not exceed the minimum requirements of the specifications.

Information and training mechanisms

The official website of the European Commission for Organic Agriculture is an initiative of the EU Directorate-General for Agriculture and Rural Policy as part of the campaign for the development of organic farming throughout the European Union. The website serves as a key component of the campaign, the general content of which is tailored to consumers. A special toolbox section also provides printed photographic and audiovisual material for use by stakeholders including farmers and agricultural cooperatives, processors and retailers, thus promoting the campaign in the various EU Member States. The website also contains the latest news, lists of events related to organic farming, as well as links to other sources of information and members of the field.

Financial Support

Pursuant to Regulation (EEC) No 2078/92, a specific Community scheme for financial support for organic farmers through subsidies of acres co-financed by the European Agricultural Guidance and Guarantee Fund (EAGGF) was introduced for the first time and was replaced by 734/2007.

Summary

Organic Agriculture in the European Union is governed by the European Regulation 734/2007, more simplified and flexible than the previous 2078/1992. This Regulation was enacted out of the need to protect the interests of the consumer and the farmer, for the free movement of the products and the securization and official recognition of these benefits as a result of consumer pressure for quality food.

A sophisticated ecological practice is also biodynamic agriculture, which relies on the transfer of the forces of nature at the appropriate time and their utilization for maximum possible yield of crops.

Compliance with the standards for the production, distribution and promotion of organic products allows the products to bear a special sign with the Community logo and the indication of the country of production. The specifications include all permissible interventions to enhance soil fertility and protect crops and farm animals from enemies and diseases with the least possible human intervention.

Organically grown areas are following an increasing trend as a result of legislation and financial assistance on average, while in some European countries in the last 6 years there has been a decrease.

Support for organic farming in mountain areas is provided at European level through research and information as well as training for farmers and consumers.

Organic Agriculture in Greece



The course and the current situation

In Greece, although organic farmers have existed for several decades, the need for certification was created in 1982 and concerned the program of organic cultivation of Corinthian raisins in the province of Egialia in the prefecture of Achaia within the Panagialeia Union of Agricultural Cooperatives for exporting to Denmark, and was conducted by the Danish Auditing and Certification Agency, Scal. In the middle of the same decade, the production of olive oil in Mani begins, with exports to Northern European countries, mainly to Germany, and under the supervision of foreign audit and certification bodies Scal and Naturland.

Institutional framework

The implementation of the European Regulation 2092/1991 regulates the audit and certification of organically grown products of plant origin. This helped the few pioneering organic farmers, who until then had no legal obligation, to label their products as organic. With the start of the product audit and labeling process, their products could now be distinguished.

It was preceded by the ministerial decision establishing the "Office of Organic Products of Plant Origin", responsible for representing Greece in EU institutions, informing the regional Directorates of Agriculture and mainly the supervision of the national system of audit and certification of organic products.

A subsequent ministerial decision establishes the "Organic Products Committee", which has 15 members and consists of representatives of Directorates of the Ministry of Rural Development and bodies, such as:

- a) PASEGES (Panhellenic Confederation of Agricultural Cooperatives)
- b) General Chemistry of the State
- c) Ministry of Development
- d) Piraeus Bank

The Committee on Organic Products has an advisory role to the Minister of Rural Development on the following issues:

- determination of the approval standards of the Organizations for Control and Certification of organic products
- approval of their operating licenses
- imposing sanctions on these organizations or operators in case of violations or irregularities
- promotion of the development of the organic farming sector.

The following ministerial decision defining the control system is managed by the following:

- the Minister of Rural Development
- the Ministry of Rural Development
- ELGO "DIMITRA"
- private approved audit bodies
- Directorates of Rural Development
- organic farming and animal husbandry companies

Financial support

Organic farmers in the highlands can receive special eco-oriented financial support under the EU Rural Development Policy, which is added to the support received by farmers through the basic acreage scheme, which they are automatically entitled to. The special support for organic farmers consists of an amount per hectare paid jointly by the EU and our country and which is different in each Member State. Between 2015 and 2018, EU subsidies amounted to an average of EUR 700 million per year.

Specifically, ecological orientation support, which includes organic agriculture, is given through Measure 1.1 "Organic crops" of the Rural Development Program (RDP) 2014-2020. This action is applied throughout the country, in agricultural areas of annual crops and in tree plantations of productive age. They aim at the following:

- (a) the maintenance of organic practices and production methods in animal husbandry and agriculture
- (b) the conversion of conventional crops and farms into organic practices and methods

The preservation of old organic crops is enhanced in regards to the loss of income due to reduced yields and the additional costs of laboratory tests and certification costs.

Exceptions are abandoned or semi-abandoned agricultural areas, tree plantations of frost-hit or fire-affected areas, if no production is obtained from them, energy crops, areas included in agricultural afforestation schemes, crops environmentally polluted areas.

Beneficiaries can be natural and legal persons, registered in the Registers of Farmers and Agricultural Holdings (MAAE), as professional farmers or holders of agricultural or livestock areas, whose at least 35% of their total annual income comes from agricultural activity. In legal entities, the corresponding percentage must be at least 50% of their total annual income. The minimum

size of the crop to be included should be 3 acres in tree (permanent) crops (such as olive groves, vineyards), 2 acres for other crops and 3 acres for mixed farms.

The following are excluded:

- Those who have joined the early retirement scheme
- The successors of early retirement, where there is a decision to exclude from receiving any support in the agricultural sector
- Those who have been expelled from an Agri-Environmental Measure or Action in the previous programming period

Beneficiaries of financial support who have a minimum size of the crop to be included:

- 3 acres in tree crops, such as olive groves and vineyards
- 2 acres for the other crops
- 3 acres for mixed farms

They are committed to:

- comply with the approved Environmental Management - Breeding Plan,
- comply with the Codes of Good Agricultural Practice throughout their work,
- apply the guidelines and specifications of European Regulation 734/2007,
- submit an annual payment request accompanied by the necessary supporting documents.

Promotion of organic products



Organic products have already gained a prominent position in all retail chains operating in our country since 2007, claiming a share with clearly more aggressive trends than in previous years. Separate shelves were created for the

organic products and therefore the whole industry followed them. In this way, the acquaintance with the consumers began in a market that was dominated by specialized stores for organic products and respective markets.

Prospects for the development of organic farming in mountainous areas

The advantages - particularities that our country presents in an effort to strengthen organic agriculture are the following:

- The use of agrochemical inputs in conventional agriculture of our country is at relatively low levels compared to other countries, so that the situation of the environment remains excellent. Monocultures are small.
- Agricultural lands are mainly neighboring to natural areas, rich in fauna of beneficial organisms for the crops.

- The small and fragmented lot (average lot in Greece is 45 acres, in the EU 165 acres and in America 2,020 acres) and the geomorphology of agricultural holdings (450,000 out of 860,000 are located in mountainous, semi-mountainous and island areas).
- Limited production
- Geomorphology of agricultural holdings, ie in mountainous, semi-mountainous and island areas there are 450,000 out of 860,000 holdings
- Favorable and diverse climatic conditions. Multi-fragmented lot, promotion system based mainly on decisions of individual producers who enter into integration contracts with certification companies.
- Great biodiversity
- Easy transformation of our country into a biological paradise of Europe in many fields, such as sheep and goat farming - where animals graze in the countryside for more than 6 months - olive growing, vineyards, cereals, kiwis.
- The domestic genetic material has been preserved, especially in sheep and goat farming.

Even in terms of tradition, in Greece today there are areas where cultivation models, which include the application of green manure and crop rotation, can be considered organic by definition, without having been consciously identified in this way.

Summary

Organic Agriculture in Greece started in 1982 with the program of cultivation of organic raisins in the province of Egialia to export the production to Denmark and its certification by the audit and certification body of Denmark.

In the 1990s, with the enactment of the European Union Regulation and the financial support granted to farmers, and especially to organic farmers, organic cultivated areas increased. Olive crops occupy the largest areas, while since 2011 for the first time there has been a decrease in olive cultivated areas, with an increase in fruit trees, fresh vegetables and oilseeds. Despite the significant potential of organic livestock, especially in the mountainous areas of our country and the increasing rates initially, since 2011 the sector of sheep and goats and cattle shows a declining trend, while poultry farming and beekeeping show an increase.

The prospects of organic mountain cultivation of cherry, livestock chickpea, lucerne, chestnut, beekeeping of pine, fir, oak and sheep breeding were described with important conclusions.

However, the decision of producers to engage in organic farming is significantly affected, in addition to financial support, by the level of education - information, environmental sensitivity and health concerns.

Historical experience has shown that the development of organic farming internationally was based, at least in the early stages, on the ideas of the organic movement and to a much lesser extent on economic incentives. As an activity, organic farming presents elements and characteristics that differentiate it from the conventional one both in terms of production methods and business logic.

These elements are the mobilization in social visions, the more rational management of the available resources, the observance of strict quality assurance standards, market orientation and to a significant extent, maximization of the economic result with the smallest possible inputs. It is work and knowledge oriented, while the conventional one is mainly input-intensive, with the consequence that a high and continuous commitment of the organic farmer is required, not only in the various stages of the production process, but also in his continuous training-updating or experimentation to find practical solutions to everyday problems (weed control, diseases, sales promotion, etc.).

In terms of demand, the ecologically aware, the well-educated, the residents of big cities and families with children are the best consumers of organic products. Their high prices act as a deterrent to the purchase decision, while the appropriate labeling of the products contributes positively.

The advantages of the mountainous areas are remarkable for the strengthening of the organic agriculture and animal husbandry in Greece. Strategy, training of consumers and farmers is needed to find and support emotional and ideological motivations.

The audit system for compliance with product production specifications consists of the Ministry of Rural Development, headed by the respective Minister, the ELGO "DIMITRA" organization, the 12 audit and certification bodies, which cooperate with the production and distribution companies. The audits are made by visiting the units, interviewing the producers / distributors, and by checking the necessary documents.

Interreg
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