INTERREG V-A COOPERATION PROGRAMME

GREECE – BULGARIA 2014 – 2020

Reinforcing Protected Areas Capacity through an Innovative Methodology for Sustainability

– BIO2CARE –

(Reg. No: 1890)

WP4

Deliverable 4.5

Development and implementation of a sustainability labelling scheme including varying certification levels

Chapter 1 - Introduction

1.1 Sustainability labelling schemes – The theory

1.1.1 Background

To steer society towards sustainability, relevant and sufficient environmental information about both products (in products we include physical artefact, software, processes, services and combi- nations of these) and organizational performance at large is a prerequisite for consumers, procurement professionals and producers to inform their decisions. Environmental and social product information programmes have become a wide-spread instrument aiming to fulfil the need of effective market communication around sustainable consumption. This communi- cation relates both to the consumers' right to know and to the producers' possibilities to reliably communicate their efforts (Bratt et al., 2011). Recently one of the approaches that have acquired increasing importance is that of 'environmental labelling' or 'eco-labelling'.

Eco-labelling seeks to inform consumers about the effects on the environment of the production, consumption and waste phases of the products/services consumed. Consequently, it seeks to fulfil two objectives: (i) to provide consumers with more information about the environmental effects of their consumption, generating a change towards more environ- mentally friendly consumption patterns, and (ii) to encourage producers, governments and other agents to increase the environmental standards of products/services (Gallastegui, 2002).

At least three types of label can be distinguished (OECD, 1997).

(i) *Type I* labels refer to the environmental quality of a product compared with the rest of the products and are meant to encourage a switch towards more environmentally friendly consumption habits. These labels are the products of third party certification programmes and they are usually government supported. Their aim is to certify both products and production processes according to different criteria that relate to the entire life cycle of the product. These labels are voluntary2. Examples of such labels are the Blue Angel (Germany) and the EU eco-label.
(ii) *Type II* labels consist of one-sided informative environmental claims made by manufacturers, importers or distributors and refer to specific attributes of products, such as 'CFC free' products.

(iii) *Type III* labels use pre-set indices and give quantified information about products based on independent verification. Given that there is not enough experience with such labels, they are rarely found in environmental fields.

The International Organization of Standardisation (ISO) characterize those three types as follows:

- Type I: refers to criteria-based certification programmes and defines an ISO Type I labels as:

  "Voluntary, multiple criteria-based third party programme that awards a licence authorising the use of environmental labels on products. These indicate the overall environmental preferability of a product within a particular product category based on life cycle considerations. These labels provide qualitative environmental information." (ISO, 1999, p.1)

  They are covered by ISO 14024 published in April 1999.

- Type II: describes environmental claims:

  "Self-declared environmental claim made by manufacturers, importers, distributors, retailers, or anyone else likely to benefit from such a claim without independent third-party certification." (ISO, 2000, p.3)

  They are covered by ISO 14021 published in 1999.

- Type III: applies to quantified product information that is based upon independent verification using present indices:

  "providing quantified environmental data using predetermined parameters and, where relevant, additional environmental information." (ISO, 2007, p.9)

  They are covered by the international standard 14025 published in 2007.

This categorization provides a useful distinction between qualitative information that aims to provide clear and easy - to - interpret, condensed and aggregated (to one point) information, such as an eco-label, and a quantitative approach that instructs customers on a wide range of categories that customers need to be able to interpret the information themselves.

Type I labelling schemes receives a wide-spread introduction, which reflects a changing perspective in environmental policies towards more extensive use of new environmental policy tools and practices. The characteristics of a Type I labelling scheme are:

- Voluntary. Unlike a mandatory and regulatory approach, the application for an eco - label is up to business as an information provider, and consumers as customers are responsible for their consideration in purchasing decisions.

- Cooperation. The preparation of the requirements and the final outcome on their technical details is up to a meritocratic committee of which the members represent a multi-stakeholder climate, e.g. environmental NGOs, consumer NGOs, business associations, retailers, policy. A co-regulative approach is becoming a reality here.

- Independence and trustworthiness. The requirements must be prepared by a cooperative approach and should be verified according to a prescribed procedure, a key element of which is, in particular, third - party verification.

Voluntary environmental eco-labelling programmes have a history of 30 years, starting with the German Blue Angel in the late 1970's. A proliferation of eco-labelling programmes started ten years later and eco-labelling programmes currently exist in large numbers and many forms at national, European and international levels. Most of the EU member states have introduced national eco- labelling programmes. In light of this proliferation the issue of co- ordination and harmonization has been on the agenda for years, both globally, administered by the Global Eco-labelling Network (GEN), and within the EU for voluntary programmes. Overarching principle-based standards have been developed by the International Organization for Standardization (ISO), (ISO 14024:1999; ISO. ISO 14020:2000), with the intention of being pertinent to existing and planned eco-labelling programmes. The standard was initiated with the aim to categorize and identify the necessary characteristics of eco-labelling, and certification according to this standard is not possible. ISO divides environmental labelling into three types; the type I label that includes multi-criteria third-party programmes intended for end consumers, type II that includes self-declared environmental claims, and type III that provides quantified un- weighted environmental data in environmental product declarations. The type III includes, e.g. declarations on resource and energy consumption based on standardized Life Cycle Assessments (ISO 14040:2006) and are primarily intended for business-to-business information. Type I programmes, which is the focus of this paper, are also guided by GEN's "Condition of Membership" (Global Ecolabelling Network, 2011) and the "Code of Good Practice" contained in the World Trade Organization's (WTO's) Technical Barriers to Trade (TBT). This latter

agreement prescribes that technical regulations, standards and procedures for conformity assessment may not be prepared, adopted or applied with the intention or effect of creating unnecessary obstacles to international trade (Bratt et al., 2011).

Eco-labels with sustainability claims are now emerging worldwide. Normally these labels differ from the former eco-labels in that they are sector-, and sometimes even life-cycle phase specific. Examples are Marine Stewardship Council (MSC, 2011), and Sustainable Travel Eco-Certification Program. Green Tick is one exception to this and claims to be "the world's first independent certification brand dedicated to sustainability" covering all life cycle phases (Harris, 2007). Yet, even in this certification there is no clear definition of sustainability, and there is clearly no cohesion as regards any objectives in general or objectives around sustainability. During the last decade there has also been a global development of social and ethical labels linked in particular to products that originate from developing countries and are sold in OECD countries. These labels separately deal with issues such as child labour, working conditions and price guarantees (Rubik and Frankl, 2005). So, in conclusion, there is still little evidence of cohesion. A variety of different environmental issues are covered by some labels and a variety of social issues are covered by others.

Besides the constant evolution of labelling schemes, there are many studies (Erskine and Collins, 1996; Zarrilli et al., 1997; Morris, 1997) that identify several weaknesses of labelling systems. Some of these are (i) the lack of objectivity in setting the criteria, (ii) the difficulty of setting product category boundaries since no two goods are perfect substitutes for one another and some of the products may have many different uses 5, (iii) the arbitrariness of the process of selecting and updating criteria, as it is not possible to estimate accurately all the damage that the entire life cycle of the product can have on the environment, (iv) the lack of estimated demands for labelled goods, (v) the lack of real rewards for environmental improvements (the awards are restricted in most cases to the best products) and finally (vi) the shortness of the validity period of the label before its revision, especially problematic for capital intensive industries.

Much more attention is given to the trade effects of labelling schemes, especially for developing countries. A number of concerns are identified by Morris (1997), including the following:

1. since consumers spend little time discovering the environmental impact of products, it is necessary to develop one recognized label they can trust,

2. labels can improve the image and/or sales of the company,

3. labelling can encourage firms to account for the environmental impact of their production,

4. labels can make consumers more aware of environmental issues and problems and, finally,

5. labelling programmes might help the protection of the environment.

Protection of the environment and sustainability of consumer behavior are the more important reasons that justify the introduction of eco-labelling schemes. However even though the idea behind eco-labelling is simple, there are many questions that need to be answered to assess the effects of such systems. There are some issues that have to do with the environment impact and others that deal with the effects of labels in different aspects of economic life.

Taking into account the last set of questions, it is useful to divide them in two broad categories. The first deals with the effects of labelling schemes within the national context, and include aspects such as whether labelling programmes will be able to increase the market share of products against other commodities, which structures would fit the schemes better and so forth. The second category works on the premise that 'the bigger the market impact, the bigger the potential trade impact' (OECD, 1997) and is related to the effect of labelling on international trade, especially for developing countries.

1.1.2 Labelling and certification process

Environmental certification is considered a unilateral commitment to improving environmental performance. The company/organization independently determines when and how goals will be reached. For the implementation of environmental certification programs, government may provide incentives (or implement sanctions) and promote the diffusion of environmental certification into companies/organizations. Companies frequently visited by regulators and companies with an irregular compliance history are more likely to adopt environmental certification programs (World Bank, 2018).

For the successful implementation of an environmental label, the responsible government agency (or other responsible establishing bodies) has to consider several steps that are presented on Table 1.1.

Table 1.1 Steps for Labelling and Certification Process

Phases	Steps	Issues to consider
Preparation & Launching Phase	Assignment of responsibilities	Clear assignment of who is responsible for defining criteria, certifying products, and generally administering the program
	Selection and determination of product/services categories	Selection of product categories and determination of certification criteria for these categories. Gathering of proposals for certification criteria and categories from industry, science, trade, consumers, environmental, and other public organizations (stakeholder process)
Negotiation Phase	Development of criteria, standards, or guidelines	Once product categories are selected, the next step is the establishment of requirements that an applicant must meet to be approved by the eco-labeling program. For example, if a labeling program is developed to overcome trade barriers, then the country's labeling requirements should be consistent with labeling requirements in other countries. Criteria for granting an eco-label to a product or service can be limited, or without limits, as to the number of products that will qualify for the label. The group responsible for setting the criteria may include scientific and technical experts from both government and the private sector. Feedback and comments from interested stakeholders should be included before finalizing the list of criteria. This list should be periodically reassessed.
Implementation Phase	Certification and licensing	Producers, service providers, suppliers, retailers, distributors, importers, and legitimated institutions may apply for certification. The awarding process includes testing and compliance verification, applicant licensing, and monitoring (with periodic reexamination every 2 to 5 years). Applicants usually have to pay an application fee, the cost of verification, and an annual fee for use of the eco-label; these fees depend on annual product turnover.

Source: Porrini, 2005

1.1.3 Advantages and Limitations

Most national environmental labeling programs are new, and efforts made to measure their effectiveness are incomplete. Additionally, it is difficult to separate the impact of environmental labeling from other economic, environmental, and social policies. Therefore, few programs have claimed direct environmental benefits from environmental labelling. However, positive responses from industry and consumers suggest that such labels are perceived as good marketing tools and generally accepted symbols of environmentally sound choices. Other success indicators of an environmental labelling program are increased numbers of certified products and increased industry involvement in the selection and development of category criteria. Advantages and disadvantages of sustainability labelling schemes are presented aggregated in Table 1.2.

Table 1.2 Advantages and disadvantages of labelling schemes

Advantages	**Disadvantages**
Stakeholder participation Negotiating detailed award criteria takes places between public and private experts and a number of other stakeholders.	**Many different labels** Increased number of environmental product labels with different guiding standards can lead to consumer confusion.
Reward leadership Eco-labeling programs reward environmentally ambitious companies with public recognition, thus encouraging companies to take a pro-active approach towards the environment.	**Potential trade effects** Eco-labels can raise trade concerns when criteria include ones that discriminate against imported products. Transparency in development of criteria and consultation with importers is critical to avoid potential barriers.
Increased environmental awareness Through their public visibility, eco-labels are likely to raise awareness among consumers about environmental issues.	**No continuous innovation incentive** When criteria are not continuously evaluated and updated, no incentive exists for companies to improve performance beyond the specifications of the current criteria.
Diffusion of best available techniques	**Effectiveness is difficult to assess**

Ambitious eco-labels can help to make the best available tehniques clearly recognizable and widely applied.	Efforts to measure effectiveness are incomplete, for example, there are difficulties in assessing the impact of eco-labels on the overall performance of companies.
Provision of economic incentives For manufacturers, labels provide benchmarking information and information on the marketplace, help to green the corporate image, and serve as a communication tool.	**Not always clear preferences** Labels mainly address domestic economic and environmental priorities; therefore, selected criteria may not be relevant to broader environmental and social issues.
Provide greater flexibility than regulations Environmental certification can offer more ambitious goals than compliance with regulations, while lowering administrative costs and enabling faster implementation.	**Appropriate framework conditions** Testing procedures require adapted technologies, infrastructure, and expertise that are not always easily accessible, especially not for producers in developing countries.
Encourage proactive and precautionary attitudes in industry Environmental certification can shift businesses' mindsets from reactionary to proactive, cleaner production.	**Difficult to apply in areas with little business self-interest** Environmental certifications are limited to areas where industries have financial motivation to change their behavior.
Improve dialogue and trust between industry and government Implementing environmental certification programs will improve industry compliance and build relationships that are more cooperative.	**Criteria depend on public perception** Environmental issues mirrored by the criteria might be more reflective of the public's sometimes irrational concerns, rather than the reflective of sounds scientific evaluations.
Demand-driven policy instrument As consumers have the ultimate voice through purchasing, eco-label criteria are likely to reflect consumers' preferences and concerns.	**Size matters** Environmental certification programs focus on management structure, and the required changes may not be compatible with the management styles of small and medium enterprises.

Can improve trade Environmental certification programs, when third party certified, can be seen as a commitment by the company to improve environmental performance, reduce risks, and comply with customer requirements.	**Environmental impacts may not be the driving force** When market demand, instead of environmental impacts, is the driving force, going beyond compliance and continuous improvement may not be wholeheartedly pursued.

Source: World Bank, 2018

1.1.4 Eco-labelling schemes and Greenwashing

The use of Eco-labelling schemes, especially Type II labels, could potentially lead to a major drawback/disadvantage which is the concept of Greenwashing. Lyon and Maxwell (2011) define greenwashing as: "selective transmission of positive information about the environmental or social performance of a business without the transmission of all negative information in this direction in order to create an overly positive image of business ".

The term greenwashing was developed as consumers found there was a discrepancy between the "green" claims of companies and their actual behavior. This was based on Delmas and Burbano (2011), where they defined "green washing" as "poor environmental performance but at the same time positive communication with consumers about environmental performance," while Bell and McArthur (2014) refer to business practices which deliberately manipulate and manipulate to promote a positive public image of the business.

For many businesses, being "green" or maintaining a "green" perspective is a difficult task because of several reasons. That is why they create a positive image about the environmental characteristics of their products in order to get rid of "green" pressures and to attract environmental conscientious consumers. As a result, the number of companies involved in "green rinsing" continues to grow daily. Analyzing this phenomenon more closely, it seems to be more complex than a simple environmental claim for a product. It essentially penetrates the practices and philosophy of the entire business. Even companies that report some form of environmental responsibility may be guilty of "green flushing." Sometimes the information recorded may be false due to an error or incomplete investigation. Otherwise, they may be deliberately vague or confused in order to mislead consumers.

Essentially, greenwashing is an empirical phenomenon, between the interactions of the organization with the natural environment, because it is difficult for stakeholders to directly assess the environmental impact of businesses. In order to maintain the trust of stakeholders, they communicate their environmental quality through environmental reports, advertisements, corporate websites or eco-certification schemes. However, the disclosure of supposedly environmental achievements, without substantial environmental improvements, has created a legitimate reflection on the gap between what businesses say and what they actually do (Konefal, 2012).

Greenwashing can take various forms, as described below:

1. Selective publication

Selective revelation is a form of greenwashing that has perhaps been studied more than any other. Cho and Patten (2007) argue that companies with poor environmental performance have more environmental publications, while Clarkson, Li, Richardson and Vasvari (2008) consider that companies with good environmental performance have more environmental publications. In any case, publishing a report on corporate sustainability, even without substantial improvements in the environmental impact, improves the overall reputation of a business. The whole excludes environmentally sensitive industries where the company's environmental reputation is only enhanced if the report is supported by substantial improvements. According to Kim and Lyon (2014), business publications are a form of greenwashing, as on average companies that did not share their performance had reduced the carbon footprint, while those who posted it had increased.

2. "Blank" green claims

The management-related bibliography highlights that businesses often make claims and make promises that they fail to meet. In the environmental sector, such failures are considered "green rinsing", while in the language of economists these statements are considered "shallow", where they can be convincing only to interested parties whose interests are closely aligned with the interests of the business shareholders. This is confirmed by Bansal and Clelland (2004), finding that firms with poor environmental reputation can reduce their non-systematic risk by making public statements of commitment to the environment, which suggests that investors were actually affected by the "shallow" reason. Greenwashing, which is more observable in service-related industries than in construction, is made through unfulfilled promises (Ramus, 2005).

3. Ecolabels

Certification according to external standards is often seen as a solution to greenwashing because it gives the company's environmental claims the credibility of a third party. However, although certifications at both product and company level offer promises to reduce "green wash", they are not immune to the phenomenon itself. A potential problem with eco-labels at product level is that they can be used by unscrupulous producers (Hamilton, et al., 2006). Several consumer surveys have been conducted to examine how greenwashing perceptions are affected by ecolabelling. It has been found that some labels can be considered "green flushing" by themselves, and lose their value as trusted ecological labels (Sirieix, et al., 2013).

At the operational level, ISO 14001 for environmental management is probably the most well-known certification system, but its performance data is controversial. In the US, a survey of more than 3,700 facilities found regulatory compliance to be higher in certified facilities (Potoski, 2005). However, a survey of more than 80,000 plants in Mexico found that ISO certification had no measurable impact on compliance (Blackman, 2012). Finally, an in-depth study of nine certified organizations found that in most of them certification procedures were considered as a ritual just to impress outside bodies (Boiral, 2007). Thus, in some cases, corporate environmental certification may be a greenwash form.

4. Collaborations with ecological organizations

Often, industries and businesses offer large amounts of money to environmental organizations, and some practices continue to burden the environment (Laufer, 2003). Cross-sectoral partnerships to achieve green goals are not a new strategy. Although there are successful collaborations, there is still a concern about the ability of environmental NGOs to participate in this process and whether they really participate in the greening of corporate activities.

5. Non-effective voluntary programs

Businesses participate in governmental voluntary programs for a variety of reasons, but participation does not necessarily lead to environmental improvements. For example, the first participants in the Climate Leaders program of the NRA have reduced their carbon footprint more than non-participants, something that did not happen with the subsequent participants who were purely for greenwashing purposes (Delmas & Montes-Sancho,2010).

6. Misleading narration and reason

Environmental or green narratives, sometimes showing more sustainable and more meaningful activities, have been used as a form of deception related to the environmental performance of a business, as was the case with British Petroleum's "beyond petroleum" campaign (Matejek, 2014).

7. Misleading visual display

Many brands use biodiversity labels (eg crocodiles, horses, jaguars) in their logos, which is a well-known technique by which consumers identify the brand with sustainable development and environmental consciousness (Cervellon, 2013).

Greenwashing has a direct negative impact on the environment, consumers and businesses. It can affect people by driving them into actions that can harm the environment. Organizations obviously aim at gaining benefits, but society as a whole can be affected. A study in 162 banks in 22 countries identifies three incentives for banks participating in CSR activities: strategic choice, altruism and greenwash (Wu, et al., 2013). Authors find a positive relationship between CSR and financial performance, but this relationship does not apply to banks that have just "green wash", do not adopt CSR practices. and essentially have no substantial changes.

Similarly, a survey of leading Canadian companies in industries with high environmental pollution, notes that symbolic environmental activities and greenwashing have a negative impact on economic performance (Walker, et al., 2012).

Greenwashing, however, has a negative impact on the consumer as it confuses, perceives risk and destroys consumer confidence in the environmental claims of the company (Chen, et al., 2013). As Chang reports (2011), consumers can control how much they believe in the various claims and form an even more negative image when they realize that a company is doing a high level of effort to convince them of a "green requirement" (Chang, 2011). However, there are many references to the effects of greenwashing on society, which show an increase in consumer cynicism (Jahdi, et al., 2009). Exposure to green rinsing affects consumers with negative emotions and is tired of the ongoing effort to clarify "green demands" (Parguel, et al., 2011).

In summary, the negative features of greenwashing can be summarized as follows:

- Promote the ecological aspects of a product, while hiding all the other harmful information.
- Lack of evidence for “green” claims. E.g. cosmetics that doesn’t mention animal testing.
- Vague references that are not giving enough information to the consumer.
- Promoting the environmental friendly aspects of harmful products.

- False/Misleading information. E.g. shampoos that indicate that they are certified organically, yet the certification body denies it.

1.1.5 Eco-labels and product development

Eco - labels may have a potential role to play in influencing and promoting the development of new and innovative products designed to address environmental concerns. Despite this emerging trend, which is also reported in the literature, few empirical studies have addressed the subject of changing product development strategies for manufacturers to adapt to existing or newly developed eco - labels or to their needs.

Provided that one of the primary objectives of new product development is to understand what makes the product fail or succeed and to explore the critical role of product benefits in market acceptance and commercial success (Berchicci and Bodewes, 2005), there are many steps in product development Process that can theoretically benefit from the existence of an eco-labeling scheme:

- the 'market intelligence', to identify the potential environment-oriented demand for the product and for its characteristics

- the role of eco-labels to foster 'demand-pull' innovation patterns and to improve and promote cooperation within the supply chain

- the use of the eco-label requirements and criteria as benchmarks and 'best practice' in product positioning and design

- the use of eco-label requirements and criteria to support compliance with product-related environmental standards.

A preliminary and fundamental step for the effective design of a new product is the definition of its attributes. This holds true for products that are designed and developed with the aim of valorising their environmental performance.

The 'green positioning' of a product aims at identifying the main competing alternatives on the market, and characterising them as concerns for their environmental performance and competitive capabilities. In order to carry out this phase of the product development process, a producer needs to define and estimate some key-indicators for the different environmental and

competitive variables that play an important role for the success of the product.

Besides providing support in positioning the product according to its key environmental performances, the eco-label can go even further and be useful for a producer in the 'core phase' of the development process: design.

The eco-label criteria are defined, expressed and enforced in such a way as to provide designers with implicit or explicit suggestions. At a minimum, the criteria can be a useful benchmark for designers, showing them both the environmental impacts that should be taken into consideration when conceiving a new product, and the levels achieved by the supposedly 'top performing' product (even if, in many cases, eco-label criteria are based only on a virtual simulation of an ideal product that does not yet exist).

In fewer cases, eco-label criteria are also able to propose to designers some 'best practices' as suggestions on how to improve the environmental performance of a product or a service.

An interesting case-study is the design of a new copy-paper product ('Ecocopia') by the Italian company Cartiera Verde Romanello (CVR), among the first producers to obtain the European eco-label. When defining the key features of this new product, the CVR designers did not have any information or data available on competitors to be used as benchmarks. So they took the criteria established by the three most diffused eco-labels in the EU as reference standards and worked on a complete reengineering that was able to achieve a relatively better environmental performance when compared to the three sets of criteria.

1.2 Sustainability Labelling schemes in various technical systems/Sectors

Undoubtedly, within the EU, the issue of labeling and certification schemes is an ongoing issue. They are broad in scope, but they can still be divided into two large groups: quality and sustainability.
Of course, such a statement should inevitably also apply to the labels / signs / ettiqettes used to indicate them. A study initiated by the European Parliament's Transport and Tourism Committee and published in March 2018 shows that no system is currently in place in Europe to register quality labeling schemes. This makes it difficult to evaluate them and to determine their numbers . As of 2012, a study by the Center for European Policy Studies Renda et al. register more than 100 quality labels covering a wide range of aspects related to hospitality, culture, recreation, hygiene, tourism and other services (mainly related to Tourism).

The cited study of Renda et al. (2012) found that Tourism has quality labels for both public authorities and private organizations, with the management of the latter schemes covering specific subsectors of Tourism, while those with public participation have a wider scope and extend to all subsectors of Tourism.

Referring to Kozak and Nield, its authors emphasize that their (quality labels) are intended to provide metrics to help consumers make their purchasing decisions. on which they can make purchasing decisions.

Out of over 100 quality labels for tourism, only 13 are promoted by national tourism organizations in the EU. The majority of labels are strongly oriented towards sustainability or presuppose its attainment, but generally remain insufficiently popular with the mass tourism market segments; rather, they are primarily acquainted with tourists with special interests in rural, ecological and cultural tourism as well as geotourism.

An attempt to illustrate such an understanding refers to the publication Sustainability in Tourism. A guide through the label jungle from 2012.
It draws interesting conclusions, such as: the labels are awarded to various tourism enterprises and services; they find that suppliers voluntarily choose measures in support of sustainability principles outside the regulatory framework; Due to existing differences in regulatory frameworks across countries, it is difficult to make a comparative assessment and categorization of quality labels.

Thus, taking into account the attitude towards the sustainable orientation of industries and society towards sustainability, including in the field of Tourism, it is increasingly being sought for opportunities for lasting influence of consumers (tourists in Tourism), precisely through the development of different information labels. However, they go beyond the scope of quality, where their large number creates confusion and are associated with positive and lasting effects on consumers.

Tourism Sustainability Labels follow established Global Sustainable Tourism Criteria (GSTC) . It is a commonly accepted set of 33 standards and 3 certificates that takes into account the overlap of label requirements with the needs of the natural and social environment in the specific territory and area to which the label applies.

In the EU, the requirements introduced by the European Ecotourism Labeling Standard (EETLS), which upgrades the GSTC criteria with practical indicators and markers of the EU eco-label for tourist accommodation and camping services, are taken into account. It is supported through a manual and online self-assessment and training tools.

Historically, the beginning in the field of standardization, especially in the aspect of production, dates back to the 1960s. From this period, data on equipment standards and labeling schemes are being discovered: a refrigeration efficiency standard is being applied for the first time in France. The energy crises of the 1970s (the twentieth century) forced the United States, Russia and Canada to develop rules for individual products. Forty years later, over 61 countries, with a population of 80% of the world's population, apply energy standards or labels to at least one product. Most developed economies apply minimum standards for energy performance that impede the marketing of low-efficiency products.

There is, however, a major problem with them, namely: lack of comprehensive information on the type of standards, labels and regulations regarding them in relation to the requirements for the production of different products. This problem is particularly acute in developing economies and countries where there is no transparency or access to such information. Therefore, experts believe that there is a strong need to harmonize internationally the procedures regarding product features for environmental friendliness in a way that both facilitates trade and protects the environment.

With over 400 certifications and labeling schemes worldwide, it is difficult to confine good practice to a number that is consistent with the scope of this study. For this reason, the most recognizable ones, based on international rankings and expert reports available online, will be considered here.

The significant number of quality labels, sustainability labels, ecolabels and so on, could make the user easily confused. It is evident that many products carry meanings that confirm their "naturalness", "eco-friendliness" or "biodegradability". Unfortunately, it turns out that there is no single standardized definition for most terms used to refer to the desired and sustainable states and qualities of products and services. This makes it possible for many manufacturers to deliberately use vague terms or words to sell their products / services as being in line with environmental goals.

From the specialized literature and publications examined, it is clear that any certification and labeling scheme should be managed by a responsible organization - a government agency (or other originator) or a private entity. A clear understanding of the quality, sustainability and environmental, but not only, parameters on which the scheme is or will be oriented is also required. In order to reach such an understanding, it is necessary to involve the relevant stakeholders. Experts from the relevant field, scientists and researchers, consumer organizations and other NGOs, retailers and others are identified as such. Their large number

and participation during all stages of the development and implementation of the scheme provides significant public support.

In general, the development and implementation of a labeling scheme should follow three main steps , namely:

1. Preparation and launching of the scheme, scheduling and allocation of responsibilities;
2. Establishing criteria, requirements and guidelines regarding the implementation of the scheme;
3. Implementation of the application scheme, product / service compliance check, labeling and monitoring.

In step one, the organization of the labeling scheme is established, as well as the qualifications of the persons who will assume the role of evaluators and their competences and training needs in relation to their future work. It should be borne in mind that in most existing schemes, consultation with the applicant certification body is available. Therefore, a consultation procedure should be provided that may be performed by external consultants and specialists or by the staff of the certification body.

Stage two focuses on defining the set of criteria that the labeling scheme will implement. It is important to bear in mind the relevant scientific, managerial, economic and social principles. Practice shows that criteria are extracted in relation to measurable data (e.g. environmental, economic and social benefits and / or efficiency) that support the specificity of the scheme, taking into account relevant local and regional specificities. Part of it is good to be involved in management and resource security, including appropriately informed staff. A time period is also required in which the applicant's compliance with the criteria requirements will be sought.
The third stage implements the scheme in terms of application, product / service compliance checks, and labeling and monitoring (eg, with periodic review every 2 to 5 years). To this end, clearly stated procedures for applying for a label are required, in the case of explained evaluation, labeling and monitoring. The evaluation required two practices: a qualified external evaluator (as is the case with most certification schemes) or an internal evaluator for the certification organization. Monitoring is also organized in the same way. It is good practice under the scheme to provide for an appeal procedure if the applicant disagrees with the outcome of the examination. Most schemes have a different form of legal protection for the label so as to prevent its unauthorized use and to ensure the confidence of stakeholders.

As specified, certification and labeling schemes can be either voluntary or compulsory, free of charge or paid. Secondly, the annual average price varies considerably depending on the scheme and its scope (international, European for EU or national). For most of them, the fee charged annually is between 150 and 500 euros. The exceptions are certificates that are supported by government funding, where certification is subsidized.

The benefits of implementing the schemes under consideration are significant, especially in terms of overcoming lack of sufficient market information or unsuccessful market interventions, but above all for the implementation of sustainability principles and environmental protection. But there is also a fear that labels, standards in general, are restrictive, especially as third-party market barriers. Thus, internationally, there is a strong need for international efforts to harmonize standardization, certification and labeling procedures so as to facilitate trade and protect the environment. At the same time, there is a lack of clarity and good knowledge of the basic concepts it handles and the flexibility of individual countries and market players is limited.

1.3 State-of-the-art analysis of relevant sustainability labelling schemes

Environmental sustainability labelling schemes aim to promote environmentally friendly products and services. These systems are defined by a series of regulations, through specific compliance criteria that companies have to meet for the products and / or services they provide to limit their environmental impact throughout their life cycle without significantly affecting the their suitability.

These labelling schemes are aimed at companies providing services, producing products and / or marketing products under their own brand name for which specific compliance criteria have been defined. To date, relevant criteria have been set for a wide range of products and services, such as criteria have been set for tourist accommodation services and campsites, sanitary facilities, museums, etc. The following table presents International Awards - Signals of Good Environmental Practice Recognition. These labels were selected because of their international recognition.

Table 1: Various Labelling Schemes awarding environmental performance

Logo	Name	Website	Description

Green Key	The Green Key	http://www.greenkey.global/	Green Key is an eco-label for tourist units. Interested tour operators have to meet certain ecological requirements. In return, they get the right to use the eco-label to market their business. The Green Key covers a number of different categories of the tourism sector. All types of hotel units, restaurants and leisure facilities, camping sites, conference centers, museums, zoos, etc. are on the network. Rewarding with the Green Key requires that you keep a number of ecological requirements, the criteria of the program.
	Blue Flag	http://www.blueflag.global/	The "Blue Flag", a symbol of quality in more than 41 countries today, which is constantly growing, is awarded with strict criteria on organized coasts and marinas that manage coastal municipalities, hoteliers and other bodies
Travelife Sustainability in tourism	Travel Life	http://www.travelife.org	The Travelife Awards are an internationally recognized prize system for hotels and other tourism businesses that achieve high environmental management performance. The awards are three levels: Gold, Silver and Bronze The "Travelife" award scheme is supported by Europe's major travel agents.

	Eco-Label	http://www.ecolabel.lu/	EcoLabel, the eco-award of Luxembourg is a state initiative for sustainable development and infrastructure. This award is awarded to hotels, camping sites and other tourist facilities that meet the Ecolabel's environmental criteria and have established eco-friendly practices.
	Legambiente Turismo	http://legambienteturismo.it/	The LEGAMBIENTE TURISMO agency, through annual reviews of hotels and other tourism businesses, awards good environmental practices, energy innovation, the promotion of local heritage and nature, the social commitment of its members.
	Österreichisches Umweltzeichen	*https://www.umweltzeichen.at/*	The Ecolabel provides consumers with guidance to choose those products and services that are less dangerous for the environment or health. Its eco-label draws consumers' attention to environmental, health and quality issues.
	Eco-hotels certified	http://www.ehc-hotels.com/en/	The benchmarking and certification base of this brand ensures that the participating companies are continually improving in terms of their environmental performance, resource use and sustainability.

	Greek key eco-rating program	http://www.greenkeyglobal.com/	The "Green Key Eco-Rating Program" is a graduated rating system designed to identify hotels and accommodations that are committed to improving their financial and environmental performance. Based on the results of an environmental audit, hotels are awarded with 1-5 Green Keys and receive guidance on how to reduce their operating costs and their environmental impacts through reduced water and energy consumption, employee training, and supply chain management.
	Green Certificate	http://www.ecolabelindex.com/ecolabel/green-certificate-latvia	"Green Certificate" is an eco-label that confirms good environmental practices in tourism businesses that offer environmentally friendly tourism activities, locally grown food and extensive information on natural, cultural and historical attractions.
	David Bellamy Conservation Award	http://www.bellamyparks.co.uk/	Eco-label for holiday, caravan and camping parks based on specific management measures and criteria.
	Nordic Eco-label	http://www.nordic-ecolabel.org/	Nordic Ecolabelling has the authority to promote a more sustainable consumerism with a view to creating a sustainable society. As far as tourism is concerned, it certifies tourist accommodation (mainly hotels and youth hostels) and restaurants. The criteria are divided

			into a minimum set of values and environmental requirements.
greentable NETWORK	Green Table Network	http://greentable.net/	"Green Table Network" is a growing group of leading restaurant professionals. The members of this group have made a conscious commitment to the common goal of sustainability. Sustainability is placed "on the menu" through innovative solutions that significantly reduce the impact on our planet.
GREEN RESTAURANT ASSOCIATION	Green Restaurant Association	http://www.dinegreen.com/	The Green Restaurant Association Seal is an eco-label for restaurants committed to sustainability.
ENVIRONMENTAL LABEL ENVIRONMENTALLY FRIENDLY	Environmental Friendly Label	http://www.ecolabelindex.com/ecolabel/environmentally-friendly-label-croatia	The main objective of the award of the environmental label is to promote products with reduced negative environmental impact compared to other equivalent products.
BLAUER ENGEL DAS UMWELTZEICHEN	Blue Angel	https://www.blauer-engel.de/	Blue Angel was established by the German Government and awarded by an independent committee to products that are more environmentally friendly than others that serve the same purpose.

At a general level, the process of complying with the criteria of a Good Environmental Practice Recognition Mark and the assignment of the eventual Sign includes the following phases:

- Determination of environmental criteria and environmental requirements related to the products / services of the enterprise;
- Assess the level of compliance of products or services with the required environmental criteria;
- Determination of deviations;
- Planning and implementation of actions to correct variations;
- Preparation and submission of the technical file and the application for a signal.

Businesses will encounter difficulty in complying with the labels rules only if their products or services do not comply with the relevant environmental criteria. In this case the necessary corrective actions must be taken. Such actions, depending on the type and magnitude of the deviation for a productive enterprise, may involve changes in the composition of the products and substitution of raw materials. Accordingly, for a service provider the changes may relate to how it works or to modernizing the plant and equipment.

The completion of the actions can be done by the company itself if it has staff with considerable experience in standard specifications and relevant regulations. However, working with a qualified consultant will appears to be useful in order to efficiently cover all the requirements of the Environmental Labelling Scheme. Confirmation of compliance with environmental criteria may also require testing of products by appropriate laboratories. The type and frequency of tests depends on the type of product.

The most important reasons why an enterprise chooses to label its products or services with an Environmental Labeling scheme are:

- Demonstration of good environmental performance of products / services Easy recognition by consumers;
- Attract consumers who are sensitive to environmental issues;
- Contribution of the enterprise to the global effort to reduce global warming;
- Strengthening its position vis-à-vis its competitors;

- Low cost

1.4 EU framework for sustainability labelling schemes

The link between certification and sustainable development is well visible within the European Union, where it links quality policy to environmental policy. While the former draws attention to the need for environmental standards, the latter seeks to protect the names / designation of specific products to promote their unique characteristics based on geographical origin and traditional knowledge.

Products may be given a "Geographical Indication" (GI) if they have a specific link to where they are made. Recognizing a "geographical name" allows consumers to trust and recognize quality products, while at the same time helping manufacturers to successfully market their products. Recognized as intellectual property, geographical indications play an important role in trade negotiations between the EU and other countries. In the EU, other quality schemes, such as protected products, protected geographical indications, logos, traditional specialties and other production processes or products produced in areas with more difficult access, such as mountains or islands, apply.

Protected designations of origin, protected geographical indications and foods of traditional special character retain the name of a product that is specific to a particular region and is produced by a well-known traditional production process. Each of the three schemes has a geographical indication, although it implies differences mainly related to how much of the raw materials come from the area (geographical) or what part of the production process takes place in the specific region. They are governed by Regulation (EU) No.1151/2012 of the European Parliament and of the Council on quality schemes for agricultural products and foodstuffs. They are subject to a policy that seeks to highlight the specific qualities of certain typical products on the market and differentiate them from other products in stores by labeling them with the relevant EU approved symbols.

A Protected Designation of Origin is the registration of product names on the basis of clear and lasting links to the place where they are manufactured: they originate in a specific place, region or, in exceptional cases, a country; have qualities or characteristics which are mainly or exclusively due to a specific geographical environment with its inherent natural and human factors; and whose production steps take place in the defined geographical area. In accordance with the Regulation, each part of the production, processing and preparation of products under the protected designation of origin must be carried out in the specific region. For wines, this

means that the grapes must come exclusively from the geographical area where the wine is produced.

A Protected Geographical Indication emphasizes the relationship between a particular geographical region and a product name when a particular quality, reputation or other characteristic is mainly due to its geographical origin. It identifies a product: originating in a specific place, region or country; whose quality, reputation or other characteristics are attributed mainly to its geographical origin; and at which at least one stage of the production process takes place in the defined geographical area.

The main difference between the protected designation of origin and the protected geographical indication is that while in the first, all stages of production from the extraction of raw materials to the final product take place in the defined geographical area, in the second at least one of the stages of production or preparation of the product should occur in the defined geographical area. In the example given on the European Commission's wine website, the requirement should be interpreted as follows - at least 85% of the grapes used for its production must come exclusively from the geographical area, where the wine is produced.

Traditionally specific foods are referred to as a scheme specific product or food which: is the result of a method of production, processing or composition which is in accordance with traditional practice for that product or that food, or is manufactured from raw materials or ingredients that are traditionally used. for him . In this case, there is no need to prove a link with a specific geographical area. By definition, the adjective 'traditional' referred to a product indicates that its use in the internal market can be demonstrated on the basis of a tradition passed down through generations for at least 30 years. 'Specific nature' means a term which indicates the specific production characteristics which clearly distinguish this product from other similar products of the same category.

The Geographical Indication of Spirits and Aromatised Wines protects the name of a spirit drink or aromatised wine originating in a country, region or town where the specific quality, reputation or other characteristic of the product is mainly due to its geographical origin.

Optional quality term "mountain product", which also refers to quality but is optional. The mountain product may be of animal origin, vegetable origin or beekeeping product. It most often describes products intended for human consumption, for which both raw materials and feed for farm animals originate mainly in mountainous areas, and for processed products, processing is also carried out in mountainous areas.

In addition to the certification of registered products, we have to mention the EU's commitment to helping to emphasize food produced in a sustainable way by applying a clearly recognizable organic logo (Figure 4). Since 1 July 2010, the organic label has been applied throughout the European Union. It is mandatory for all prepacked organic products produced in EU Member States. It may also be used on a voluntary basis for products not pre-packaged and originating in the EU, as well as for all organic products imported from third countries (according to the specifics of the Organic Trust Third Country provision, as regards the exact requirements for products imported from non-EU countries).

And while certification schemes by definition use third-party certification, there are other schemes in the EU that operate on a label or logo (often registered as a trademark) without including a certification mechanism. Compliance with these schemes is done either by self-declaration or by selection by the owner of the scheme and is commonly referred to as "own declaration-based schemes". The use of certification schemes is appropriate when process objects are complex and should meet detailed specifications and be subject to periodic review. In contrast, self-declaration schemes are more suitable for relatively simpler cases.

Protected geographical indications and protected designations of origin are entered in the European Register of protected designations of origin and protected geographical indications.

In the period 2016 - 2018, promotional campaigns under product quality schemes are earmarked for EUR 58 million of total funds (EUR 10 million for 2016 and EUR 48 million for 2018). By the end of the current programming period, € 379 million of total funding for quality schemes in the Member States is planned by 2020. you are. The largest amount of funds is earmarked for Italy - EUR 91 million, Austria - EUR 66.48 million and Spain - over EUR 56 million. A total of 16 are European countries (Bulgaria is not included) that have separate funding under Rural Programs for PDOs.

Chapter 2 - BIO2CARE Sustainability Labelling Scheme

2.1 The need of a Sustainability Labelling Scheme for protected areas with anthropogenic activities

Protected areas in national, European and global level tend to cover an increasing percentage of land and marine areas of the planet. Indeed, according to data from the World Bank, in Greece, the share of land and marine protected areas increased from 9.7% to 34.9% and from 0.4% to 6.12% respectively from 1990 to 2016. At European level, about 1,121,500 square kilometers or 25.6% of EU28 land surface is under a certain protection regime (European Environment Agency, 2017).

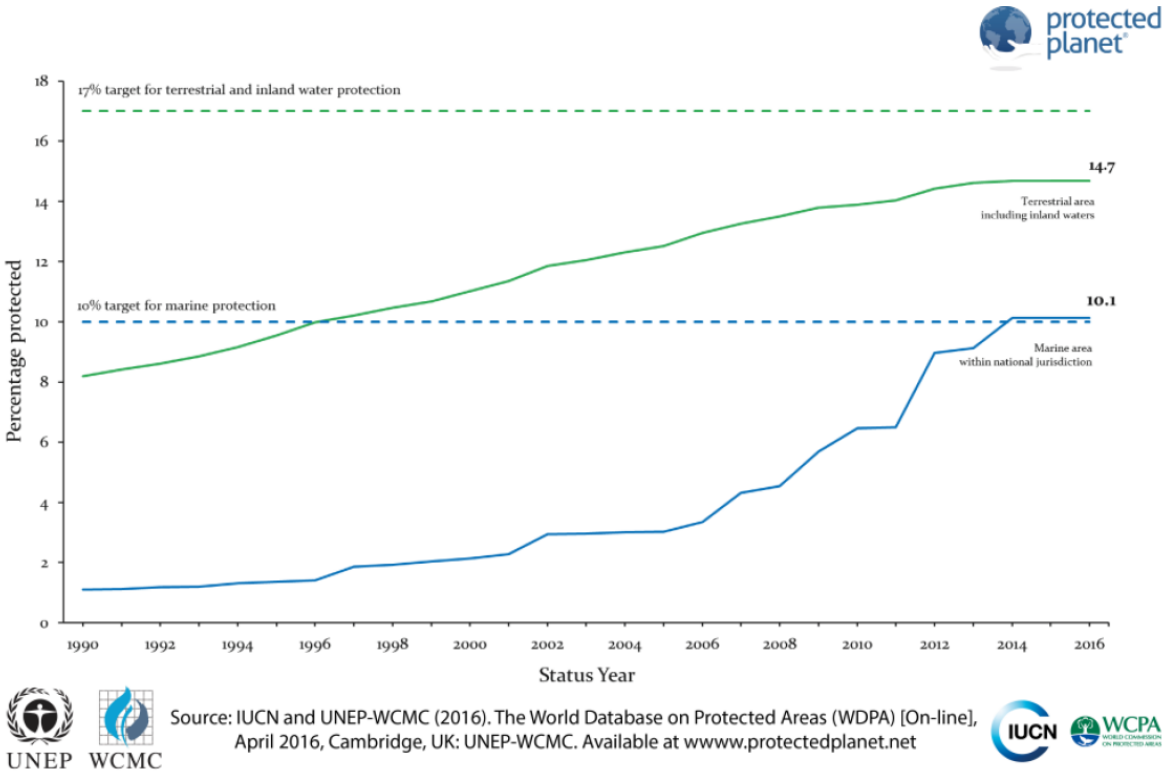


Figure 1: Percentage of land and marine protected areas worlwide.

Studies concerning the calculation of the sustainability (e.g. through the estimation of carrying capacity) of protected areas and/or national parks are mostly focusing in the tourism sector and are limited to finding the optimal level of recreational use that the area under consideration can accommodate without harming its biodiversity and the degree of pleasure of visitors (National Park Services, 1997; PAC / RAC, 2003). However, national parks and protected areas

are technical systems that, with the exception of tourism, also include other anthropogenic activities (such as agricultural, industrial, residential, etc.). These activities exert additional pressures on the environment and failing to take them into account in the assessment of their sustainability leads to an underestimation of environmental impacts and/or incomplete conclusions.

Environmental sustainability labeling is a way of informing the consumers (and in the case of protected areas tourists) about the environmental (but also many other aspects) performance of a product or service. It is a basic indication that the products or services offered are characterized by mechanisms of high environmental maturity and sensitization and informs not only about the characteristics of the produced products/services provided but also about the silent processes of the supporting mechanisms of design, implementation and production. At the same time, it is an important tool for promoting companies and behaviors in general that adopt environmentally friendly practices that add value to their products/services and differentiate from competition, by providing a comparative advantage, while helping to network and promote the business, making it particularly tempting for sensible consumers looking for a tangible demonstration of environmental identity.

Based on the screening state-of-the-art analysis of relevant sustainability labeling schemes (see Section 1.3) available eco-labels are in the order of hundreds (see also this link). In Table 1.2 in Section 1.1, the advantages and disadvantages of labeling schemes in general have been extracted. In Table 2, we attempt to revise this Table by focusing on the potential application within protected areas.

Table 2: Advantages and disadvantages of labeling schemes – Focus on potential application within protected areas.

Advantages	Disadvantages
Stakeholder participation Negotiating detailed award criteria requires the interaction between the Management Body (MB) of the protected area and public and private experts and a number of other stakeholders. This can help develop a cooperative ecosystem within the protected area.	**Many different labels** The MB of protected areas may be confused to select the most appropriate labeling scheme due to the very high number of labels available with different guiding standards and scope, thus finally selecting and promoting a labeling scheme not fitted to the area's actual needs.

Reward leadership Labeling schemes reward environmentally ambitious companies with public recognition, thus encouraging companies to take a pro-active approach towards the environment. This is critical for companies which are operating within the boundaries of a protected area.	**Potential trade effects** Labeling schemes can raise trade concerns when criteria include ones that discriminate against imported products. In the case of protected areas the estimation of Carrying Capacity can serve as an excellent basis to define a sustainable level of imported-exported products.
Increased environmental awareness Through their public visibility, labeling schemes are likely to raise awareness among residents and visitors of the protected area about environmental issues and strengthen their responsible behavior.	**No continuous innovation incentive** When criteria are not continuously evaluated and updated, no incentive exists for companies to improve performance beyond the specifications of the current criteria. In the case of protected areas, MBs can act as a pressure point for continuous re-evaluation of the criteria included in the labeling scheme.
Diffusion of best available techniques Ambitious labeling schemes can help MBs to make the best available techniques clearly recognizable and widely applied.	**Effectiveness is difficult to assess** While assessing the impact of labeling schemes to a specific parameter (e.g. tourism) can work, it is much harder to measure the holistic performance taking into account all anthropogenic activities.
Provision of economic incentives In the case of MBs and manufacturers within the protected area, labels can provide benchmarking information and information on the marketplace, help to green the MBs and corporate image, and serve as a communication tool.	**Not always clear preferences** Labels mainly address domestic economic and environmental priorities; therefore, selected criteria may not be relevant to broader environmental and social issues, which are very significant in the case of protected areas.

Provide greater flexibility than regulations Environmental certification can offer more ambitious (and even innovative) goals than compliance with regulations. This can help the MBs of protected areas rise the bar and be ready for future changes in regulation.	**Appropriate framework conditions** Economic activity within a protected area is mild (tourist activity, agriculture and small low impact industries) which may lack the capacity and expertise to apply a labeling scheme.
Encourage proactive and precautionary attitudes in industry Environmental certification can shift businesses' mindsets from reactionary to proactive, cleaner production, which is in accordance with PA MB's targets and responsibilities.	**Difficult to apply in areas with little business self-interest** Environmental certifications are limited to areas where industries have financial motivation to change their behavior. However in the case of protected areas, environmental performance and motivation is equally important and a pre-requisite for their activity.
Improve dialogue and trust between industry and government Implementing sustainability labeling schemes will improve industry/relevant stakeholders' compliance and build relationships with PA MB that are more cooperative.	**Criteria depend on public perception** Environmental issues mirrored by the criteria might be more reflective of the public's sometimes irrational concerns, rather than the reflective of sounds scientific evaluations. This can be avoided in the case of protected areas since the MBs are well aware of the needs and critical challenges within the area.
Demand-driven policy instrument As consumers (residents)-visitors have the ultimate voice through purchasing and relevant attitudes; eco-label criteria are likely to reflect their preferences and concerns. This can help MBs to gain insights on how to increase the satisfaction level of the residents/visitors.	**Size matters** Labeling schemes focus on management structure, and the required changes may not be compatible with the management styles of small and medium enterprises usually active within a protected area (and respectively MBs).

Can improve trade Sustainability labeling schemes, when third party certified, can be seen as a commitment by the MB (and companies within PA) to improve environmental performance, reduce risks, and comply with customer requirements.	**Environmental impacts may not be the driving force** When market demand, instead of environmental impacts, is the driving force, going beyond compliance and continuous improvement may not be wholeheartedly pursued.

BIO2CARE Project is following a holistic approach according to which the areas under focus are not only the areas of absolute protection but also neighboring areas where anthropogenic activity is intense. In this way, the results of the project benefit not only the protection of natural environment and biodiversity of the areas, but also local communities through the development and adoption of circular economy and green entrepreneurship strategies. Additionally this further strengthens the applicability and scope of the results since they cover a wide typology of protected areas. Indeed within the territory of National Park of Eastern Macedonia and Thrace (NP-EMATH-Study Area 1), habitats of significant biodiversity and ecological value are in coexistence with extensive human activities (urban, rural, tourist, industrial). On the other hand, the Rila National Park has very limited anthropogenic activity (mostly tourism) within its territory which is the case of most protected areas worldwide. In that aspect the BIO2CARE territorial scope includes not only the RNPD territory but also the catchment area of Blagoevgradska Bistritza, an area with increased - compared to Rila - anthropogenic load (Study Area 2).

This holistic approach poses however a serious challenge for the implementation of labeling schemes awarding environmental performance/sustainability within the study areas. Available schemes (see Section 1.3) are mostly focusing on the impact of tourism activity within these areas. More anthropogenic-activity oriented labeling schemes on the other hand are product oriented and fit on specific production activities. Thus, a twofold labeling scheme could be of great added value for the protected areas management bodies and the residents, tourists and enterprises within the area.

Building upon the core methodology developed in Work Package 3 of the BIO2CARE Project (see relevant deliverables available on BIO2CARE website: https://bio2care.eu/en), BIO2CARE can resolve this gap by developing a labeling scheme that can operate in two different levels taking into consideration not only protected areas that implement the methodology, but also

the anthropogenic activities taking place within the boundaries of those protected areas (see Section 2.2 and 2.3).

The key benefits from the development and implementation of a sustainability labeling scheme, especially designed for protected areas with significant anthropogenic activities within their boundaries, were extracted and summarized below:

Benefits for the Management Body of the protected area/national park:

- ✓ Inclusion of local businesses in the MBs programs and foreseen actions.
- ✓ Development of better cooperation of the MB with the producers and businesses operating within its supervisory boundaries.
- ✓ Improvement of the knowledge on the characteristics of the protected area and administrative capacities – categorization of the local products and services produced/supplied within the boundaries of the protected area, based on their sustainability.
- ✓ Upgrade the services provided to local producers/entrepreneurs.

Benefits for the residents - enterprises within the protected area/national park

- ✓ Attribution of identity to produced products and services offered by the National Park.
- ✓ Increase the added value of local products and services.
- ✓ Establishment of the already applicable good environmental practices due to the environmentally specific situation.
- ✓ Indication that products bearing the eco-label of the MB are sustainable.
- ✓ Promotion of the certified local products through coordinated advertising and promotion in trade fairs.
- ✓ Possibility of collective future integration of local productions / enterprises into national funding programs.
- ✓ Creation of an expanded network of enterprises-production-processing-marketing-services with the sustainability label serving as a link, which will help in the promotion and upgrading of the wider region.

2.2 Various certification levels of the BIO2CARE Sustainability Labelling Scheme

As already stated, the BIO2CARE eco-label, based on the core methodology developed in Work Package 3 of the BIO2CARE project, takes into consideration not only protected areas that implement the methodology, but also the anthropogenic activities taking place within the boundaries of those protected areas.

Using this fact as a guideline, BIO2CARE labelling scheme is proposed to operate in two different levels with sub-categories. The first level of categorization is the protected areas and the management bodies of protected areas, whereas the second level of categorization is related to the anthropogenic activities within the boundaries of the areas of interest.

1st Certification Level – Protected areas

This certification level of the BIO2CARE labelling scheme is directly related to the methodology developed and presented in Deliverable 3.2 "One methodological framework for assessing the environmental status of the examined area through the estimation of holistic environmental sustainability indicators". The purpose of the developed methodology is to strengthen the administrative capacity of the management bodies of protected areas (in this case, but it could be use in a variety of applications such as, municipal bodies, administrative regions, cities etc.), and this certification level of the BIO2CARE labelling scheme aims to showcase the commitment to the methodology and provide an advantage to the administrative bodies of the protected areas.

The protected areas that implement the BIO2CARE methodological framework, making the results public and committing to improve their environmental performance, based on the indicators of the methodology, will receive the BIO2CARE label presented below.

The logo is based on the official BIO2CARE project logo, while utilizing the guides of the Interreg Managerial Authority and Joint Secreteriat, for all Greece – Bulgaria 2014 – 2020 projects. This label will be awarded to every protected area, or other areas of interest that implement the methodology, with a duration of two years. If within those two years the management bodies do not present further results, the label will not be in force.

Management bodies and protected areas that implement the methodology for two consecutive years (One time as a requirement for awarding the previous label, one time a year after, and one time at the end of the second year), while showcasing their results publicly, with positive impacts on the methodology indicators will be awarded the BIO2CARE PLUS label.

The BIO2CARE PLUS label will be maintained every year the management body implement the methodology and showcase the results. Failure to the prior conditions leads to downgrading to the previous tier of the basic BIO2CARE label.

The final label tier on this certification level is based on one of the most important social targets of the BIO2CARE project. It is of major importance, from the start of this project, the fact that protected areas with touristic interest should take into consideration every potential person that wants to visit the area. The co-operation with the Greek National Federation of Disabled People, and their involvement in various deliverable, is a small step towards the realization of this target. Hence, the third tier of this certification level is related to the facilities of the protected areas, ensuring a safe, interesting and equal visit for every potential visitor, without discrimination based on physical limitations. This label, BIO2CARE EQUALITY, is awarded to the protected areas with pathways, resting, touristic, and sanitary facilities designed for everyone, and is in force for a year (yearly regulatory checks).

2nd Certification Level – Anthropogenic Activities

This labelling scheme, as the methodological framework, is developed to tackle the issue of anthropogenic activities within the boundaries of protected areas, by monitoring their environmental performance, while boosting the local production and economy with green practices.

The first label tier of this certification level, is related to the products produced within the boundaries of the areas of interest. These products will be awarded the BIO2CARE Product label, with the requirement that the producers implement the methodological framework, regarding the indicators of carbon and water footprint, while showcasing the results yearly.

The second tier of this certification level is related to the promotion of the principles of Industrial Symbiosis. As presented in the Deliverable 3.4 “One case study/model assessing the symbiotic potential and future activities within the examined areas & One comparative study based on the Life Cycle Approach, presenting the benefits of circular economy for the environment (existing situation vs symbiotic situation)”, two Industrial Symbiosis case studies were developed and specific symbiotic actions were proposed, in order to present environmental, social, and financial benefits within the area. The organizations/companies/industries/producers that participate in a symbiotic network, reusing and sharing by-products will receive the BIO2CARE Symbiosis label. This label will be in force for two years, giving the interesting parties time to showcase positive results.

The final tier of this certification level is related to the greenhouse gas (GHG) emissions, a major issue in general. Even small steps like the replacement of common light bulbs with LED light bulbs, could be a head start towards GHG reductions. Organizations/ companies/ industries/ producers that implement practices to reduce their carbon footprint will be eligible for the BIO2CARE CARBON REDUCTION label. The awarding of the label though, will take place upon reduction of 10% of the initial carbon footprint results.

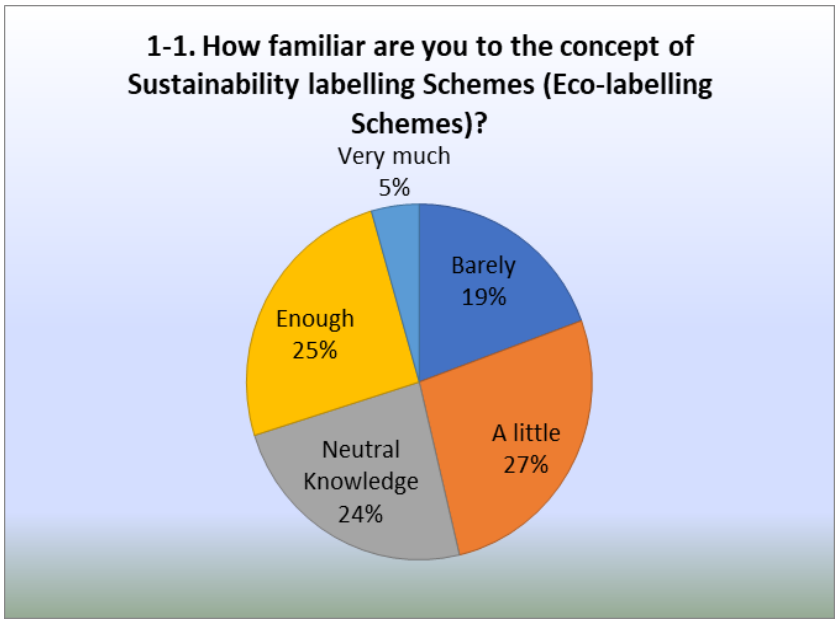
BIO2CARE labelling scheme is a potential way to achieve further environmental results, while boosting and awarding initiatives towards more green practices. It will be completely voluntary, without fees for the interesting parties.

Chapter 3 - Potential Implementation of the BIO2CARE Sustainability Labelling Scheme (Alpha Testing)

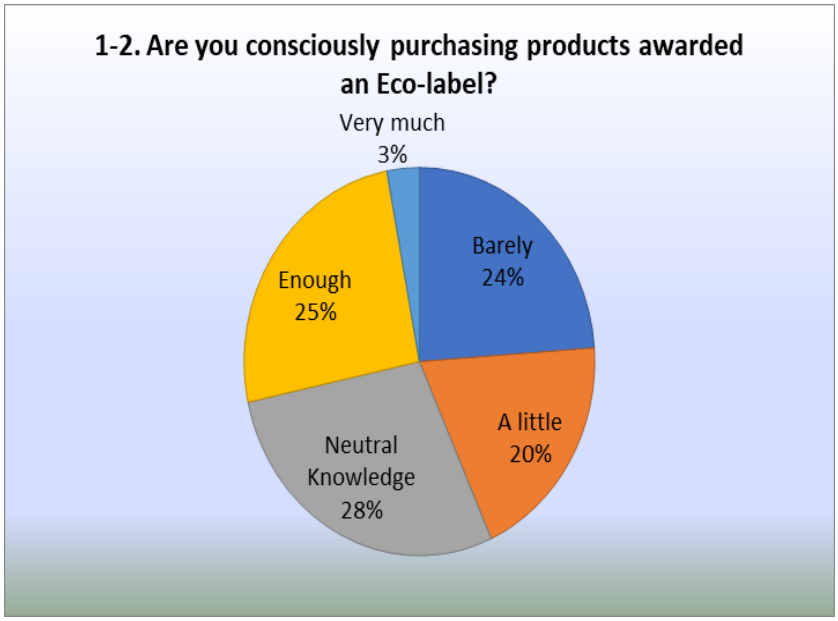
3.1 Examining the potential implementation of the BIO2CARE Sustainability Labelling Scheme in various sectors within study area 1

BIO2CARE project overall objective is "To reinforce Protected Areas' Management Bodies (PA MBs) efficiency and effectiveness in an innovative and integrated approach", promoting territorial cooperation in a very concrete and well-defined approach. As part of the work, two questionnaires were developed under D4.1.2, WP4 of the project, related to the development of a Sustainability Labelling Scheme, that will promote protected areas that fully monitor their environmental performance and products/services produced within their boundaries, in a sustainable way. The first questionnaire was addressed to consumers living within the boundaries of the protected areas (Study Area 1- GR, NPEMTH), whereas the second one to businesses within the same area. The end-goal of these questionnaires was to identify the current knowledge, attitudes and potential adoption rates and acceptance of newly introduced labelling schemes within the boundaries of the protected area. In total, 67 consumers replied to the questionnaire, whereas only 6 businesses replied to the business-related one, indicating that there is a pressuring need to better disseminate and communicate relevant info and initiatives to the local community. BIO2CARE, through respective training sessions to be conducted during WP5 implementation will attempt to help PA MBs on this issue.

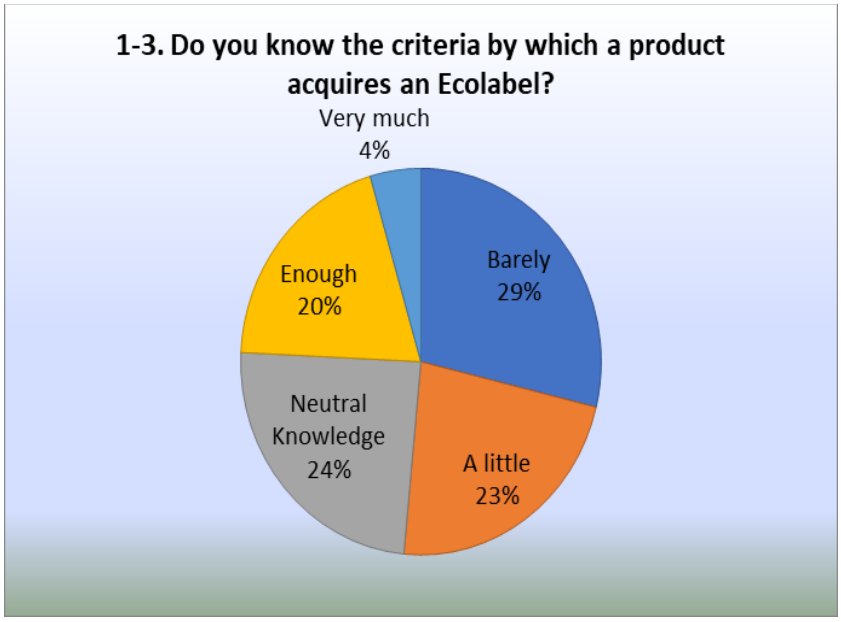
3.1.1 Consumer Analysis



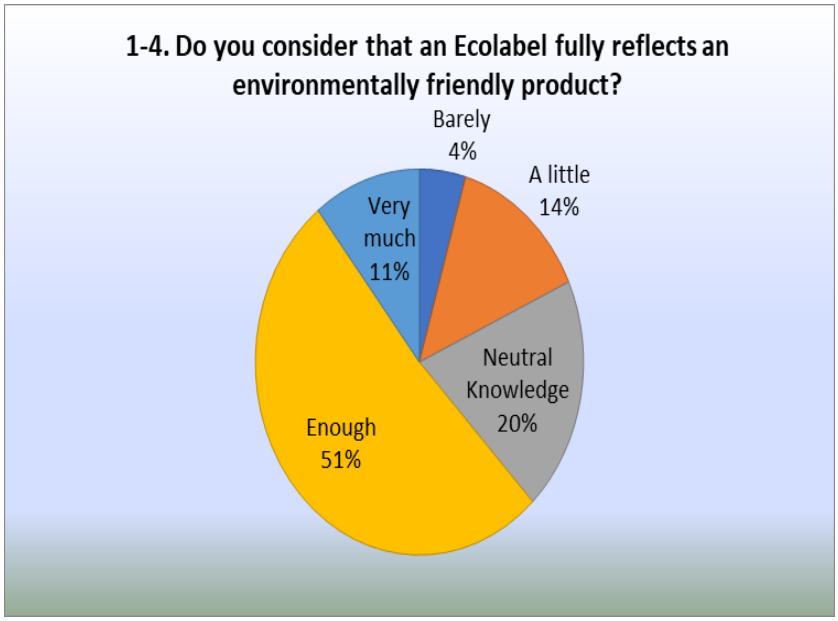
Around 3/4 of the respondents claimed that they are somehow familiar with the concept of Sustainability labelling Schemes, whereas only a very low proportion (5%) seem to be well-informed about Eco-labelling Schemes.



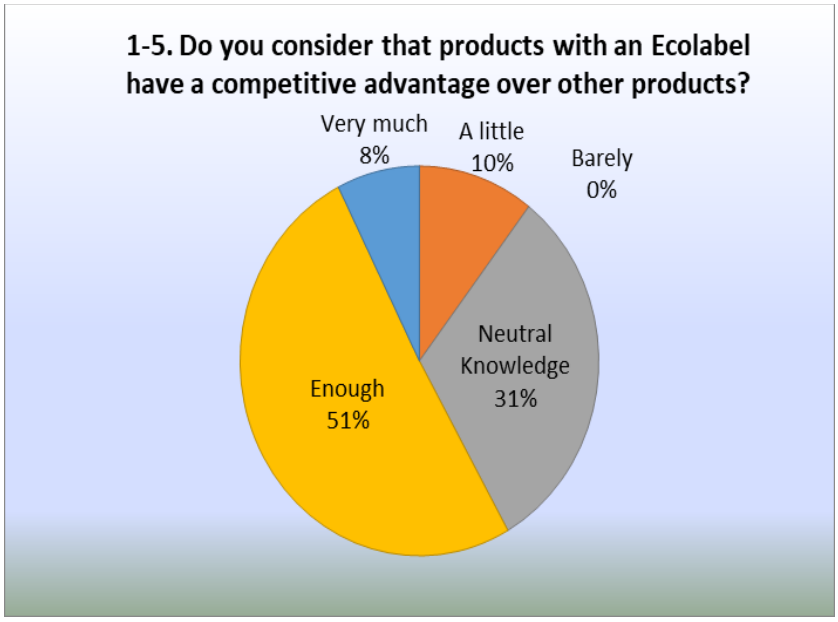
The familiarity of the respondents with this concept, seems to highly correlate with their choice to consciously buying products awarded with an Eco-label.



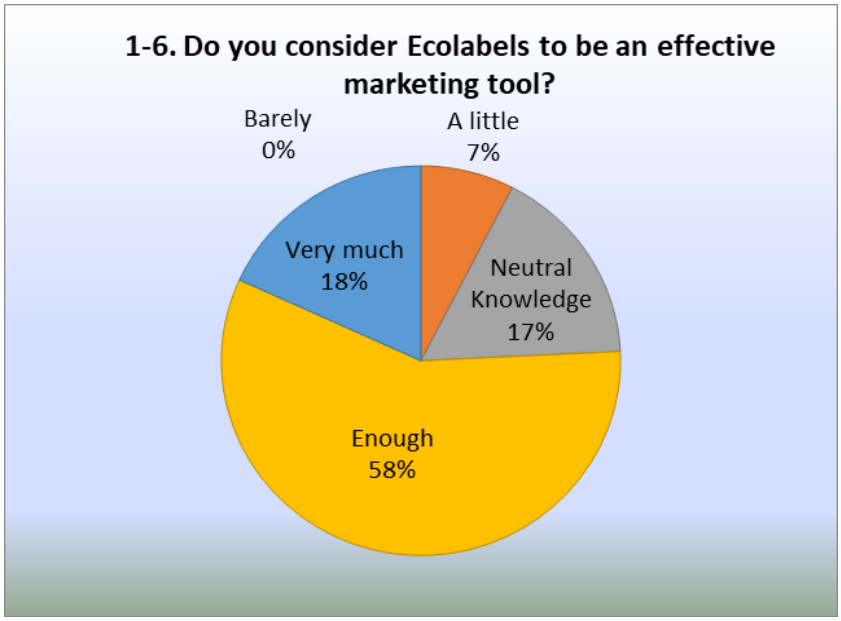
The majority of respondents do not seem to have adequate knowledge on the criteria by which a product acquires an Ecolabel.



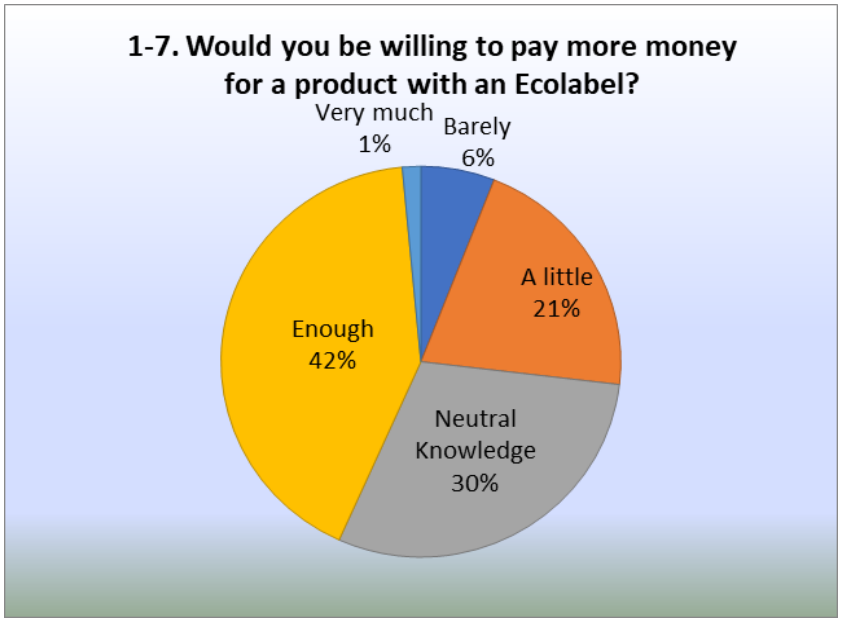
Despite the relative lack of knowledge on the criteria by which a product acquires and Ecolabel, the majority of respondents considers that an Ecolabel reflects an environmentally friendly product…



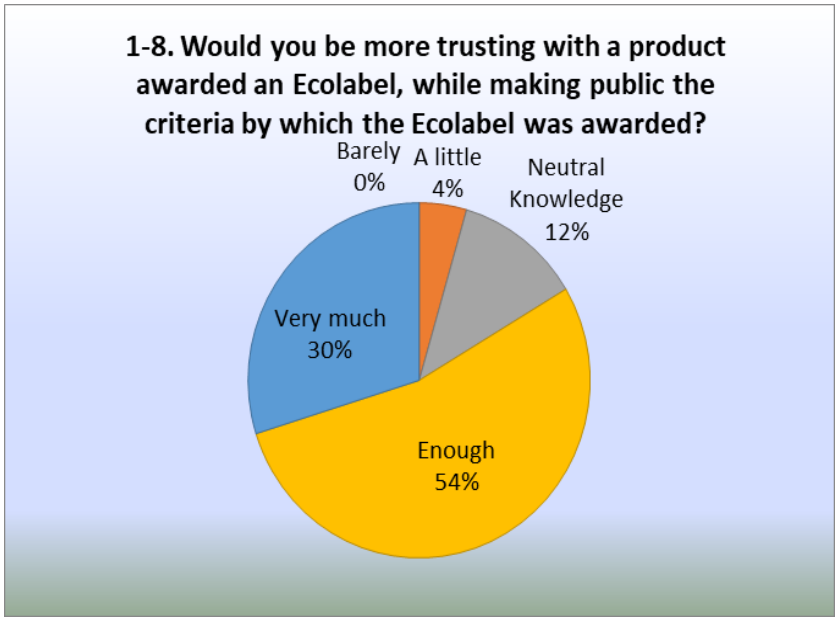
…and also, a product that has a competitive advantage over other products….



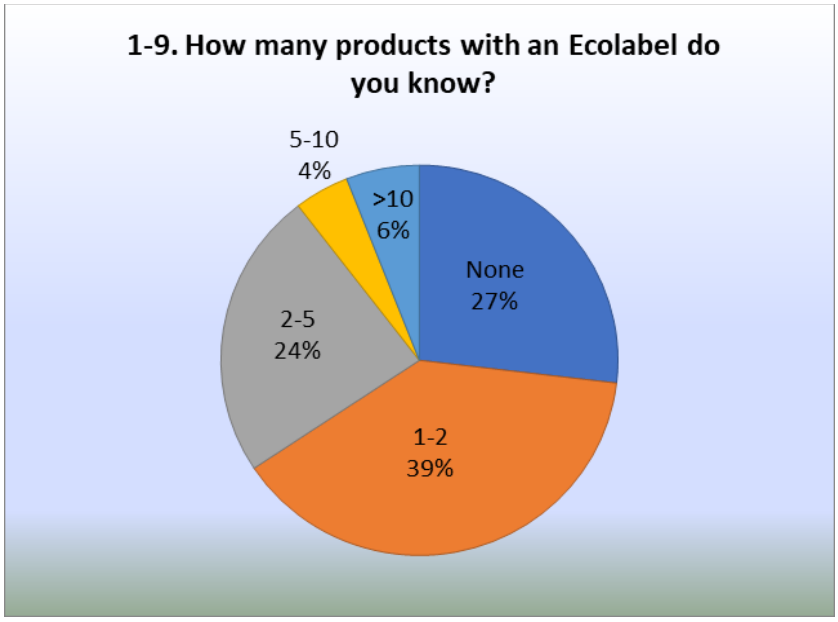
…being an effective marketing tool.



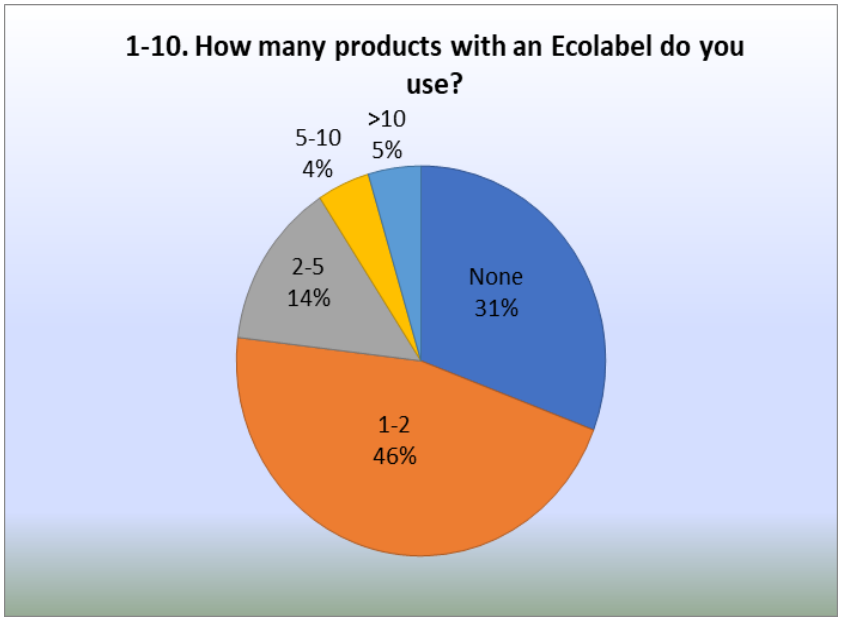
Although the above-mentioned considerations (increased environmental performance and marketing advantage), less than half of the respondents are clearly willing to pay more money for a product with an Ecolabel.



It seems of high significance to better communicate the criteria by which an Ecolabel is awarded - this seems to be a first good step for consumers to trust more these kinds of products.

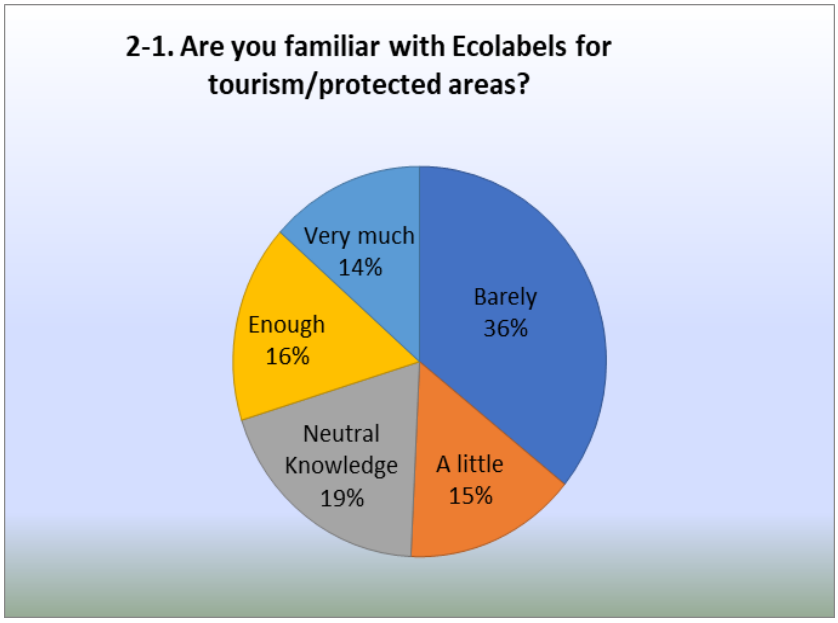


Only 10% of the respondents know more than 5 products with an Ecolabel, indicating once more that Ecolabeling communication is not very efficient.

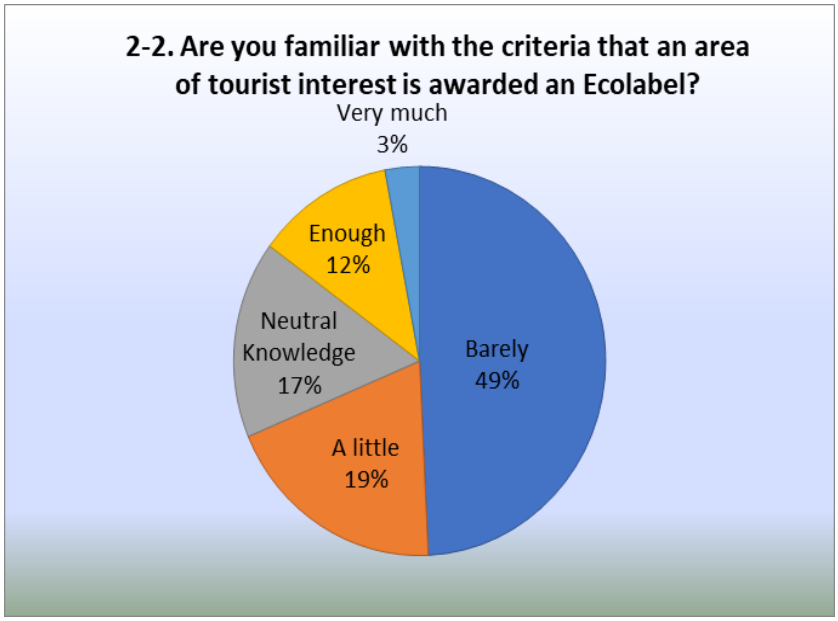


As expected, less population is using products with an Ecolabel (or they are using products with an Ecolabel that they do not know)

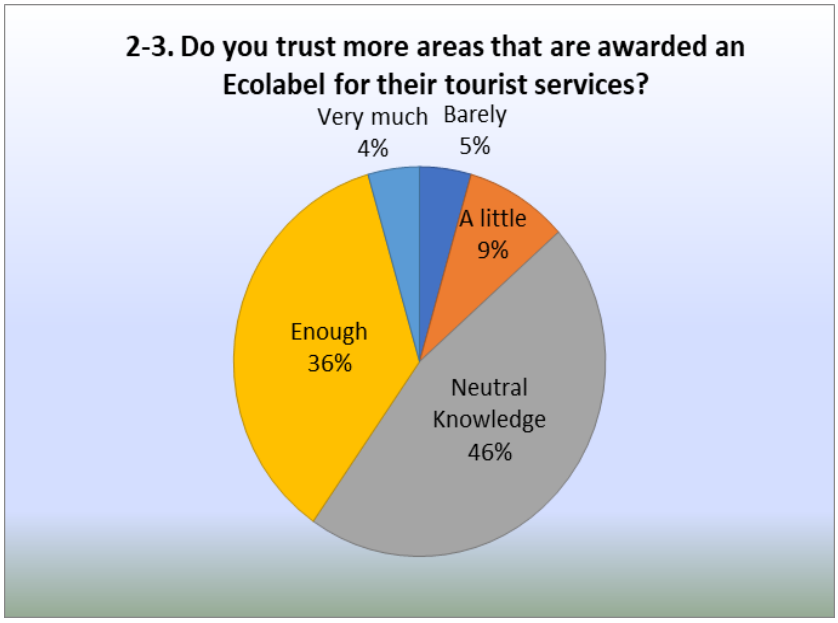
2.1.2 Tourism/Protected Areas



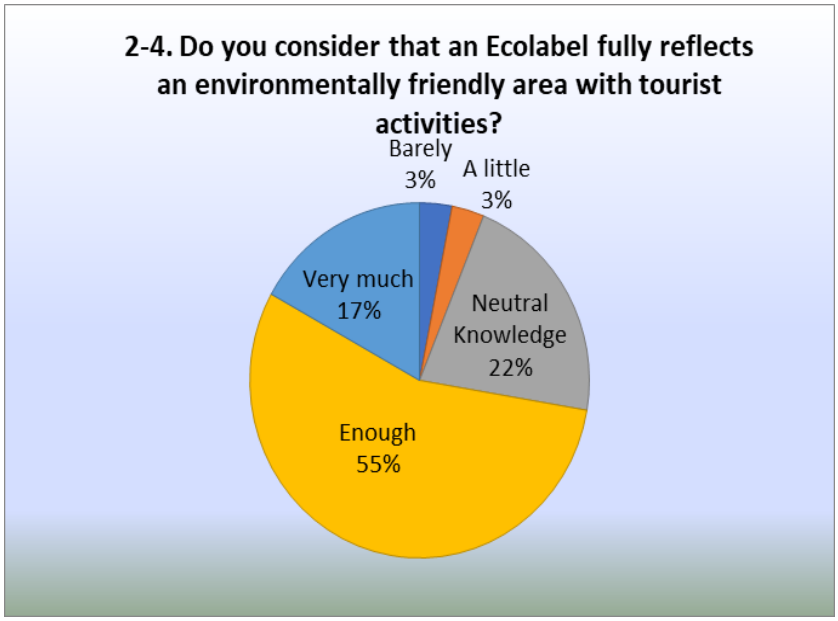
The familiarity is further decreased when we are referring to Ecolabels for tourism/protected areas…



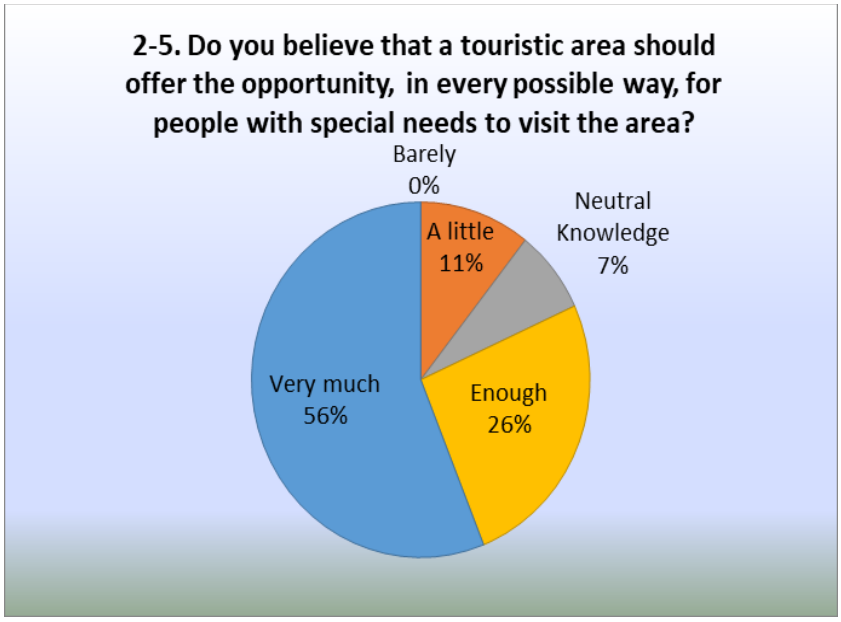
…including the criteria that an area of tourist interest is awarded an Ecolabel. Almost half of the respondents do not have any knowledge on this issue.



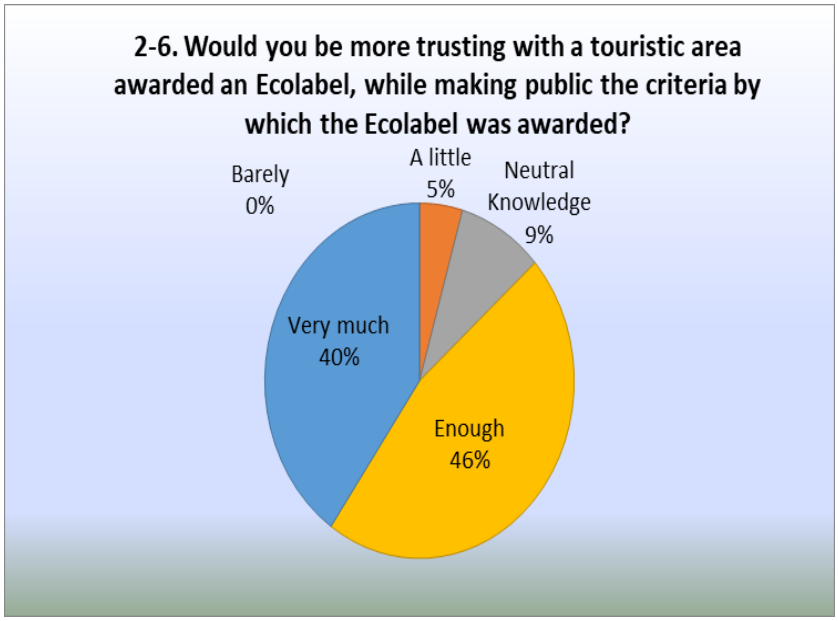
This lack of knowledge makes them not be sure whether to trust an area that has been awarded an Ecolabel for their tourist services.



Still most of them (55%) feel that an Ecolabel reflects an environmentally friendly area with tourist activities.

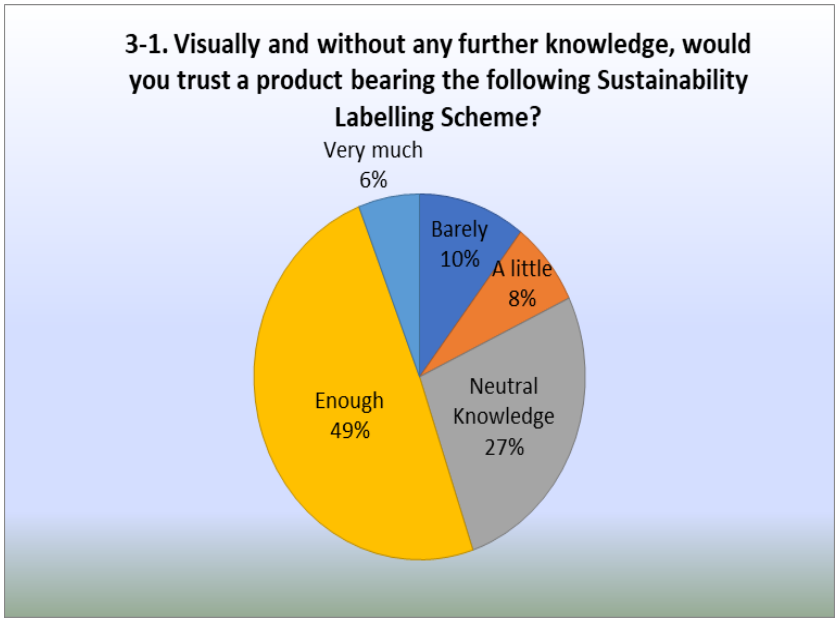


The vast majority of the respondents believe that a touristic area should offer the opportunity, in every possible way, for people with special needs to visit the area. Yet a relatively high (11%) considers that this is not an issue of high priority.



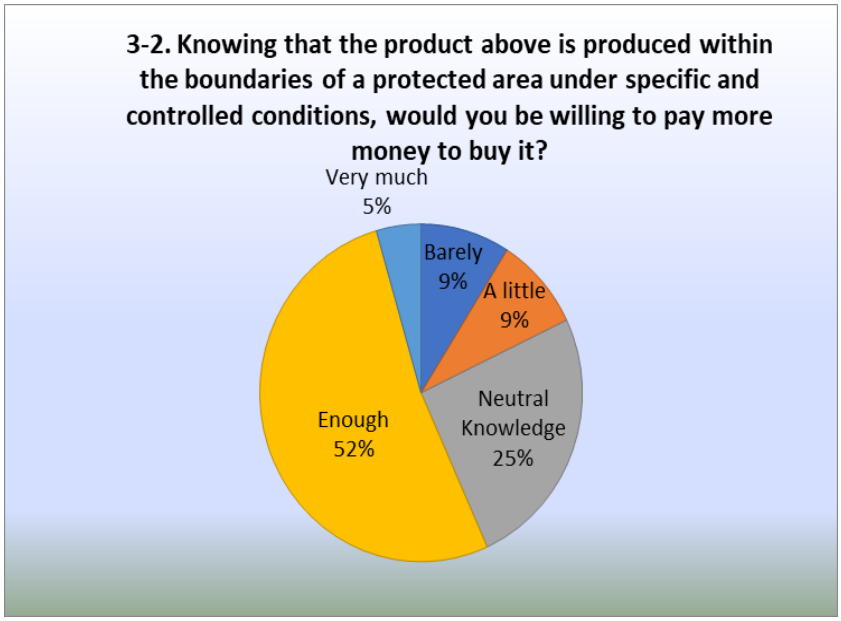
As in the case of products, better communicating the criteria by which the Ecolabel was awarded, is of highly significance to increase acceptance and trust.

2.1.3 BIO2CARE Sustainability Labelling Scheme



BIO2CARE Product

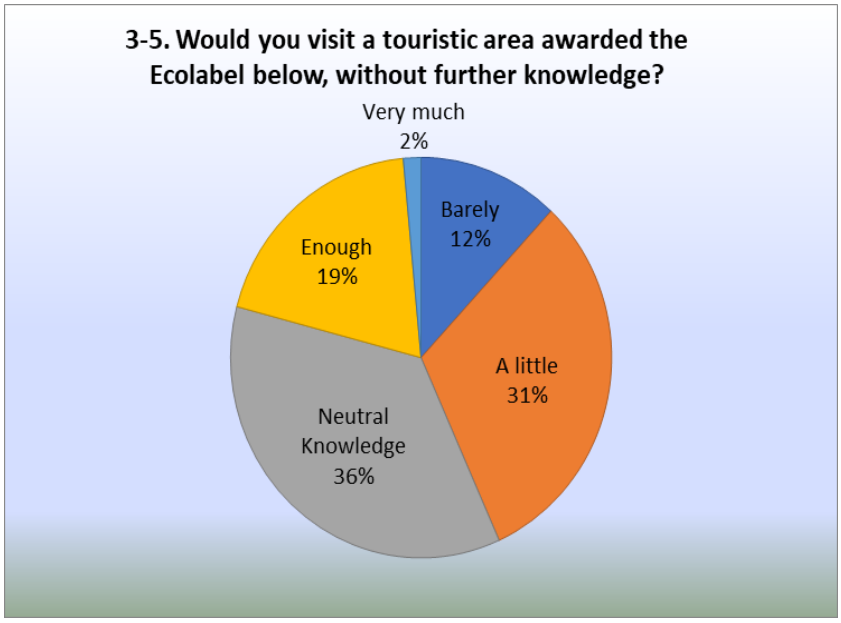
BIO2CARE Sustainability Labelling Scheme "Product" Logo is very well perceived by the majority of the respondents.



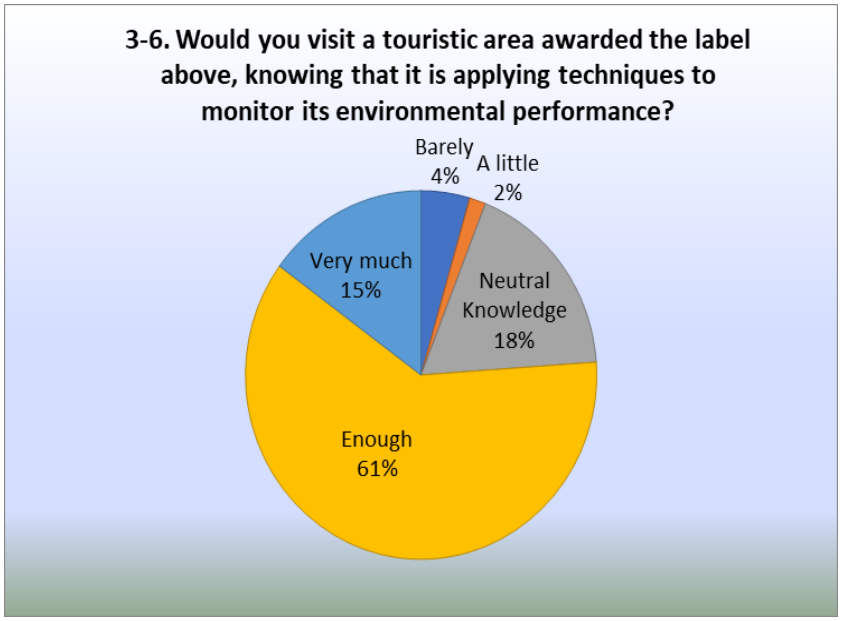
Consumers are keener to pay more for this product (in comparison with Question 1-7).

In contrast with the "Product" Labelling Scheme, respondents were much more suspicious regarding their trust on a company claiming to have reduced its greenhouse gas emission, just by the Ecolabel.

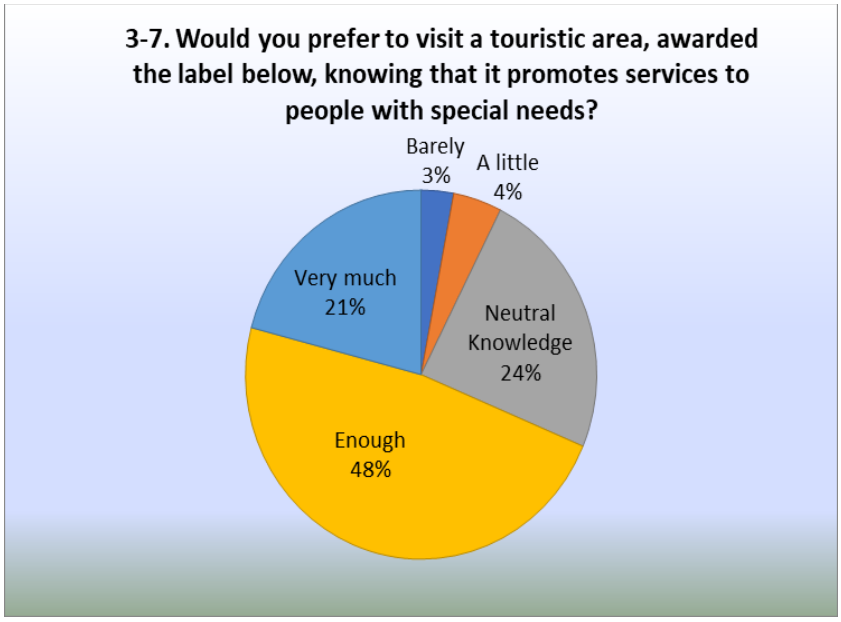
Once again providing further evidence is vital to gain better acceptance.



Similar results were extracted in the case of Touristic areas. The Ecolabel on its own is not enough to gain significant acceptance…

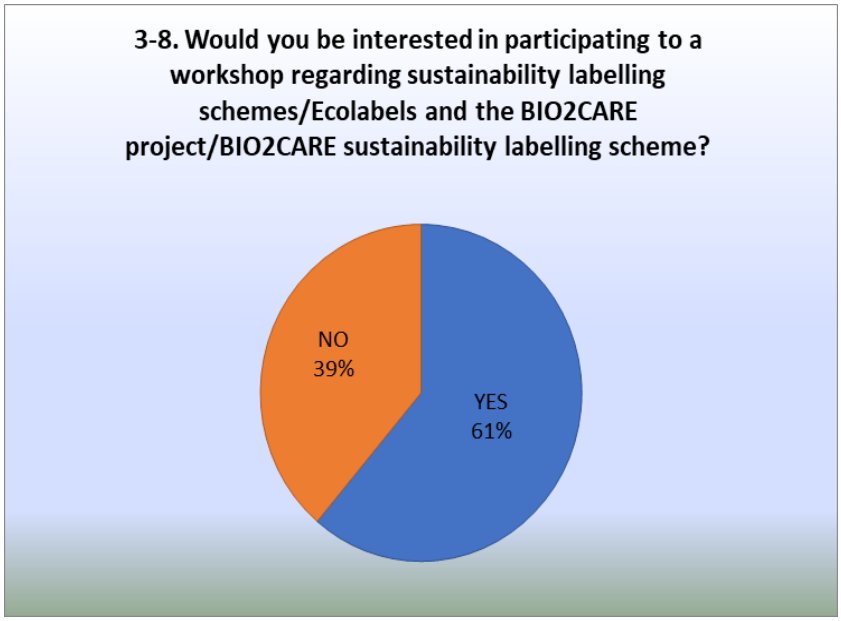


…if not followed by some clarifications on what exactly does this label means (in this case applying techniques to monitor its environmental performance).



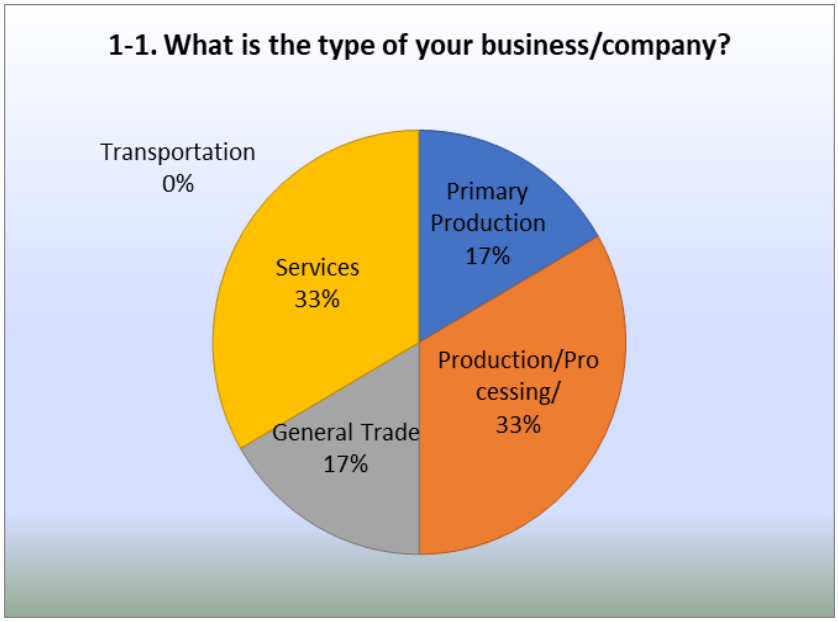
BIO2CARE EQUALITY

Finally, respondents are much more willing to visit a touristic area, knowing that it promotes services to people with special needs.

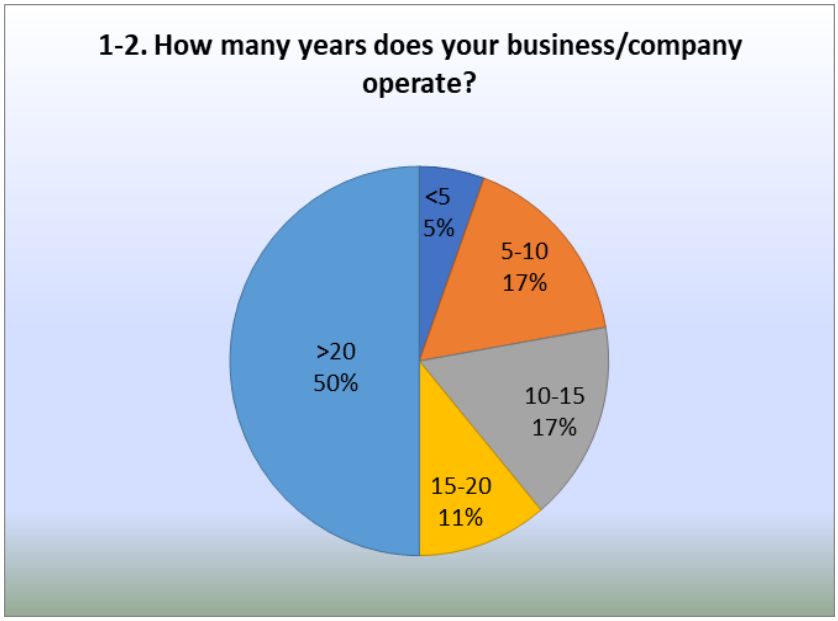


The majority of respondents claimed that they would be interested in participating to BIO2CARE relevant activities.

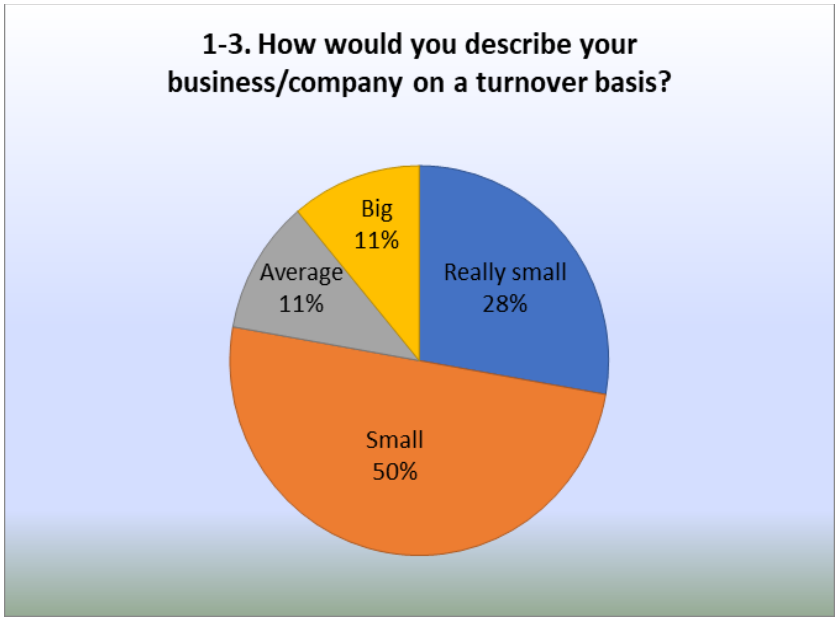
3.1.2 Business Analysis



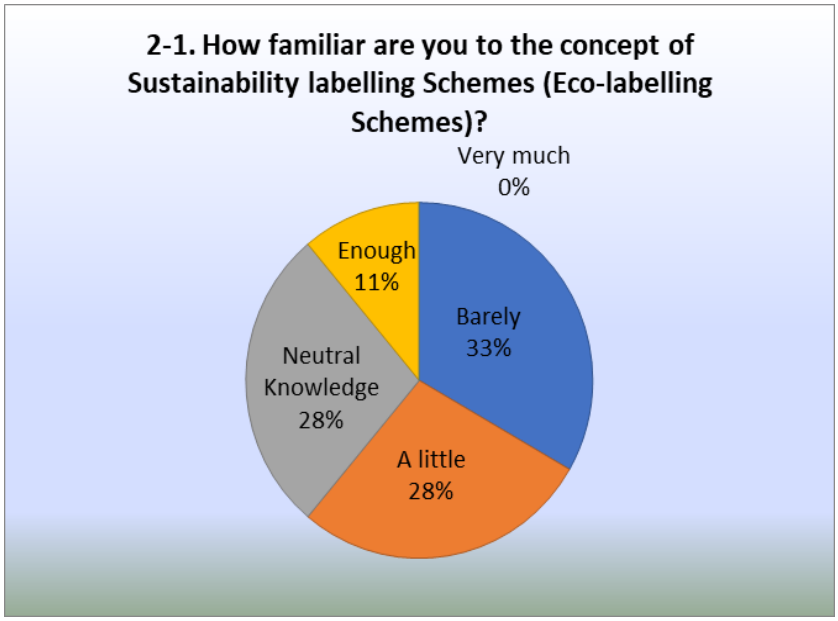
The majority of the businesses responded to BIO2CARE questionnaire are belonging to the service and production/processing sector…



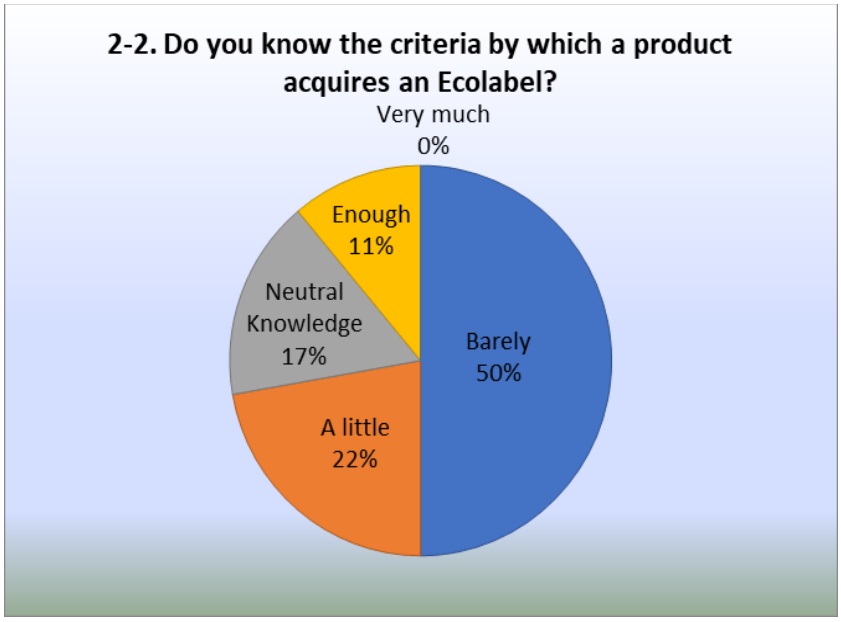
…representing a low percentage of new businesses (most of them being active for more than ten years)…



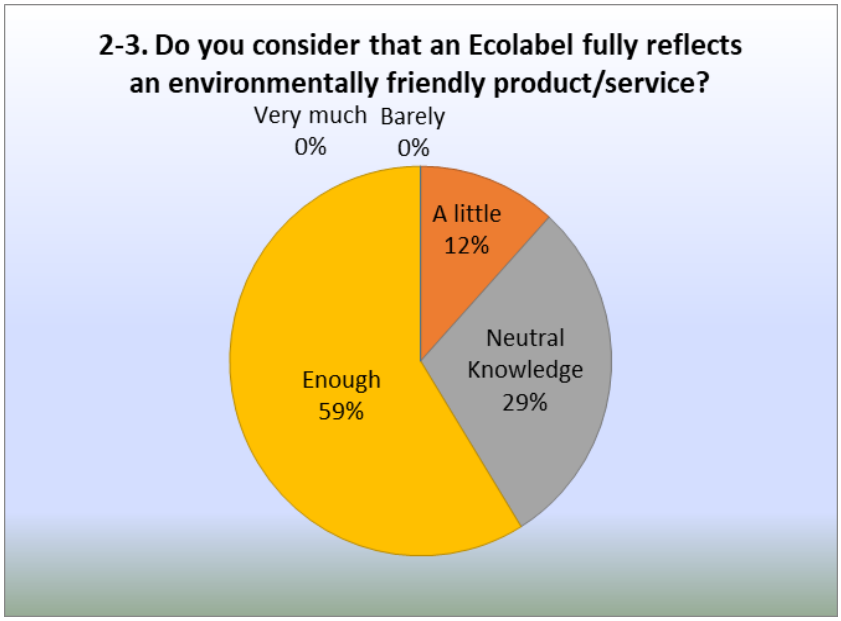
…and considered small or really small on a turnover basis (which is mostly the case for the majority of businesses within NPEMTH).



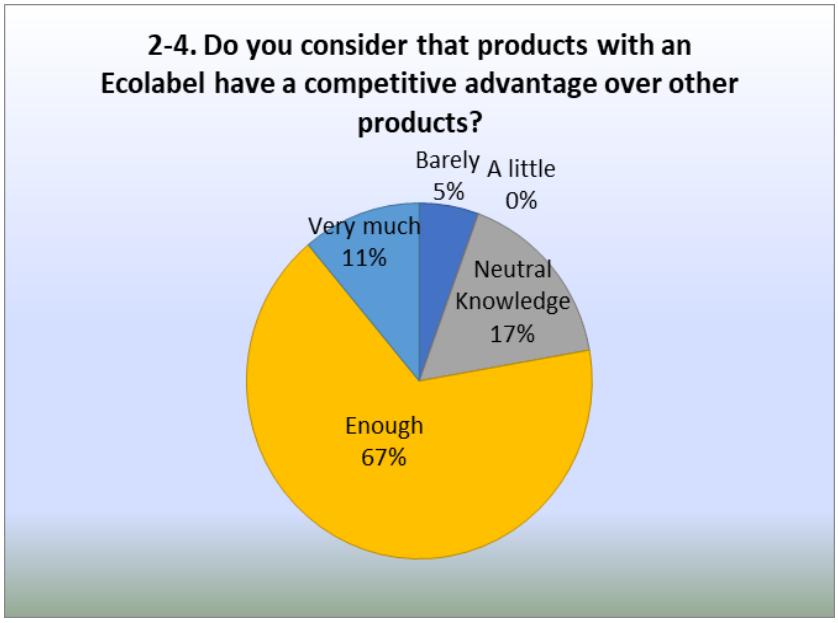
The majority of the respondents are not familiar to the concept of Ecolabelling…



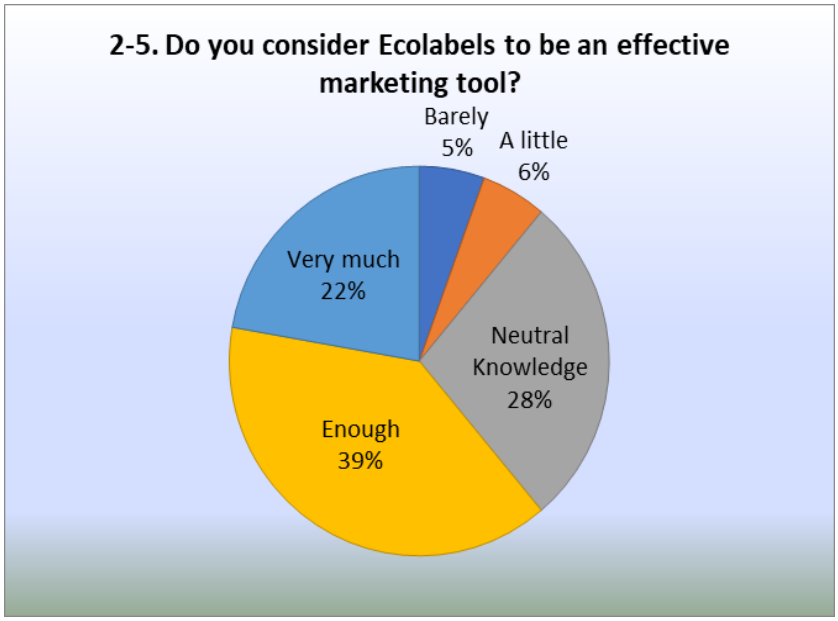
…and do not seem to have adequate knowledge on the criteria by which a product acquires an Ecolabel.



As in the case of consumers (Section 2.1) despite the relative lack of knowledge on the criteria by which a product acquires and Ecolabel, the majority of respondents considers that an Ecolabel reflects an environmentally friendly product…

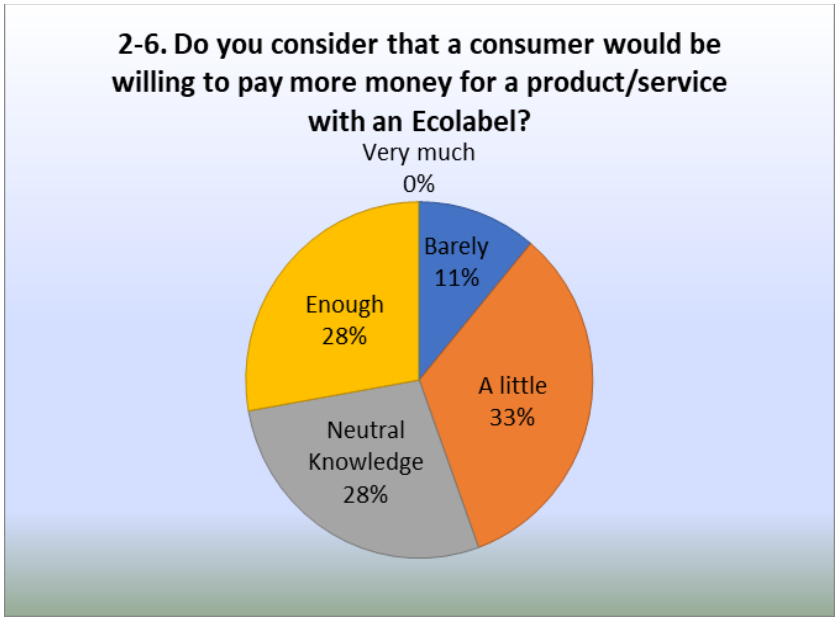


…and also, a product that has a competitive advantage over other products….

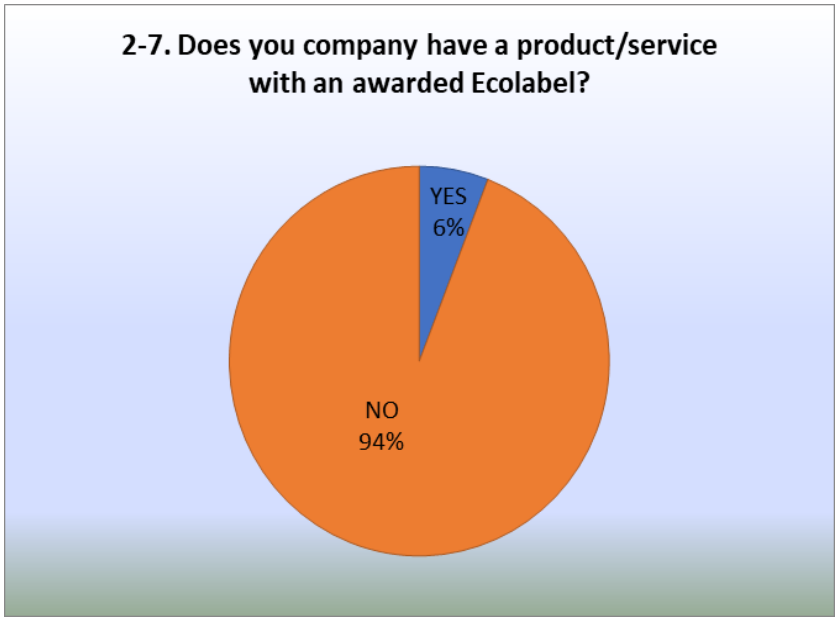


…being an effective marketing tool.

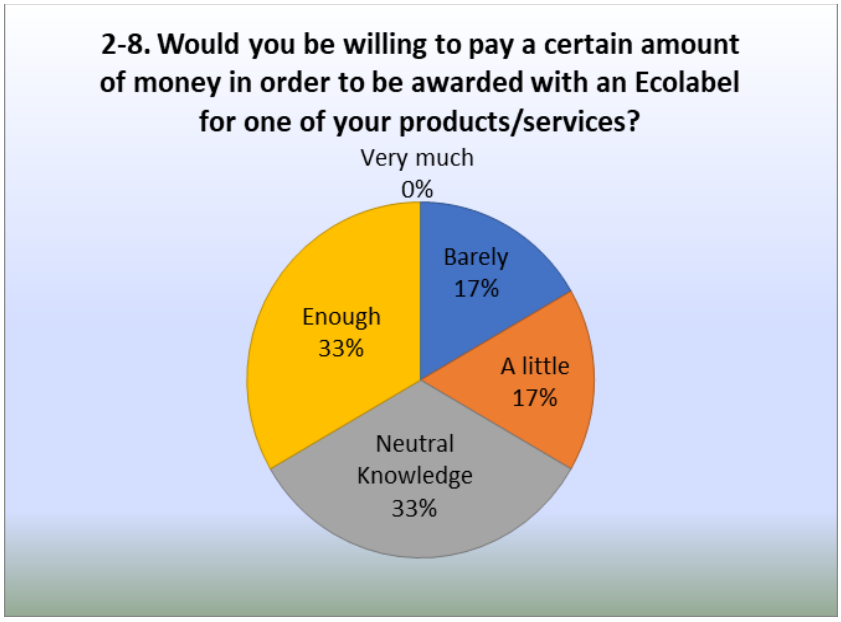
(but not as much as a consumer point of view)



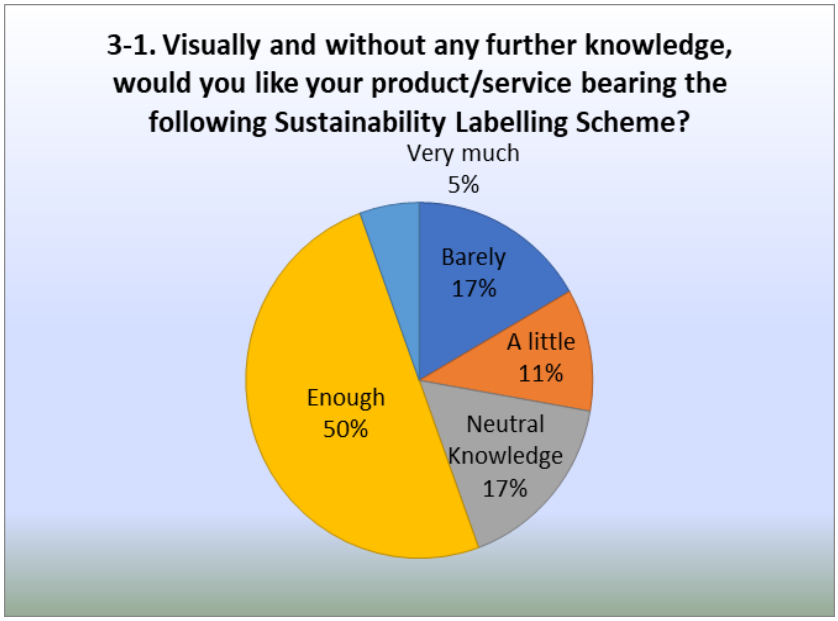
However, the majority of the respondents believes that consumers would not be willing to pay more money for products with Ecolabel.



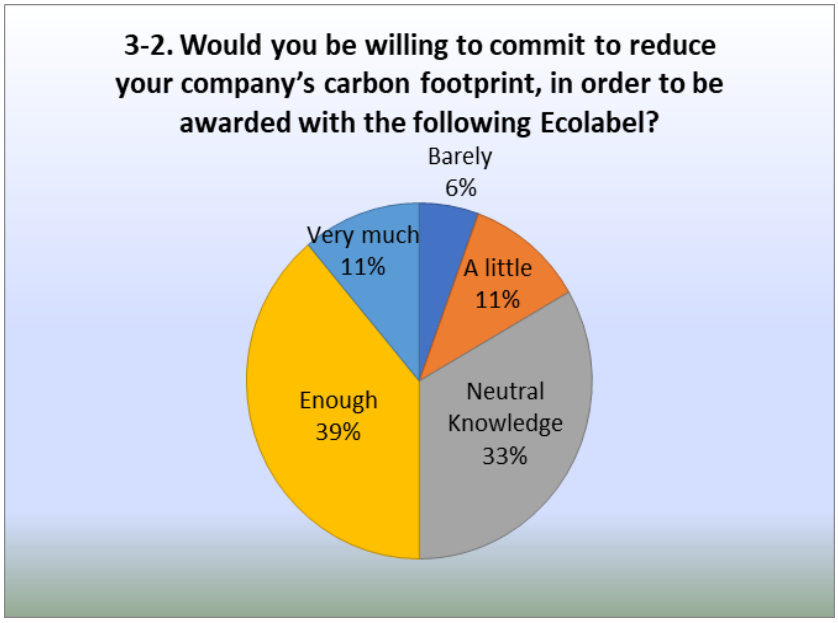
Almost all businesses replied, do not have a product/service with an Ecolabel...



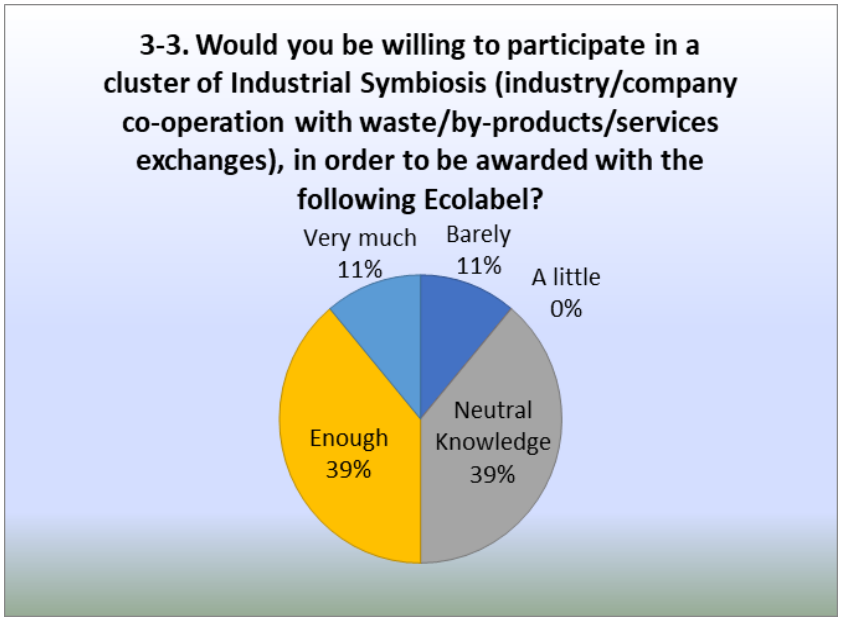
…but are relatively positive on paying a certain amount of money in order to be awarded with an Ecolabel.



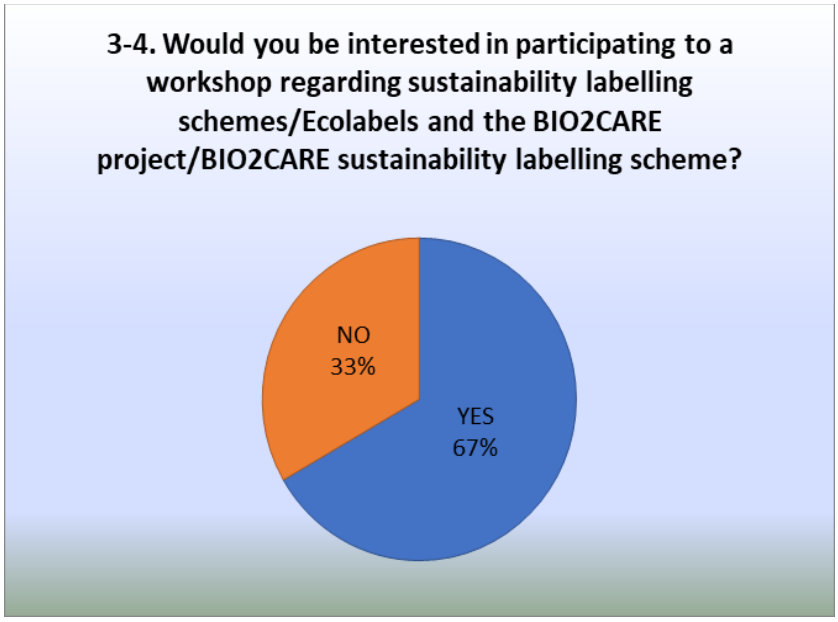
BIO2CARE Sustainability Labelling Scheme "Product" Logo is well perceived by the majority of the respondents.



BIO2CARE Sustainability Labelling Scheme "Carbon Reduction" Logo is relatively well perceived by the majority of the respondents.



BIO2CARE Sustainability Labelling Scheme "Symbiosis" Logo is relatively well perceived by the majority of the respondents.



The majority of respondents claimed that they would be interested in participating to BIO2CARE relevant activities.

3.2 Examining the potential implementation of the BIO2CARE Sustainability Labelling Scheme in various sectors within study area 2

The standardization schemes conducted in this study concludes that there are many different eco-certification schemes that offer a wide range of options for deployment in protected areas. However, arguably, most of these schemes are based on the criteria and principles laid down in ISO 14000 series (14020, 14024, etc.) and related standards.

In order to review the standards of the International Organization for Standardization (ISO), it is necessary to make a number of clarifications that correspond to the basics of the 14000 standard, which may subsequently provide an opportunity to justify certain criteria around which a possible eco-certification scheme for protected areas to be evolved:

Product life-cycle stages and factors around which the criteria for environmental impact assessment are developed:

a. Raw materials:
   - Extraction;
   - Processing.

b. Production processing:
   - Production;
   - The packaging process;
   - Waste generation.

c. Distribution:
   - Transportation;
   - Temperature storage process (Cooling);
   - Warehouse storage;
   - Place of distribution (sale).

d. Use of the product by the end user
   - Energy;
   - Water.

e. Product life cycle finale
   - Recycling;
   - Discard;

It should be noted that, within the scope of the concept of the BIO2CARE project, food products (plants and animals) grown and produced within the protected areas are of considerable interest in terms of the possibilities of implementing an eco-certification system. Therefore, as the supply of food and drinks for daily consumption is directly related to the activities in the Tourism Sector that we will turn our attention to its characteristics as regards the possibility of implementing an eco-certification scheme. In this context, one of the main roles of the European Union is to maintain a balance between the environmental policies pursued, the

interests of entrepreneurs (marketing, production, distribution, profit, etc.) and the interests of end-users in relation to the production of foods in EU.

In the late 1990s, the European Union introduced and implemented various instruments to protect and improve the quality of food produced within the Union. As a starting point for these policies, the Mediterranean approach was adopted to determine the quality of food based on their taste, as well as some other aspects such as: taste, texture, aroma, characteristic odor, color, including in view of the history of their origin along with terror, i. the natural environment, where certain foods and beverages are produced, including additional factors such as topographical and climatic features, as well as soil characteristics (with respect to certain beverages - for example - wines).

The introduction and implementation of such tools provides opportunities and benefits - geographical indications (protected designations of origin) through which business operators can obtain a higher price for their products and services. Based on geographical indications, it is possible to promote backward and remote rural areas by attracting tourist interest in them.

Considering that the food industry is one of the largest industries in Bulgaria, it will surely have a serious impact on the quality of foodstuffs, and last but not least, it will reduce the negative impact on the environment within the protected areas, as far as seriously limited activities in the food industry are concerned. Agricultural activities consume and use materials and energy like any other production process, but agricultural systems are agro-ecosystems and as such these systems are multifunctional in terms of the goods and services they offer. The production of food, fiber, oils and biomass are only part of the functions of agriculture. It also provides habitat for biodiversity, a buffer and a pollutant filter and aims to meet the needs of society with minimal environmental impact. In fact, the introduction of eco-certification schemes (backed by institutional instruments) in protected areas, where limited economic activity is permitted, contribute to the conservation of territorial biodiversity and traditional production methods, as well as the cultural practices associated with them. Such a labeling scheme ensures the resilience of rural areas, despite their remoteness or even isolation, overcoming it through the processes of communication between local producers of environmentally friendly products and end users (tourists and seekers of new and unique geographical tastes). Considering the possibilities of creating and implementing an eco-certification scheme based on geographical indicators (protected designations of origin), there are also a number of negative consequences:

- Limited production of food and beverages (mainly wines);
- Limited access to external markets resulting from the limited production of a specific product, as it cannot cope with increasing demand (due to the specifics of protected areas);
- Lack of a supply chain to end-users, thereby reducing the economic burden of exporting products from the territory;
- Administrative and organizational difficulties in production sales, as exports are subject to control by several responsible institutions.

The potential effects of implementing an eco-certification scheme for products and services produced in protected areas on the environment are diverse and can have direct and indirect consequences, both positive and negative. As products leaving the protected areas are subject to further processing, packaging and transport, each with potential for further impact, be it energy consumption (fossil fuels and / or renewable energy) and greenhouse gas emissions, the use of water or the production of waste. The product is then distributed for retail sale at the place where it is purchased and consumed, which again leads to further impacts - mainly additional waste generation and / or environmental pollution.

On one hand, European Union policies on geographical indications (protected designations of origin) may limit innovation (including eco-innovation) as far as the product concerned can satisfy the requirement to be classified as a "traditional product" (ie specific 'old' production method, processing method, etc.). On the other hand, it offers a number of options that protect the product itself but also the european consumer from fraud and abuse of food, counterfeit goods and more. In this sense, the latest European Union Regulation (Regulation No 1151/2012) has been developed with regard to geographical indications, introducing a new set of instruments for the protection and improvement of food products produced in rural areas under the common name, Optional quality term.

Within the territorial scope of the BIO2CARE project, the protected areas of interest in the Bulgarian part of this study and which allow for limited economic activities are located in mountainous regions and some of them may also use the terminology proposed by the European Commission.

The Commission has introduced Regulation No.665/2014 in order to regulate the conditions of use of the optional quality term “Mountain product” (MP) to support the implementation of the mountain range of value. Subsequently, the European Labeling Scheme was adopted as a tool for communication and promotion of territorial development, contributing to the support

of remote, isolated and declining areas most affected by urbanization and abandonment of agricultural land. This certification scheme introduces some quality systems aimed at improving mountain products, to identify the requirements that they must meet in order to be included in the food category. To this end, the Swiss Quality Scheme and the French scheme, which applies to their relevant national agricultural products, have been borrowed, which must comply with standards relating to origin, nutrition, breeding, ingredients and place of production, etc.

This Certification Scheme introduces some quality systems aimed at improving mountain products to identify the requirements they need to meet to fit into the food category. In this sense, the Swiss Quality Scheme and the French one, which is applied to their relevant national agricultural products, which have to comply with standards related to origin, nutrition, breeding, ingredients and place of production, etc., have been borrowed. In this sense, the scheme provides that control and certification processes be carried out by an independent third party certifying all products bearing in their name the terms Montagne and Alps in the different stages of production chain, including packaging and labeling.

In this sense, a Certification Scheme BIO2CARE, based on Mountain Product Quality (MC) Directive could have better success, concerning that within the Bulgarian Part of the Project Rila Mountain (The Southern Part) is included.

Due to the specific nature of the project activities and the fact that they fall within protected areas, where there is an absolute prohibition on doing business, such as the Parangalitsa Protected Area (the oldest protected area in Bulgaria), the product groups in the certification scheme can be separated in three directions:

1. First group:

Food and Beverages (mainly tea) and fodder, the origin of which is covered by the authorization for conducting business activities under the Management Plan of Rila National Park ;

2. Second group:

Forestry Management (Timber and Timber Industry). This group is not subject to the certification scheme being developed, as long as it has a number of standards, international agreements and commitments

The following clarifications should be made in relation to the proposed allocation:

1) Regarding the first group, the focus is food and beverages (mainly tea) and feed. The European Commission has taken action to explore the possibility of developing Ecolabel criteria for food and feed. Based on the conclusions drawn, the Commission does not intend to develop eco-label criteria for food and feed at this stage. However, the Commission could review this issue at some point in the future, given the possible role of the EU Ecolabel in the development of a broader EU food strategy, in particular in the light of the development of methodologies and other instruments , measuring environmental impact (including by, for example, measuring the environmental footprint). In relation to the group focusing on tourism services that are peripheral to the territorial scope of BIO2CARE project activities (including for tourism - trekking / training etc. in the Parangalitsa Reserve a special permit is required The Rila National Park Authority (Rila National Park) has established European practices and criteria that can serve as guidance in developing the requirements of this certification scheme.

2) The second group related to the timber and woodworking industry (an industry that is traditional for both project partners due to the high mountainous landscape of the cross-border area) has developed standards and strategies for forest fund management, which are set out in national commitments to conserve biodiversity and natural resources. However, this industry is one of the main ones for the districts of Blagoevgrad and Smolyan as well as the neighboring regions in Greece.

Chapter 4 - Conclusions and suggestions

Aim of this study was to examine the existing situation of Eco-labelling schemes and propose the conceptual development of a new ecolabelling scheme aimed to protected areas with anthropogenic activities within their administrative boundaries. Following an extensive review of existing ecolabelling schemes, the lack of one covering protected of labeling scheme covering protected areas, their environmental performance, as well as human activities with their boundaries became evident. BIO2CARE Labelling Scheme aims to bridge this gap by utilizing the methodological framework developed in Deliverable 3.2 “One (1) methodological framework for assessing the environmental status of the examined area through the estimation of holistic environmental sustainability indicators” to scientifically quantify the environmental performance of protected areas and providing a stepping stone for the development of the sustainability labelling scheme.

BIO2CARE labelling scheme is proposed to operate in two different levels with sub-categories. The first level of categorization is the protected areas and the management bodies of protected areas, whereas the second level of categorization is related to the anthropogenic activities within the boundaries of the areas of interest. The first certification level of proposed labelling scheme is directly related to the protected areas and their environmental performance. The quantification of their environmental performance is based on the methodological framework of Deliverable 3.2. In summary, the methodological framework evaluates and quantifies the carrying capacity of protected areas with anthropogenic activities, by converting the energy and product consumption into land required to satisfy those needs and comparing those results with the current land uses and available land. A set of environmental indicators, such as Carbon Footprint, Ecological Footprint, Biocapacity, is utilized to facilitate the evaluation of carrying capacity. The inputs needed for the calculation of these environmental indicators includes the energy and product consumption of anthropogenic activities such as households, tertiary sector, municipal buildings, public lighting, private and public transportation, and tourism.

The second certification level is developed to tackle the issue of anthropogenic activities within the boundaries of protected areas, by monitoring their environmental performance, while boosting the local production and economy with green practices.

The first label tier of this certification level, is related to the products produced within the boundaries of the areas of interest. These products will be awarded the BIO2CARE Product label, with the requirement that the producers implement the methodological framework,

regarding the indicators of carbon and water footprint, while showcasing the results yearly, in order to assure transparency.

The second tier of this certification level is related to the promotion of the principles of Industrial Symbiosis. The organizations/companies/industries/producers that participate in a symbiotic network, reusing and sharing by-products will receive the BIO2CARE Symbiosis label. This label will be in force for two years, giving the interesting parties time to showcase positive results.

The final tier of this certification level is related to the greenhouse gas (GHG) emissions, a major issue in general. Even small steps like the replacement of common light bulbs with LED light bulbs, could be a head start towards GHG reductions. Organizations/ companies/ industries/ producers that implement practices to reduce their carbon footprint will be eligible for the BIO2CARE CARBON REDUCTION label. The awarding of the label though, will take place upon reduction of 10% of the initial carbon footprint results, based on the implementation of the methodological framework.

In order to examine consumers' and businesses' opinion regarding ecolabelling schemes in general, and the potential BIO2CARE labelling scheme, a set of questionnaires was developed. Important results from the consumer analysis include:

- A large percentage of consumers (almost 80%) responded that they have at least a small idea of the concept of Sustainability labeling schemes.

- A relatively large percentage (about 60%) believe that products with sustainability labeling schemes have a competitive advantage over other products.

- 43% of the respondents answered that they would pay more for a product, or service, that has been awarded with a sustainability labelling scheme with transparent awarding criteria.

At the business level, the overall picture has shown that local businesses are unaware of such initiatives, presenting an image of introversion and indifference. While significant communication efforts were made, either directly or indirectly (through the Chamber of Commerce) to reach local businesses, only 6 responded to the questionnaire, a number that is not a guide to safe conclusions.

Further research is advised in order to examine the feasibility of the conceptual sustainability labelling scheme. At this stage it is important to establish who will be the responsible party for defining criteria, awarding the labelling scheme, and generally administering the program, as well as establish and finalize the requirements that an applicant must meet to be approved by the eco-labeling program. All the steps must be transparent and ensure the effective evaluation, control, and operation of the protected areas and every anthropogenic activity happening within its boundaries, with a mean to mitigate the environmental impacts of those activities.

Literature

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