Green marketing

The case of Greece in certified and sustainably managed timber products

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Abstract

Purpose – The purpose of this paper is to study the possibility of promoting certified timber coming from sustainable managed forests, in order to support Greek enterprises and the institutions of the Greek timber sector involved to apply effective green marketing methods and policies.

Design/methodology/approach – Based on a prototype questionnaire, specifically structured for the aim of the research, 55 responses were collected from Greek timber enterprises in April 2009. The questionnaires were processed and analyzed with the statistical program SPSS of ver17.0, using descriptive statistics and correlation analysis. The main purpose was the investigation of knowledge, use and promotion of certified timber that emanates from forests under sustainable management, thus planning the green marketing.

Findings – The Greek enterprises of the timber sector expressed a great interest in the protection of forests all over the world, ranging from illegal loggings to their rational management. At the same time, in their overwhelming majority, they strongly support the certification of the sustainable management of Greek forests. These enterprises believe that the movement of green buildings has also reached Greece, albeit at a slow pace, and forecast that green consumers are prone to offer an additional percentage of about 6 per cent on price, in order to buy certified timber products. Companies trust to a high degree most institutions of higher education (universities and technological institutions) for the promotion of certified timber products and propose their publicity through newspapers and magazines, as well as through internet portals of close contact. Finally, the paper discusses reflections and forecasts on the growth of this new market of timber.

Practical implications – The results offer precious knowledge on the market of certified timber and its future developments in the following five years, which can assist both enterprises and the institutions involved in strategy forming and decision making, in order to gain an important share of the market of green consumers. The paper also proposes effective green marketing applications.

Originality/value – This is the first research on green marketing and the promotion of certified products of timber in the Greek market, while similar work is very limited even at an international level.

Keywords Green marketing, Timber, Forests, Market research, Greece

Paper type Research paper

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Introduction

Green marketing

In our days the environmental problems seem toconcern all active citizens, enterprises and institutions all over the world much more than 30 years ago. International researches show that the consumers worry more about the environment and change gradually their behaviour (Arbuthnot, 1977; Simon, 1992; Diamantopoulos *et al.*, 2003). Thus, a new market for viable or sustainable products emerges, which is further strengthened by

active consumers, since it is a way to contribute – although indirectly – to the protection of the environment (Cornwell and Schwepker, 1995; Cleveland *et al.*, 2005).

The enterprises gradually recognize the various competitive advantages and the enterprising opportunities (Johri, 1998) that arise from this ecological consuming approach, entering the word "green" in many of their activities. Thus, in parallel with the concept of Corporate Social Responsibility, the concept of "green marketing" has also been cultivated with sufficiently effective practices.

The term "Green marketing" refers to the planning, development and promotion of products or services that satisfy the needs of consumers for quality, output, accessible prices and service, without however a negative affect on the environment, with regard to the use of raw material, the consumption of energy etc. (Davis, 1991; Kangis, 1992; Meffert and Kirchgeorg, 1994; Jain and Kaur, 2004; Peattie and Crane, 2005; Grant, 2008; Pride and Ferrell, 2008).

According to Kangis (1992), green marketing must be more than either a green way of marketing, or the marketing of so-called green products. Green has to refer both to the method and to the product. This is why the very idea of green marketing needs considerable development and analysis, with rules and integrity in economic, scientific, academic and ethical terms.

According to the literature, the environmental parameter has been included in the strategy of marketing from the beginning of 1990s (Herbig and Butler, 1993; Lampe and Gazda, 1995; Peattie, 1999).

Notwithstanding the existing obstacles, "green marketing" progressively gains continuously more supporters, specifically in sectors that concern the climatic change and forest protection.

In Greece, even if we are in the initial stages of this tendency, green marketing is expected to strengthen, and influence the market even more. It is reported that in the USA the "green market" counts about $250 billion, while 63 million of consumers are directed towards products that either protect the environment contrary to the conventional ones, or have been produced with processes that respect the society and the environment. The same consumers are prone to spend an additional 7-20 per cent in order to buy pure "green" products and reject the non-viable alternatives, offered to them by the conventional market (Reitman, 1992). According to a recent research, at a world level, the positive fame of a company about its environmental responsibility is determined by the 53 per cent of consumers (roughly 1 billion) as a decisive reason that makes them buy and use its products (Spanos, 2008).

The "green consumer" concept was the epicentre of the environmental marketing strategies of the "win – win" type, as well as the key concept, on which marketing academicians and professionals focused at the end of 1980s and in the early 1990s (Diamantopoulos *et al.*, 1994; Elkington, 1994; Shrivastava, 1995; Porter and Van der Linde, 1995; Chan and Lau, 2000). Wagner (1997) showed that at market segmentation using demographic criteria "Socio-demographic attempts to profile the green consumer have not always yielded strongly indicative results, and the results produced in one study have been repeatedly contradicted in another".

Of course, in order to forecast consuming environmental conscience, it is necessary to investigate the social demographic variables (Jain and Kaur, 2006), since thus we can achieve a better policy mapping for the placement of green products and the

determination of the strategy of a marketing – mix that will be the most suitable one for the various green market departments.

Generally, today we observe an increase of the ecological conscience of consumers which results in the increased demand for green products, a phenomenon that is well exploited by a great number of enterprises, which start offering green products and services (Vandermerwe and Oliff, 1990; Salzman, 1991; Ottman, 1992; Peattie and Ratnayaka, 1992; Chan, 1999).

A relevant research has elected that the consumers that are interested in environmental matters take their purchasing decisions with criteria beyond the usual consuming models. Thus, it is observed that they reject excellent technical products because they are conscious of their damaging consequences in the environment due to the productive process or their disposal or because this is a way to show that they disapprove certain activities of their producers, suppliers or investors (Drucker, 1973; Bernstein, 1992; Peattie, 1995, 1999).

In 1991, the 13 per cent of all new products sold in the USA were charged with some sort of environment claim (Davis, 1991; Horovitz, 1992). The real problem both for marketers and consumers appears to come from the environmental terms that are used for the promotion of their "green" or "ecological" products. Terms as "recyclable" and "friendly to the environment" have suffered hard criticism and are today avoided by the enterprises because of the difficulty of their definitions' documentation (Lampe and Gazda, 1995). In 1990, in the USA, a research showed that the problem faced when promoting "green" marketing was the increased number of consumers that did not believe in the companies' environmental statements (Schwartz, 1990). Thus, the creation of marketing strategies that used sonorous messages of sustainability brought serious difficulties to the enterprises and more specifically their creators (Shelton, 1994).

In their research Lampe and Gazda (1995) pointed out that "every aspect of the product: design, production, packaging, use and disposal, provides an opportunity for a company not only to protect the environment bust also to benefit from positive consumer attitudes towards the environment".

A recent research of the Greek market (2009) about the "green marketing", realised by the Athens Laboratory of Research in Marketing (2009) in collaboration with the Centre of Sustainablitity (CSE), proved among others that the overwhelming majority of the consumers (92.8 per cent) has a positive attitude towards the enterprises that are sensitive on environmental matters. This attitude represents mainly women of bigger age, married with children, housewives and pensioners. The 96.4 per cent declare that the enterprises are compelled to contribute in the protection of the environment, while the 56 per cent of these avoid products made by enterprises that do not respect the environment. The same research elected that the more important reasons that enterprises strategically support the protection of the environment are their image improvement (4.54), differentiation (3.92), publicity (3.84), sales increase (3.63), favourable taxation (3.54) and finally to really contribute to the protection of environment (3.47).

Peattie (1995), and Van Dam and Apeldoorn (1996) define certain characteristics able to constitute sustainability for enterprises or at least sustainable marketing, such as: a redefinition of the "product", a willingness to change markets, an emphasis on benefits from product use, marketing communication that aims to inform rather than just impress, a focus beyond current consumers needs, a willingness to manage demand and expectation downwards, an emphasis on cost instead of price and taking

more responsibility. Grant (2008) points out that "sustainability changes everything", while Johri (1998) shows that the future of green marketing strategy passes through the perception that consumers like "green" messages and Yudelson (2009) claims that the green marketing space is wide enough for large retailers and developers.

In the European Union, a considerable number of organisations support enterprises to develop in a sustainable way by providing modern and practical methodologies and applying environmental and social criteria. Some of them are: the Centre for Sustainability and Excellence (CSE), Global Reporting Initiative (GRI), United Nations Global Compact, European Foundation for Quality Management (EFQM), European Business Ethics Network (EBEN), European Committee (EC) etc. (Avlonas, 2008).

"Green marketing" is considered by many researchers as an important entrepreneurial opportunity to innovate even more and as an outstanding advantage against the competition (Ottman, 1992; Kaufman, 1999; Laroche *et al.*, 2001; Vaccaro, 2009).

Pride and Ferrell (2008) consider that the objectives of green marketing should be:

- to eliminate waste, which should focus on the production of products without waste instead of getting rid of waste;
- to re-invent the concept of product in order to become consistent with the environmental commitment;
- to price the products portraying the real cost, which means high value for the consumer's money; and
- to create profitability via the creation of operational occasions that derive from the environmental conscience in the market.

In his study realised in the Great Britain, Donaldson (2005) initially concluded that in general the ecological attitude of consumers changed positively. Nevertheless, these tendencies were not translated into real purchasing behaviour. This study reported the strong faith of consumers in the known commercial brands and in the feeble behaviour referring to the "green" claims, which was the main cause behind the consuming failure to interpret their concerns beyond the environment in their behaviour.

A comparative study between British and Rumanian enterprises examined how they promoted their green products in international markets. The results showed that while the British enterprises had focused their attention on the world fame of their products, in order to promote the green claims to international consumers, the Rumanian ones had rested in the sales of agents supporting their green claims in the foreigner markets (Gurau and Ranchhod, 2005).

A recent study by Alsmadi (2007) investigating the environmental behaviour of Jordanian consumers reveals a high level of environmental conscience. Unfortunately however this positive tendency and preference in the "green" products does not appear to have any effect on the final decision, obviously because these consumers have a stronger faith in the traditional products and a small confidence in the green statements. The obstacles mentioned previously are further strengthened by the lack of environmental conscience by a lot of enterprises and the existence of a large scale of prices for the same product, many of which included an impetuous estimate of environmental responsibility. The same phenomenon has been presented in other researches too (Ottman, 2004; Donaldson, 2005; Cleveland *et al.*, 2005).

Recognizing the role of consumers in the protection of the environment and its direct influence on next generations' quality of life, the governments, as well as the non-governmental organisations have started turning environmental campaigns at the direction of this consumer target groups (Wasik, 1992; Grunert, 1993; McGougall, 1993).

Grunert (1993) finds important differences among the individuals of different professional groups with regard to various levels of environmental conscience. Although the relationship of profession with the environmental conscience differs according to the type of product, the results generally show that are the groups referring to housekeepers and/or professionals and services that have the strongest environmental conscience with regard to most of the environmental matters.

Naturally, all consumers are not always fervent and factual supporters of the protection of environment and certainly are not particularly influenced by the "green" marketing. However, they constitute a target group, which can prove to be particularly profitable for the enterprises, which will be activated in the sectors of production and disposal of friendly to the environment products (Diamantopoulos *et al.*, 2003; Jain and Kaur, 2006).

The creation of more sustainable marketing strategies is expected to be a difficult process, since the majority of consumers still ignore what sustainability really means. They also seem rather dubious about the capability of enterprises to contribute to the protection of the environment. Becoming winners of this battle will be the key challenge for marketers of the new millennium (Davis, 1993; Peattie, 1999; Jain and Kaur, 2003; Murphy, 2005).

Certified and sustainable managed wood products

Nowadays the "activation" of society for the protection of the environment has set the protection of forests and their rational and sustainable management as priorities of its "agenda".

The negotiations of the first period of the Kyoto protocol obligations (2008-2012) and the following one (after 2013) is still in progress. Key subjects, related to the forests include the reduction of emissions from the deforestation and the devalorisation of forests, as well as the economies of forest management and the harvested forest products (Stevens *et al.*, 1998).

This interest started to form an organised movement at the early 1980s, after the decision of the commercial embargo (boycott) of the tropical timber from the European and American markets. However this metre created enormous social problems to the populations of these countries, which in 1990 led to the constitution of a non governmental environmental organisation under the name "Alliance for tropical forests – RFA" aiming at the promotion of products from forests of sustainable management. In 1993, the Council of Forest Management or Council of Care of Forests (Forest Stewardship Council – FSC) was founded in order to collaborate with environmental organisations, wood processing industries and big forest owners, while in 1999, a new institution, the PEFC was founded by the small forest owners of Central Europe (Hansen, 1997; Humphries *et al.*, 2001; Cashore *et al.*, 2003).

The certified forest regions reached the 320 million hectares worldwide in the middle of 2008 (UNECE and FAO, 2008).

The certified sustainable managed forests occupy the 8.3 per cent of the total extent of forests all over the world and the 13.4 per cent of forests that are under some kind of

management. The countries of Western Europe have certified more than the 50 per cent of the total extent of their forests, of North America more than the 1/3, while the ones in Africa and Asia only 0.1 per cent. Roughly the 80-90 per cent of certified forests worldwide is found in the northern hemisphere, where it is produced the two thirds of world production of round timber. More than half (57 per cent) of the certified forests are found in Northern America (UNECE and FAO, 2005).

Globally, the UK, the USA and Germany have the most certified institutions, while besides the UNECE region, Japan, China, and Brazil are the leaders in this classification (UNECE and FAO, 2008).

According to the report of FAO (2007) the certification of the management of forests and the production of timber products with labels play a very important part in the social role of forests. The environmental importance of raw materials in the timber sector predicates both to state and common opinion to show a special interest in the application of regulations and safety valves against the waste of the specific materials (Stevens *et al.*, 1998).

The fundamental aims and objectives of forest certification are:

- the improvement of the management of forests;
- the guarantee of new markets, capable for the absorption of produced certified products; and
- the control of certification of all processes up to the sale of final products, in order to safeguard their sustainable origins (Hansen, 1997; Hubbard and Bowe, 2005; Sustainable Green Ecosystem Council, 2008).

In a relative research (Toshiaki *et al.*, 2006) it is pointed out that in Finland, where there exists some important experience on the forest certification, the enterprises of the timber sector do not have any expectations of gaining more money charging a higher price to consumers. On the contrary, they do so because they believe in the viability of their forests and for their own well being within the frame of their corporate social responsibility. Besides they consider that through this certification, they will play a more dynamic role in the exploitation of new markets.

In Japan there is a constant increase of the demand on certified wood products, which depends on the export behavior of foreign suppliers. On the other hand, there appears to be only a small percent of the buyers (less than 10 per cent), willing to pay an additional 5-9 per cent of the mentioned products price. (Owari and Sawanobori, 2007)

Both in the USA and western Europe, there are development programs promoting "green buildings", which increasingly influence the conditions of the market for forest products in both positive and negative ways (World Green Building Council, 2008; UNECE and FAO, 2008). The movement of "green purchasers" that was developed during the last years in N. America and W. Europe starts appearing in a slow but regular pace in Greece, creating niche markets. The possibility of exports in countries with increased "green" purchasing groups appears to be particularly seductive.

Today the number of Greek consumers of biological, ecological and certified products is rather limited, although experts forecast a timid increase (Stamou, 2005).

A recent research (Ota, 2009) has pointed out that "green" building constructors in Japan are interested especially in FSC certified wood, mainly because of the easy

traceability and the higher quality, the forest sustainable management and the price advantage.

The certification of the sustainable origins of forest products can be used by the Greek enterprises that are activated in the timber sector as an effective Marketing tool to dynamically enter new markets and to improve their ecological profile (Juslin and Hansen, 2002; Papadopoulos and Karagouni, 2007).

According to the ever memorable professor of the Faculty of Forestry in AUTH Dr Stamou (2005):

- the certified products of timber sooner or later will prevail and control this market that will emanate from sustainable and environmentally friendly managed forests;
- the role of the consumer with environmentally friendly behaviour – final purchaser of products of timber – will become continuously more important. Products of timber that will not emanate from sustainable managed forests will not be able to easily find a place in the market;
- there will be a gradual development of enterprises with certified products of timber; and
- the existence and viability or the exclusion of enterprises of timber in the market will be directly influenced by the environmental sensitization of citizens.

In the market of forest products there exists an important amount of research that has dealt with the certification of sustainable management of forests and certified products of timber that emanate from these forests (Hansen, 1997; Kärnä *et al.*, 2003a; Rametsteiner and Simulab, 2003; Overdevest and Rickenbach, 2006). Many researchers underlined the eagerness of consumers to pay some higher price for the purchase of certified products (e.g., Rametsteiner, 1999; Jensen *et al.*, 2003; Ozanne and Vlosky, 2003). Still, there is not much research done on the promotion of certified products in the timber and furniture market (Juslin and Hansen, 2002; Toshiaki *et al.*, 2006; Ratnasingam and Wagner, 2009).

In order to cover this void, the aim of this research was using quantitative and qualitative methods to map the existing situation and analyze the prospects of market growth of certified wood products coming from sustainable managed forests. It further intents to evaluate consumer response, benefits and prospective reflections to the referred products idea, prior to their introduction to the market. The analysis would lead to the determination of the four Ps of green marketing (product, price, place, promotion), so that Greek enterprises and Greek consumers are supplied with green products effectively and thus contribute directly and/or indirectly to the protection of the environment in the best possible ways. This research aspires to constitute a precious tool of effective application of green marketing in this direction with medium-term or even long-term objectives.

Method of research

The data of this primary research were collected using the method of questionnaire formulation, collection and elaboration. The questionnaires were specifically structured for the aim of the present research, according to the basic principles of marketing research (Gordon and Langmaid, 1988; Tull and Hawkins, 1990; Doyle, 1998; Aaker *et al.* 2004, also using the essential preconditions of green marketing i.e.

the responsibility, the transparency, the reliability and the perspicacity as well as the connection with the strategy (Avlonitis, 2008). The researchers are marketing research fellows and addressed the company executives with personal interviews. The questioned sample was selected after particular control processes, when considered suitable to answer.

The research questionnaire included 37 questions in total, grouped in three categories. The first one included nine questions about the general characteristics and the profile of each enterprise (name, address, legal form, year of foundation, activities, main products, occupied personnel, etc.). The second group included 11 questions about the application of the directive of European Union that referred to the CE marking for the products of timber in Greece and finally 17 close-type questions on knowledge, use and promotion of certified timber from sustainable managed forests in Greece.

In total, 55 enterprises and institutions were randomly selected. They are all directly related to the Greek timber market and they were questioned during their presence at the International Trade Show of FURNIMA (Furniture Machinery Exhibition) carried out in Thessalonica, in March 2009. The questions were structured to be short and comprehensible in order to be easily answered.

The pilot application of the questionnaire in five companies revealed the weak points of questions, which were further elaborated and led to its improved final form (Dillman, 2000).

The data were processed and analyzed with the special statistical program SPSSWIN ver 17.0. The analysis includes Frequencies, descriptive statistics (Descriptives) and Crosstabs, controls of independence among all the variables with the X^2 criterion, correlation analysis and analysis of variance (*t*-test) (Norusis, 2007; Howitt and Cramer, 2003).

Results

The green marketing mix, the reflections on the certified timber market development when it comes from sustainable managed forests and the profile of the enterprises involved in this research are presented in the following paragraphs.

The green product: The certified and sustainable managed timber products

The concept of certified timber, as well as the concept of forest viability appears to be familiar at roughly half of the stakeholders involved in the Greek market of timber (see Figure 1). However, the concept of certified timber produced from sustainable managed forests is rather hazy for the 24 per cent of the asked ones. The relevant analysis regarding the legal form of the enterprises showed that no LTD and Trade Company is familiar to the concept, while the 61.5 per cent of SAs have a good knowledge of it. X^2 controls showed that the knowledge of certification appears to relate statistically positively with the annual turnover of the enterprises (Pearson $X^2 = 19.136$, Cramer's $V = 0.516$ for sig. level $>$ 90 per cent, approx. sig = 0, 085). Actually, the bigger the annual turnover of an enterprise, the more the knowledge that exists about the real significance of certified timber products from sustainable managed forests.

The enterprises that have been founded during the decays 1991-2000 and 1981-1990 possess a deeper knowledge of the concept at a percentage of 66.7 and

58.8 per cent respectively. The knowledge of this concept is well under the mean for the newer enterprises (year of foundation > 2000), as well as the oldest ones (< 1980).

Things are quite different when asking about the concept of the sustainable forest management; the 87.5 per cent of new enterprises (year of foundation after 2000) and the 66.7 per cent of the ones founded during the decade 1991-2000 reveal a much better knowledge of its significance. Besides, the significance of forest viability is familiar to the forest world since the nineteenth century, while hardly the last seven years it appears to be widely used in other sectors – at least in Greece. Concerning the number of occupied personnel it appears that the enterprises that have less than ten employees (60.0 per cent) possess the deeper knowledge of the concept.

The knowledge of the concept is related statistically negatively with the annual turnover of the asked enterprises (Pearson $X^2 = 11.619$, Cramer's $V = 0.5\ 68$ for sig. level > 90 per cent, approx. sig = 0.071). More concretely, the smaller the annual turnover of an enterprise, the more the knowledge that exists about the concept of sustainable forest management.

Figure 2 presents the interest of the interviewees in the protection of forests all over the world against both illegal loggings and the non- rational management. It appears to be important at a percentage of 94.1 per cent (62.7 per cent "too much" and 31.4 per cent

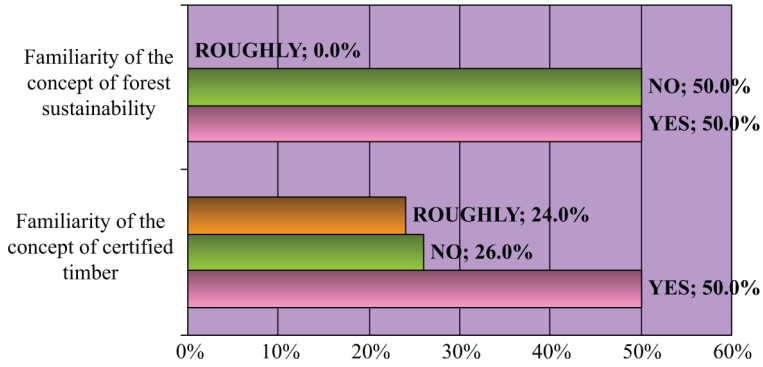

Figure 1.
Knowledge of the concepts of certified timber and sustainable management of forests

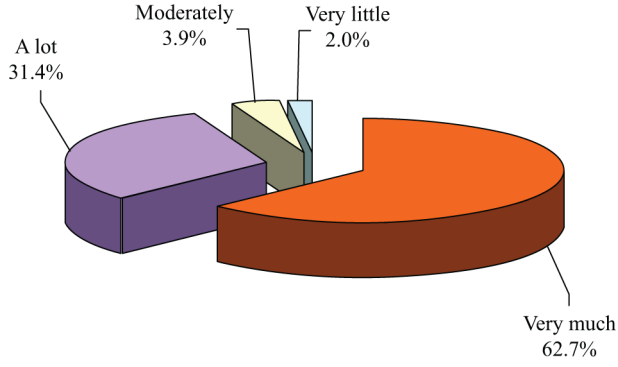

Figure 2.
Interest for the protection of all forests in the world against the illegal loggings and their non-rational management

"very much") and it proves the sensitivity of Greek institutions of timber concerning the protection of sources of the products they process, trade or manage. This interest is far more than natural if we bring in mind the devastating fires in summer 2007 that burnt to ashes more than 200.000 hectares of forest in Greece. This fact alone creates favourable conditions for the promotion of certified timber from sustainable managed forests.

According to the cross-tab analysis, individual enterprises show a great interest at a percentage of 29.6 per cent; well bellow the mean (62.7 per cent). Individual enterprises are run by the entrepreneur him/herself and everything has to be done by him/her. Consequently their interest for the protection of forests comprises a secondary interest.

What seems rather strange is the fact that the enterprises that declared a minor interest in forest protection are the very big ones, i.e. those that occupy more than 100 employees. Furthermore, there exists a statistically significant negative correlation between the interest of forests' protection against illegal logging and their sustainable management and the number of occupied personnel (Pearson $X^2 = 41.\ 277$, Cramer's $V = 0.586$ at a sig. level $>$ 99.9 per cent, approx. sig $= 0.000$). That is to say, the more the personnel number, the less the interest for the protection of forests. In other words, the more impersonal the enterprises, the more they focus on profits and the more indifference they show, since they let problems be resolved by other more "romantic" actors.

A small percentage of enterprises (3.9 per cent) show no interest in the consequences of thoughtless logging of forests on the timber market, while the overwhelming majority declares that they will be very negative at a percentage of 45.1 per cent and simply negative at a percentage of 51.0 per cent respectively.

The first impressions of the asked enterprises about the predominance of timber from certified forests over competing products in the market are presented in Table I. The tendency of necessity for direct imposition of this opinion in the market of timber is slightly ahead at a percentage of 35.3 per cent. They further believe that there will shortly appear a kind of pressure from the consumers to the enterprises of timber and furniture to produce certified products at a percentage of 31.4 per cent. This question also contains some further reserve and reflection expressing the difficulties of application of such an undertaking, stated by the 1/3 of asked enterprises. Finally there is also the pessimistic view of the 9.8 per cent, who consider that such an application will create big problems for their enterprises.

a/a	Predominance of certified timber in the market	Percentage	*n*
1	This opinion should immediately prevail	35.3	18
2	There are major difficulties in dominating the market	33.3	17
3	There will be pressure from the consumers to the enterprises of timber and furniture to produce certified products	31.4	16
4	Sooner or later this opinion will prevail	27.5	14
5	There does not exist consuming conscience for use of products that protect the environment	27.5	14
6	It will influence considerably the structure and the composition of the market for timber products	23.5	12
7	There will exist pressure from the state for timber and furniture enterprises to produce certified products	13.7	7
8	It will create important problems in the enterprises	9.8	5

Table I.
Opinions of asked enterprises on the predominance of timber from certified forests in the market

There is only one sustainable certified forest in Greece, the "Mainalon forest" in Peloponnesus. It was certified in 2004, but yet, it is not particularly known even in the Greek market. A 45.1 per cent described the certification of Greek forests for production of timber through sustainable management as very essential (while a percentage of 51.0 per cent marked it as simply essential (see Figure 3). The views are quite normal following the previously mentioned thoughts on forest protection. Besides we should also point out that the overwhelming majority of Greek forests are sustainable managed, but they just lack a "formal" certification.

A first research in the Greek timber market posed the question of familiarity with the movement of "green" buildings; that is to say buildings that have the minimal possible consumption of energy and use materials that protect the environment. This is applied with success in the USA (where it started from) and in certain countries of Western Europe the very last years. In all "green" building manufacturing the raw material is timber from sustainable managed forests.

According to UNECE and FAO (2008), the policy of promotion of "green buildings" contributes to the continuously stronger promotion of timber certified products from certified forest regions. Norway, Finland and Luxembourg use certified timber to a large extent because of the high degree of certification of their forests, while Switzerland, Slovenia, Czech Republic and Liechtenstein have created a relatively good market of certified timber, specifically in the retail sector of "do it yourself". In Germany and the UK a lot of products in the manufacturing sector bear labels of certification. In France, where the use of timber in the manufactures today is relatively low (10 per cent), the objective is to increase it up to a 12.5 per cent till 2012. Finally, Italy appears to be particularly active in the sector of green buildings, although there is only a 5.3 per cent of enterprises that produce doors, windows and floorings that have been certified respectively.

In the Greek market although the presence of "green" houses is very timid, this movement is almost known to Greek enterprises at a percentage of 62.7 per cent (see Figure 4) as it is shown by this research. This fact denotes that there is no need of a big promotional campaign effort in order to inform Greek enterprises on the subject. This finding is further confirmed by the fact that the 94.1 per cent of the companies declare that green houses might create a positive set in Greece as well, as in the previously mentioned countries (see Figure 4). The research results show that we should focus on an intense informative advertising, with a particular emphasis on "green consumers", who comprise the initial target-market.

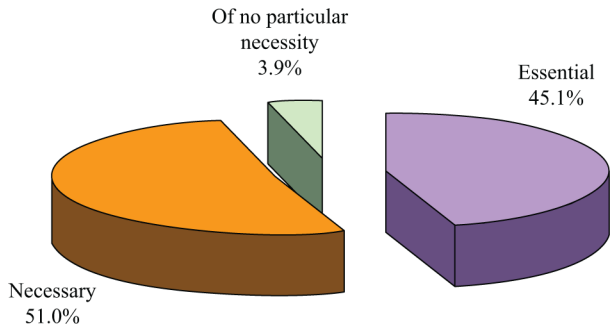

Figure 3.
Opinions on the necessity of certification of Greek forests for the production of timber from sustainable management

Greek timber enterprises forecast that the institution of "green" houses in Greece will grow within the next decay at least. The majority (42 per cent) declares that this will happen after ten years, while the same percentage forecasts a development during the next five to ten years (see Figure 5). GPs appear to be the most optimistic at a percentage of 22.2 per cent; they believe that the "green house" institution will be developed very shortly in three to five years, while the Ltds, in their bigger percentage (66.7 per cent), believe that "green" buildings will start creating some important current in the Greek market in five to ten years.

Green pricing

Figure 6 presents the additional percentage that the enterprises consider that consumers are prone to pay in order to buy certified timber from sustainable managed forests or those that are supplied with furniture products knowing that they have been produced using certified timber as raw material. Their majority (41.2 per cent) believes that it must not exceed a 1-5 per cent of their conventional value. The weighted average of this additional price amounts in 5,6 per cent. A similar research showed that this rate for the Finnish timber oscillates from 1-4 per cent.

Control X^2 showed that the additional percentage of money that the consumers would pay for the previously mentioned product is statistically related to:

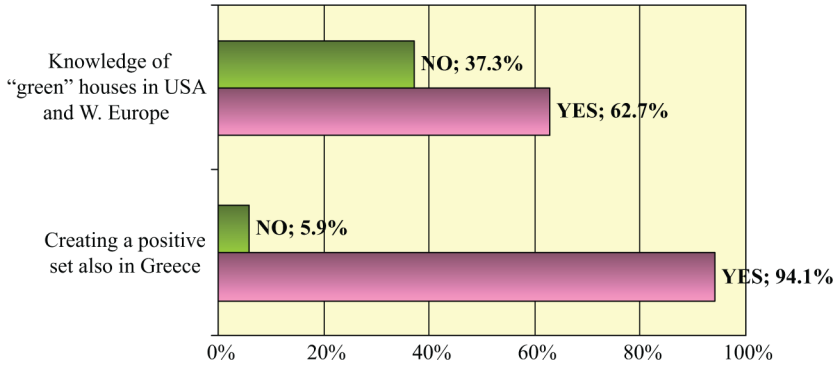

Figure 4.
Knowledge of the "green" houses movement in Western Europe and the USA, and prospects of creation of a positive current also in Greece

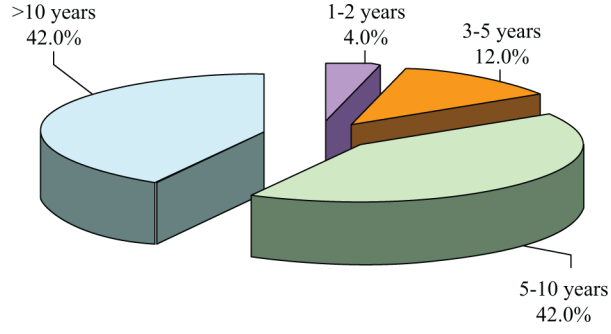

Figure 5.
Years in which a development of "green buildings" is expected in Greece

- the legal form of the sample enterprises (Pearson $X^2 = 37.249$, Cramer's $V = 0.465$ at a sig. level > 95 per cent, approx. sig = 0.011). That is to say, individual and GPs consider that this percentage should be the lowest possible (under 5 per cent), while the Trade Companies have the tendency to propose much higher percentages; and
- the annual turnover of the enterprises (Pearson $X^2 = 38.112$, Cramer's $V = 0.514$ at a sig. level > 95 per cent approx. sig = 0.034, Kendall's tau – c = 0.056), that is to say, the smaller the annual turnover of enterprises, the bigger the percentages they propose for the consumers to pay. Obviously they wrongly believe that it constitutes a good "occasion" in order to increase their income.

Figure 6 further presents the estimates made by the enterprises of the research sample that the demand of certified timber will lead to an increase of prices in comparison with the already existing relevant products in an average weighted level of 9.8 per cent.

A rather important divergence (4.2 per cent) is observed when comparing the two previously mentioned percentages, that is to say what consumers are prone to pay (5.6 per cent) and the increase in the prices of the market (9.8 per cent). It is the Greek market alone that eventually will show the price of balance.

Green marketing channels

Tables II and III present the proposed institutions which are directly or indirectly involved in the promotion and supply of certified timber from sustainable managed forests or general named "channels of internal communication". Their sorting showed that the sampled enterprises consider the wood working industries (mean 1.88) as the most suitable ones, followed by lumbermen and furniture producers.

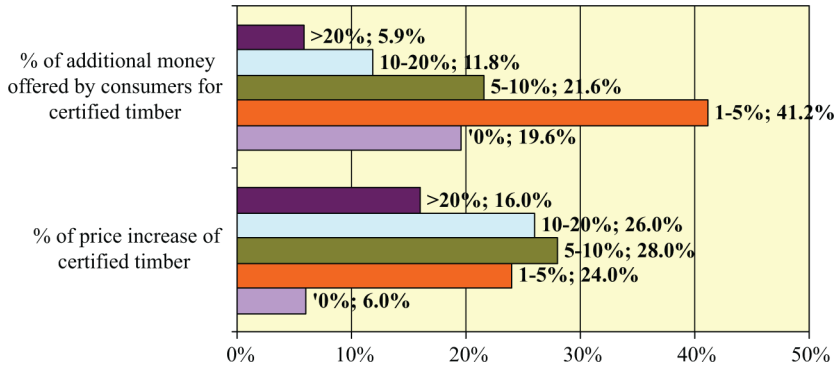

Figure 6.
Percentages (%) on a) price increase because of certified timber concerning "traditional – conventional" products and b) the additional money consumers are prone to pay in order to buy certified timber or furniture end-products which will guarantee safety and will emanate from environmentally protected regions

Table II.
Channels of internal communication through which the message of certified timber disposal is supposed to pass (scale 1-3 with 1 = most important)

A/α	Institution	Mean	Sorting (%) 1	2	3
1	Lumbermen	1.94	40.8	32.0	26.0
2	Timber-processing industry	1.88	24.5	48.0	26.0
3	Furniture producers	2.22	34.7	20.0	48.0

Among the institutions that support the timber and furniture sectors, that is to say the channels of exterior communication, Universities and Technological Educational Institutes appear to enjoy the biggest confidence. They are considered to be independent, objective institutions with specialised knowledge (mean 4.58). The public opinion makers (4.94) and the contractors – constructors (5.02) follow.

Control X^2 showed that the big confidence given by the asked enterprises to Universities and Technological Educational Institutes appears to relate statistically with the annual turnover of the enterprises (Pearson $X^2 = 70.051$, Cramer's $V = 0.569$ at a sig. level > 95 per cent, approx. sig $= 0{,}021$, Kendall's tau – c $= 0{,}052$). In fact, the smaller the annual turnover of the enterprises the more they entrust the institutions. This is due to the characteristics of the Educational Institutions that were mentioned before.

The relevant controls X^2 for all the institutions resulted that there does not exist any statistically important relation among them at least for a confidence level $>$ 90 per cent.

Green marketing communication – green promotion

The publicity and promotion of certified timber that comes from sustainable managed forests constitute a necessity for the 63.8 per cent of enterprises that participated in this research (see Figure 7).

Control X^2 elected that the previously mentioned necessity relates statistically significantly with the legal form of the asked enterprises (Pearson $X^2 = 25.453$, Cramer's $V = 0.571$ at a sig. level > 99.5 per cent, approx. sig $= 0.005$). The individual enterprises and LTDs consider this necessity much more important than the SAs which do not find certified timber's promotion to be substantial.

The concept of the promotional energies is presented in Figure 8.

α/α	Institution	n	Mean	SD
1	Universities and TEI	50	4.58	2.56
2	Public opinion makers	49	4.94	2.95
3	Contractors-constructors	50	5.02	2.45
4	State institutions	49	5.27	2.56
5	Private consumers	50	5.43	3.13
6	Architects	50	5.54	2.35
7	Government	50	5.74	3.89
8	Civil engineers	50	5.80	2.75
9	Interior designers	50	5.98	2.62
10	Public service	49	6.10	3.03

Table III.
Channels of exterior communication through which the message of certified timber disposal is supposed to pass (scale 1-10 with 1 = most important)

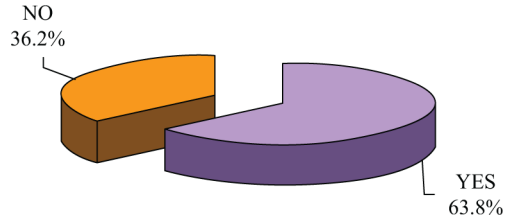

Figure 7.
The publicity and the promotion of the use of certified timber as a necessity in percentages

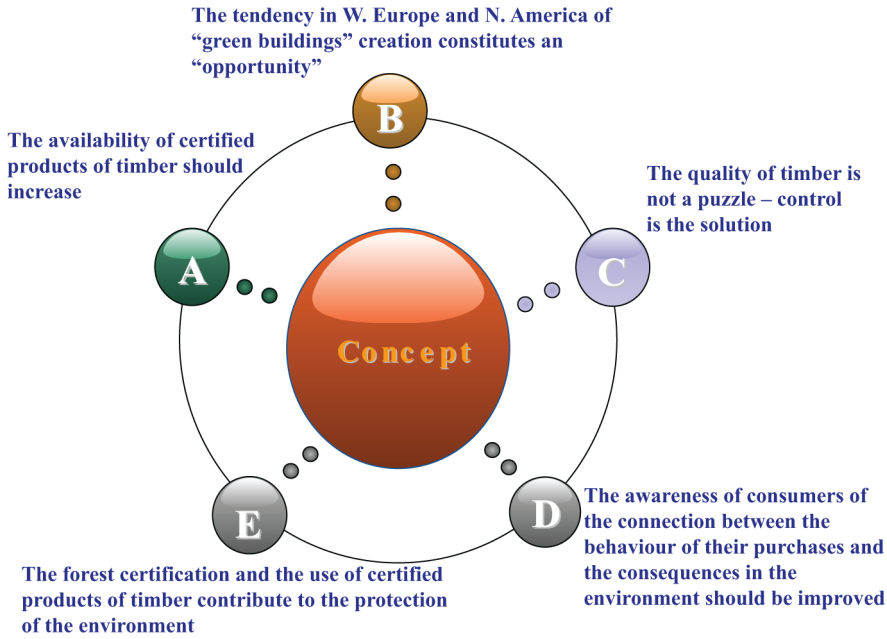

Figure 8.
The promotion concept of certified timber use

Communication actions proposed as "necessary" by the enterprises of the present research (see Table IV), are the traditional means (newspapers and magazines) ranking first at a percentage of 60.7 per cent and close behind the use of internet with the publicity of certified timber (that emanates from sustainable managed forests) in high visiting portals (50.5 per cent). The use of internet ranking high when evaluated as a means of communication was also noted in a relative research for the Finnish timber. There seems to be a rather small preference in collaborations with non-governmental organisations or consumers unions (28.1 per cent) as well as the use of internet through special web pages such as facebook, blogs, etc. Particularly the last mentioned media are not too familiar to the asked enterprises, which do not seem to know their effectiveness in the message promotion.

Table IV.
Percentage (%) of use of communication actions for the promotion of certified timber

α/α	Communication actions	Percentage	SD
1	Publicity in newspapers and magazines	60.7	31.8
2	Internet and portals of high visiting rate	50.5	33.1
3	Creation and frequent mail of material at professionals and technical companies	47.6	28.7
4	Frequent newsletters to SMEs and professionals	46.0	33.8
5	Organisation of events-meetings	39.1	26.6
6	Whole-page advertisements	39.0	25.4
7	Collaborations with non-governmental organisations, consumer unions, etc.	28.1	23.5
8	Internet through Facebook. Blogs. etc.	20.2	24.2
9	Other		

Press publicities could be communicated in Greek sector magazines (e.g. *Epipleon*, *Wood and Furniture*, etc.), or other sector bulletins that would be interested in such information such as engineering and interior design magazines, as well as decoration magazines addressed at consumers and Sunday newspapers.

The main aims of the events and meetings could be:

- the reinforcement of public environmental conscience;
- the encouragement for a wider use of timber;
- the emphasis on the quality of wooden manufactures and furniture production; and
- the diffusion of technical information on the products of timber.

The reflections

Table VI presents the reflections brought up in discussion by the enterprises referring to the entire subject of green marketing and the promotion of certified timber from sustainable managed forests, in order to specify suitable measures and limit any risk as far as possible.

The most important question they place is the extent to which consumers, market condition and the competition allow the turn to green marketing. The problem of the price, the guarantees and the economic benefits such as discounts – if any- that will support the product ranks second. Both questions are rated with a 4.15 (with 5 to mean totally important). Product cost accounting (3.89) receives an intermediate importance, while distribution channels and the network of intermediaries seam to only slightly puzzle them.

Since all 12 factors presented at Table V are related to each other, a cross-correlation analysis was contacted using Pearson correlation. The results are presented in Table VI.

At a significance level of 0.01 the factors that influence one another are:

- Raw materials, brand name, package, size, colour and general appearance of product called product characteristics from now on with the factor referring to distribution channels and more specifically networks of intermediaries (Pearson correlation coefficient = 0.462).
- Product Characteristics with the "best quantity of production" (Pearson correlation coefficient = 0.385).
- The factor about the capability of the existing productive capacity of enterprise referring to mechanical equipment, technical knowledge, building installations etc. to cover the new needs, with the one asking about the sufficiency of enterprises (salesmen, distribution means, employees in the marketing department, etc.) (Pearson correlation coefficient = 0.383).
- The factor dealing with the price, the guarantees and the economic benefits such as discounts – if any – that will support the product, with the Product Characteristics (Pearson correlation coefficient = 0.382).
- The factor of the height of new investments with the variable cost and the overload the constant cost, the disposal expenses, publicity and generally production (Pearson correlation coefficient = 0.377).

α/α	Communication actions	Importance	SD
1	The extent to which consumers, market conditions and the competition allow this development.	4.15	0.93
2	The price, the guarantees and the economic benefits such as discounts – if any – that will support the product	4.15	1.04
3	Raw materials, brand name, package, size, colour and general appearance of product	3.98	1.06
4	The capability of the existing productive capacity of enterprise referring to mechanical equipment, technical knowledge, building installations, etc. to cover the new needs	3.89	1.00
5	The variable cost and the overload of the constant cost, the disposal expenses, publicity and general production	3.89	1.07
6	The process and the time of replacement of traditional timber with certified	3.83	1.09
7	The height of new investments	3.78	1.05
8	The sufficiency of enterprises (salesmen, distribution means, employees in the marketing department, etc.)	3.74	1.11
9	The venture for the enterprise and the degree of uncertainty	3.60	1.36
10	The best production quantity	3.55	1.16
11	Choice among self-financing or other financing forms such as borrowing, leasing, etc.	3.53	1.21
12	Distribution channels and more specifically the network of intermediaries	3.45	1.23

Note: Scale of importance 1-5, with 5 = the most important

Table V.
Reflections for the production and disposal of certified timber

From the literature review (Stamou, 2005) it appears that the most basic criteria in order to make a decision on certified timber products correlate substantially with the additional profits which Greek enterprises will reap from the materialization of such a decision. They mainly refer to:

- The size of the recorded demand of certified timber products
- The sufficiency of this size that will be able to guarantee the change from the traditional enterprising policy to the one of certified products
- The positive probability of an increasing demand in the market of certified timber products
- The specific entrepreneur's expectations on certain advantages in this market
- The expectation of better prices of certified timber products against the prices of "traditional" ones
- The obligatory implementation of current relative legislation
- The competitiveness of enterprises in the creation and development of new products, when they have to produce and offer both "traditional" and certified products.

The profile of enterprises

The trade of products of timber is the exclusive activity for most enterprises (31.7 per cent), while only a 14.6 per cent are producers mainly of particleboards. The bigger

Variables	*t*-test	Pearson correlation coefficients 1	2	3	4	5	6	7	8	9	10	11	12
The extent to which consumers, conditions of market and the competition allow this development.	30.519	0.180											
The extent to which the existing productive capabilities of enterprises in mechanical equipment, technical knowledge, building installations etc. can cover the new needs	26.559	0.100	1.000										
The efficiency of enterprises (salesmen, means of distribution, employees in the department marketing, etc.)	23.075	0.235	0.383**	1.000									
The variable cost and the overload of the constant cost, the expenses of disposal, publicity and general production	24.994	−0.058	0.111	0.361*	1.000								
The best production quantity	21.047	0.017	0.201	0.112	0.260	1.000							
What are the channels of distribution and specifically the networks of intermediaries?	19.208	−0.064	0.215	0.308*	0.219	0.235	1.000						
Raw materials, brand name, package, size, colour and general appearance of product	25.350	0.312*	0.148	0.168	0.095	0.385**	0.462**	1.000					
The price, the guarantees, and the economic benefits such as discounts – if any – that will support the product	27.294	−0.082	0.327*	0.165	0.210	0.309*	0.218	0.382**	1.000				
The process and the time of replacement of traditional timber with certified	24.091	0.210	0.102	0.107	0.208	0.145	0.269	0.281	0.004	1.000			
The height of new investments	24.381	0.005	0.267	0.370*	0.377**	0.071	0.244	0.115	0.289	0.178	1.000		
Choice among self-financing or other financing forms such as borrowing, leasing etc.	19.959	−0.191	0.208	0.264	0.028	0.328*	0.187	0.196	0.160	0.037	0.239	1.000	
The venture for the enterprise and the degree of uncertainty	18.101	0.180	0.143	0.246	0.209	0.214	0.188	0.105	−0.186	0.289*	0.213	0.343*	1.000

Notes: * Correlation is significant at the 0.05 level (two-tailed); ** correlation is significant at the 0.01 level (two-tailed)

Table VI.
Pearson correlation coefficients of reflections on the production and disposal of certified timber

percentage (37.2 per cent) is individual enterprises, followed by SAs with a 30.2 per cent, GPs (20,9 per cent), Ltds (7.0 per cent) and Trade Companies (2.3 per cent).

The enterprises occupy roughly a mean of 23.8 employees. Small companies (ten to 50 employees) comprise the bigger percentage (47.5 per cent), micro firms (<10) the 40.0 per cent, medium ones (51-100) a 10.0 per cent and finally there is a 2.5 per cent with above 100 employees.

In their majority the enterprises are well established, with important experience and knowledge of the specific entrepreneurial landscape. They have been founded before 1990 at a percentage of 63.4 per cent, while there is also an important percentage (22.0 per cent) of companies founded during the last decade (after 2000).

Finally, regarding the annual turnover, the 38.9 per cent of the enterprises present a turnover of €1.000.000-5.000.000, the 25.0 per cent a €500.000-1.000.000, an 11.1 per cent above €5.000.000, while there is another 11.1 per cent with less than €100.000.

Conclusions – proposals

The Greek enterprises of the timber sector show a great interest in the protection of forests in the entire world against illegal loggings and traditional management. This big sensitivity of Greek enterprises appears to create favourable conditions for the promotion of certified timber that comes from sustainable managed forests. Bigger enterprises express relatively a weaker interest in the protection of forests.

The entrepreneurs encourage the certification of the sustainable management of Greek forests and believe that the trend towards green buildings will emerge also in Greece but at a slow pace. They forecast that the green consumers are prone to offer a premium of a 6 per cent roughly in order to buy certified timber products. The recent economic crisis may cause a minor delay in charging an "additional price". Nevertheless, it will not take long to be accepted, since the recovery of the building activities is forecast to raise also demand in "green" buildings over next two years.

Focus should be on an intense informative advertising, with a particular emphasis on "green consumers", who comprise the initial target – market.

Most institutions of higher education (universities and technological educational institutes) are trusted to be more capable of promoting the certified timber products. Publicity campaigns are proposed to be better, and more effectively contacted by newspapers, magazines, and the internet, by high visiting portals. The promotion campaign has to be carefully planned and fully supported. Furniture producers, timber traders and the entire wood industry play a significant role, since they are the direct stakeholders in green products promotion. They must be committed to collect and disseminate the relevant information, create attractive advertisements in order to arouse consumers' interest and undertake the risks.

Companies express fundamental thoughts and problems in the growth of this new timber market, mostly referring to the probabilities of such a development and the role of consumers, market conditions and the competition as well as the price, the guarantees and the economic benefits that will characterize the product.

The timber market depends directly on the growth of forestry. Synergies are necessary for the sake of the world economy and the protection of environment. It is well established that the certification of forests and timber products contributes in the protection of environment.

The structured strategy of green marketing can be seen as an antidote to the present economic recession as well as to future growth.

The timber sector should create and follow strategies and policies in order to constantly improve quality, pricing, innovativeness especially on environmental matters and fame. A high level of overall integration will allow the Greek timber sector to adequately meet external economic challenges, when the crisis settles.

The trend towards "green buildings" should be supported all over Greece. At the same time incentives should be given for Greek forests' certification, which are even today under informal sustainable management. Furthermore, the current development policy in Greece focuses on "green development", which appears the only feasible and viable solution for the country that both serves the human beings and respects the environment.

The implementation and promotion of the previously mentioned activities are essential for an effective publicity of certified timber. It requires however the involvement and combined actions of the relevant institutions such as confederations, higher education institutions, non-governmental organisations, editors, volunteers, etc.

Besides the conventional communication and promotion means, the so – called social media could be also used to present a fresh direction for certified timber marketing. Companies and institutions could create Facebook groups and blogs, such as "Green Buildings", "Forests under sustainable management", "Use of strictly certified timber products", etc.

Consumers should become aware of their power to contribute to environmental protection, even through the purchase of certified timber. Besides, they should become aware of the multiple benefits of timber coming from sustainable managed forests.

Literature review has shown that the majority of successful enterprises that trade certified timber products have incorporated environmental policies in their commercial strategies and practices.

Government's commitment to the implementation of key policy reforms is substantial. The Greek state is called to apply a sustainable economic development strategy for the forest industry, which will adapt to global developments and ensure the viability of forest exploitations. Policies should also be able to support and strengthen the intentions of enterprises to supply sustainable certified timber.

Green consumers seem to become a driving force behind how companies do business, and they are creating a new economy. The supporters of this new to Greece "green consumers movement" are more conscious and with a higher responsibility on natural resources' management and environment protection. Their number is constantly increasing in Greece, as all over the world and they are the main target groups for the producers of certified wood products. The proposed green marketing can only but assist companies' development and benefit the consumers, the state, the environment and the individuals. The research results will form useful and practical tools for the policy makers who are responsible for the planning and implementation of green development and green entrepreneurship policies.

Further research could be conducted to determine the intention of Greek consumers to use certified timber from sustainable managed forests after the diffusion of the present findings, as well as the intentions and culture of manufacturers and the building industry on the green buildings movement and the use of certified timber. The last ones exert a great influence on house buyers. The research could also help

revealing the intention of the state and its relevant authorities (e.g. ministries, chambers, forests inspections, organisations for the conservation of the natural environment etc) about the certification of already sustainable managed forests and the supply of more and stronger incentives to consumers in order to turn to certified wood products. The suggested research could offer more feedback for alternative policy implications, initiatives and incentives that encourage both enterprises and consumers.

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