

## GREEN WOODEN FURNITURE. DETERMINATION OF MARKET TRENDS AND TENDENCIES IN GREECE AND CYPRUS DURING ECONOMIC CRISIS

Papadopoulos, Ioannis <sup>1</sup>; Karagouni, Glykeria <sup>2</sup>; Trigkas, Marios <sup>3</sup>; Beltsiou, Zoi <sup>4</sup>

Department of Wood & Furniture Design and Technology, Technological & Educational Institute of Larissa, Karditsa, Greece, papad@teilar.gr<sup>1</sup>; karagg@teilar.gr<sup>2</sup>; mtrigkas@cereteth.gr<sup>3</sup>; zoibelt@hotmail.com<sup>4</sup>

### ABSTRACT

The present paper explores the tendencies of Greek and Cypriot furniture manufacturers to produce and/or dispose eco-friendly furniture in relation to relevant market trends based on consumers' intentions, production costs and prices. The study seeks to draw attention to the critical factors which will impact decision making on such products development within the severe crisis. 85 specially constructed questionnaires were selected in 2012, which were further elaborated and statistically analyzed with SPSS ver 17.0.

The results indicate an increasing interest of both Greek and Cypriot consumers for eco-friendly furniture, defining certain target-groups. Eco-furniture production will increase production costs at a rate of 11-15%. On the other hand, consumers are willing to pay a higher price of no more than 7-11% for eco-furniture.

Factors which constitute major concerns for enterprises in order to decide the turn to eco-furniture can be categorized into three groups: economic and investing, firm resources and marketing.

**Keywords:** *Green Wooden Furniture, Furniture Markets, Greece and Cyprus Furniture enterprises, Market research, economic crisis*

## 1. INTRODUCTION

### 1.1 *Green wooden products*

Nowadays, environmental and ecology issues constitute an imperative concern for a major part of the global population and entrepreneurs (Allen and Malin 2008; Schaper 2002; Larson 2000; Adeoti 2000). There is a relatively growing trend towards both production and purchase of “green” products and services even during the economic recession (Nidumolu et al 2009; Chamorro et al 2009; Bleischwitz et al 2009).

For the purposes of the present study, we define as “eco-furniture” or “green” furniture, a product of furniture designed to minimize the environmental impact during its whole life-cycle (Albino et al 2009; Baumann *et al.*, 2002) and thus furniture with characteristics of environmental compatibility, taking into consideration all the stages in furniture life-cycle (Alhola 2008; Progetto Life, 2005).

The number of companies interesting on environmental performance which address their environmental effort early in the supply chain is increasing (Frondel et al 2007; Epstein and Roy 2006). Concepts such as design for environment, eco-design, extended producer responsibility and product stewardship are becoming more and more common in corporate culture (Santolaria et al 2011). Design for environment has been defined as the systematic process through which products are designed in an environmentally conscious way (Fiksel, 1996), while for eco-design the environment becomes a co-pilot in product development (Brezet and van Hemel, 1997).

### 1.2 *Goal and scope definition*

The practical motivation for this study arises from the continuously intensified competition on international markets and the question of ways for wood products industry to maintain its competitiveness in these markets. The core aim of the present research is to explore the viability of the ecological furniture niche markets in Greece and Cyprus. More specifically, we investigate the current demand on ecological furniture, manufacturers’ estimates on the increase of production costs and the prices relevant customers are willing to pay. Finally, particular emphasis lays on the analysis of the factors that will support decision-making of Greek and Cypriot enterprises in order to incorporate ecological furniture into their current activities.

## 2. LITERATURE REVIEW

### *2.1 Eco-furniture market. Creating value for customers through innovation*

Many observers claim that pressures of global competition, the fragmentation of markets into smaller segments, and the rapid pace of change in many industries indicate that companies' product development capabilities are crucial determinants of business success (Brown & Eisenhardt, 1995; Schilling & Hill, 1998).

The European Union is one of the largest producers, traders and consumers of wood products in the world (European Commission, 2012). The furniture industry is basically an assembling industry which employs different raw materials (wood as well as metals, plastics, leather etc) to manufacture different products. At present, the European furniture industry has a strong image worldwide thanks to its high level of quality, not only at a technical level, but also at an aesthetical one. However, there is a growing concern about the environmental effects derived from goods production and use as well as on how they are disposed of at the end of their life cycle (Humphrey and Schmitz, 2001). Several eco-labels have developed criteria for furniture. The demands in eco-labeling arise on the basis of a lifecycle perspective (Swedish EPA, 2002). Eco-design or Design for Environment (DfE) refers to the systematic incorporation of environmental factors into product design and development and may play an essential role (Tukker et al., 2000).

The decision in new products development, such as eco-furniture constitutes one of the basic issues of the company's business strategy in order to gain a significant market share. Nowadays, the furniture sector is paying special attention on environmental and innovative concerns due to the aim of distinguishing its products from other competitors as well as its entrance into the emerging market of green products (González-García et al. 2012).

On the other hand, marketing scholars and practitioners alike highlight the central role of customer perceived value, or customers' overall assessment of the utility or worthiness of an offering in impacting their purchase decisions (Anderson, 1995; Gao, Sirgy, & Bird, 2005; Woodruff, 1997). For the enterprises, being able to provide high product quality and value for customers has been considered a key element for improving competitiveness (Lindgreen and Fynstra, 2005; Sweeney and Soutar, 2001). Several studies conclude that "environmental friendliness" has a major influence on furniture purchase decision and customers are willing to pay an extra 2 - 16% for eco-labeled furniture (Papadopoulos et al. 2010; Veisten 2007). Thus they give the opportunity to manufacturers to capitalize on their ready access to

sustainable, commercially cultivated timber sources to strengthen their position (Morris and Dunne 2004).

Starting from this premise of the importance of environmental issues as strong drivers for innovation along with unexpected changes in markets (such as markets during crises), new product development and innovation projects are facing obstacles of several kinds (Damanpour, and Gopalakrishnan 1998). This limitation is especially salient in adoption contexts involving expensive, discontinuous, and technologically complex innovations, where the stakes, costs, and risks are particularly high. In such decision contexts, manufacturers' innovation value assessments naturally take place in high risk situations (Gao et al. 2012). Awareness of the competitive advantage of an eco-furniture product, which encompass not only the environmental aspects but also other aspects such as product quality and consumer satisfaction, could temper any hesitations in related investments (Park and Tahara 2008; Penttinen 2005).

## **2. RESEARCH METHOD**

The primary data collection and elaboration followed the methodology of gathering, processing and editing according to the basic principles of marketing research (Gordon and Langmaid, 1988; Tull and Hawkins, 1990; Doyle, 1998; Aaker et al. 2004; Siomkos and Mavros 2008). Questionnaires were specially constructed for the purpose of the study with short and precise questions. The research was conducted by skilled researchers who addressed directly the entrepreneurs or executive members of the firms by personal face-to-face interviews.

The questionnaire was divided in three groups of 34 questions in total. The first group contained 9 about the profile of each firm. The second group contained 19 questions about the production and marketing of ecological furniture. The third group entailed 6 close-end questions about general aspects regarding consumers' ecological sensitivities such as protection of the environment, green marketing and question on production and marketing difficulties in Greece and Cyprus.

The study was conducted during 2012. We collected data from a random sample of 85 questionnaires; 36 Greek furniture enterprises, 25 Cypriot ones and 24 sectoral experts and relevant institutes in Greece and Cyprus. 91 questionnaires were collected representing approximately the 10% of the total sectoral population. A pilot questionnaire was applied in

five enterprises in Greece and Cyprus. The pilot research enabled the reformation and improvement of the questionnaire according to Dillman (2000).

Data were processed and analyzed using the statistic package SPSSWIN ver 17.0 and all the related tests of Frequencies, Descriptives, Crosstabs, Analysis of Variables Independency using chi-square criterion, Correlation analysis and Analysis of variance - T-test were made (Norusis, 2007; Howitt and Cramer, 2003).

The construct validity was based on the test of unidimensionality of the elements constituting each factor, as well as the content validity of each factor separately. We used Factor analysis according to the method of Principal Component Analysis. Regarding the content validity of the research variables, the statistical factor of Cronbach's Alpha was used (Siomkos and Vasilikopoulou 2005, Chantzoudis *et al* 2009, Sarigiannidis *et al* 2009).

### 3. RESULTS

It is rather interesting that although most firms (73.5%) know the benefits of adopting the EU ecolabel, only a 16.4% has adopted some kind of eco-labeling and only recently. In fact retailers are more related to eco-labeling and tend more to use it for their products than furniture manufacturers (Pearson  $X^2 = 5.153$ , Cramer's  $V = 0.306$  at a significance level  $> 90\%$  Approx. Sig= 0.076).

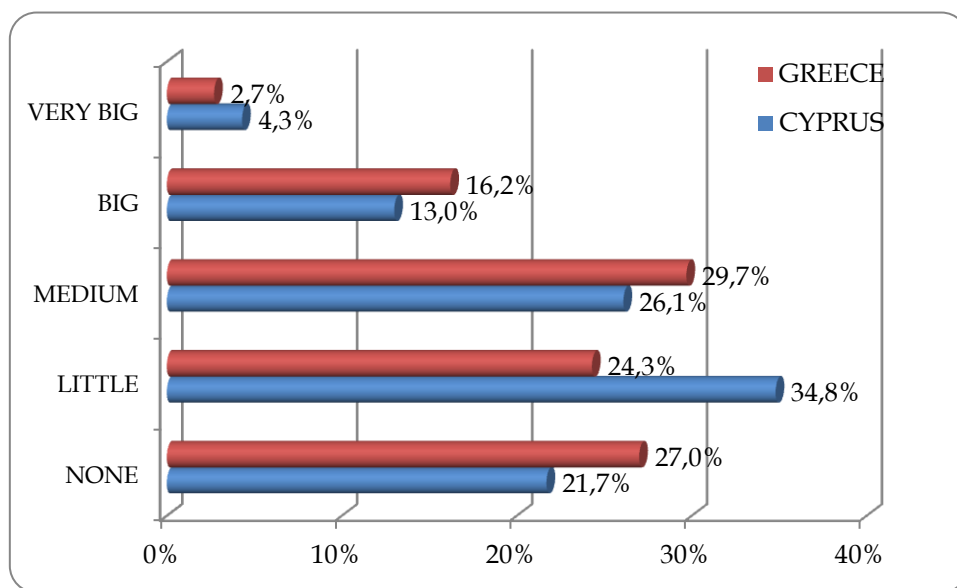
In spite of the severe economic crisis in Greece and Cyprus, the sampled firms admit that consumers in their majority are moderately or very little interested in ecological furniture or woodworking in general (54.0% and 60.9% respectively, Figure 1). A percentage of 18.9% and 17.3% respectively are conscious consumers of the above product categories and can constitute the ideal target groups.

The  $X^2$  control revealed that this interest is statistically significantly related to the number of company employees (Pearson  $X^2 = 25.808$ , Cramer's  $V = 0.392$  at a significance level  $> 95\%$  Approx. Sig= 0.011). This indicates that bigger companies have customers who are more sensitive to ecological issues and, by way of consequence they are more interested in buying eco-furniture.

Besides the rather negative current attitude, firms estimate that ecological furniture will increase prices at about 15% in average in relation to conventional furniture in Greece and at

about 11% in Cyprus with a significant statistical relation of price increase percentage and country of sales (Pearson  $X^2 = 12.700$ , Cramer's  $V = 0.389$  at a significance level  $> 95\%$  Approx. Sig= 0.013). A further analysis showed that manufacturers estimate a price increase of 15.5% and retailers of 12%.

Interestingly enough statistical analysis indicated that the smaller the employees number, the bigger the price increase as estimated by company managers (Pearson  $X^2 = 32.677$ , Cramer's  $V = 0.437$  at a significance level  $> 99\%$  Approx. Sig= 0.001).

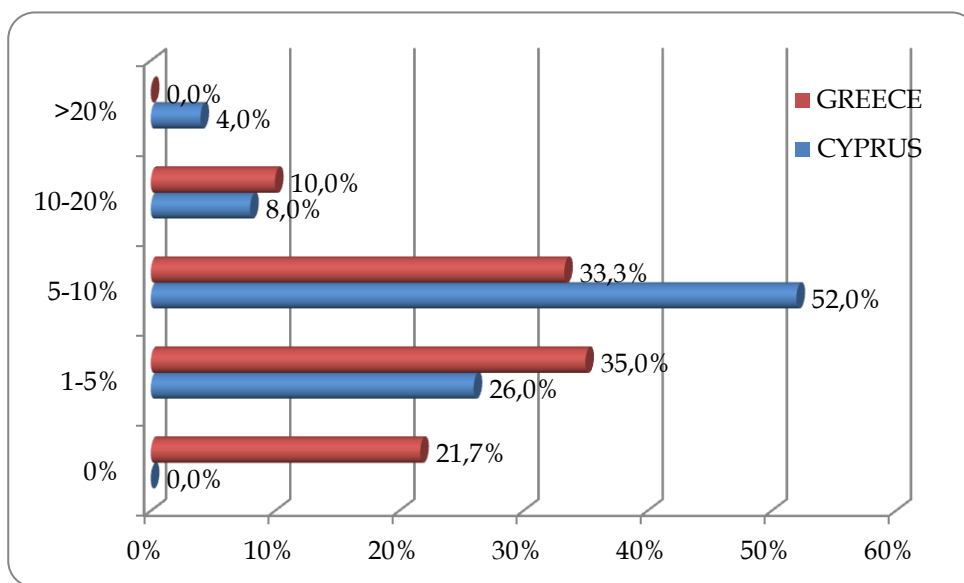


**Figure 1.** *Tendency of sampled firms' customers to buy ecological furniture or other ecological wooden products*

An important question of the research referred to the intention of consumers to buy ecological furniture by paying an additional amount of money compare to conventional furniture. Cypriot entrepreneurs believe that their customers would be willing to pay an average of 11% more money in order to buy eco-furniture. Therefore, it seems that entrepreneurs and consumers' estimations converge regarding the added value of eco-furniture. On the contrary, Greek consumers seem reluctant to pay an additional amount of more than 9%. This results to a difference of 6% between suggested prices of suppliers and customers. A relevant research of Papadopoulos et al. (2010) denoted that Greek consumers are willing to buy eco-furniture at prices of only 6% higher than the ones of traditional furniture. A significant percentage of 21.7% has declared that they will not pay more to buy any type of ecological furniture. This was rather expected due to the severe financial and public debt crisis in Greece (Figure, 2).

Crosstabs analysis confirmed further that bigger companies have customers who are more sensitive to ecological issues and are more interested in buying eco-furniture. This customers' percentage is significantly related to a) the firms' turnover (Pearson  $X^2 = 33.066$ , Cramer's  $V = 0.395$  at a significance level  $>95\%$  Approx. Sig= 0.033) and b) the number of employees (Pearson  $X^2 = 17.592$ , Cramer's  $V = 0.318$  at a significance level  $>95\%$  Approx. Sig= 0.040).

Greek and Cypriot target groups present some differences. Greek potential consumers of eco-furniture are mostly women (86.8%), between 25-34 years old (63.2%), married with one or two children (68.4%) and academic background (68.4%). They are freelancers (52.6%) with a monthly income of 2-3,000 € (47.4%). They usually have a house of 100-150 sq.m. (39.5%). Cypriot potential consumers of eco-furniture are women (60.0%), between 25-34 years old (40.9%), married with one or two children (41.2%) with a monthly income of 2-3,000 € (36.4%). Yet, they are high school graduates (47.6%), work in private sector (33.3%), and they have bigger houses than Greeks (150-200 sq.m., 44.4%).



**Figure 2.** Percentage of additional charge of eco-furniture that sampled firms' customers are willing to pay.

### 3. 1. Issues of concern

Table 1 presents insights and speculations provided by the entrepreneurs who participated in this research regarding eco-furniture production or retail investments and relevant decision-making. More specifically, they question issues on preconditions and information needed to eliminate risks regarding green marketing and certified sustainable wood promotion.

Greek wood and furniture entrepreneurs' major concerns refer to the business risk and the size of uncertainty that the company encounters in case of choosing a green marketing strategy as well as the size of the new investment. These two factors were ranked first and second (4.29 and 4.11 respectively with 5 to be the most important). In the mid of severe economic crisis and lack of liquidity it is rather normal for Greek companies to be very conscious on the type of new investments. On the contrary Cypriot firms (*we remind that the research was contacted before the severe crisis in Cyprus*) did not show any anxiety against new investments. Current developments verify our former assumption that there would be a 1.5 -2 year time lag of the consequences of the economic and fiscal recession in Cyprus (see Papadopoulos et al., 2012). At the time of the research, Cypriot firms were more concerned on a) Prospective price, guarantees, potential discounts, and economic supplies of the products (3.76) and b) raw materials, trademarks, packaging, size, colors and product view in general (3.71).

<i>a/α</i>	Questions regarding certified wood	Importance	
		Greece	Cyprus
1	business risk and size of uncertainty	4.29	3.50
2	Investment size	4.11	3.68
3	Prospective price, guarantees, potential discounts, economic supplies of the products	4.00	3.73
4	Questions on raw materials, trademarks, packaging, size, colors and product view in general	3.95	3.76
5	Best ways for fund sourcing: own funding, borrowing, leasing etc	3.84	3.71
6	What will be the variable cost and how will fix cost be charged? What about promotion and production costs?	3.68	3.68
7	What will be the process and the time needed to replace conventional wood with certified wood?	3.62	3.26
8	Do consumers, market conditions and competition allow for such changes?	3.45	3.22
9	Can existing production facilities, know-how etc support this new business concept?	3.45	3.23
10	Can existing resources (sales, channels, human capital etc) support this new business concept?	3.34	3.17
11	What is the optimum production quantity?	3.30	3.62
12	Which are the specific distribution channels and the relevant intermediaries' networks?	2.81	3.14

**Table 1.** Concerns on production and launching of certified wood (importance rating from 5 to 1 with 5 to be the most important)



Since all the 12 above factors of Table 1 seem to relate to each other, a Pearson correlation analysis was conducted. The results are presented in Table 2. Some factors which present a positive relation to each other at a significance level of 0.01 when a firm turns to production or sales of eco-furniture are:

- a) The bigger the business risk and the size of uncertainty, the bigger is the concern on a) the investment size (Pearson correlation coefficient = 0.617) and b) the source of the capital needed (Pearson correlation coefficient = 0.581).
- b) The more consumers, market conditions and competition allow for the ec-furniture development, the more willing firms are to invest on production capacity, process equipment, know-how etc and produce eco-furniture (Pearson correlation coefficient = 0.599).
- c) The more the market pressure for changing from traditional to certified wood as a raw material to eco-furniture, the bigger the price of final products. In parallel, guarantees and economic supplies will also increase (Pearson correlation coefficient = 0.523).
- d) The higher the new investment size a) the sooner the firm will decide and replace traditional with certified wood (Pearson correlation coefficient = 0.611) and b) the higher the price of the final products. In parallel, guarantees and economic supplies will also increase (Pearson correlation coefficient = 0.567).
- e) The higher the variable and fixed costs as well as the costs of production and promotion of eco-furniture, the higher the product price, guarantees and economic supplies will also increase (Pearson correlation coefficient = 0.517).

Additionally, at a significance level of 0.05, raw material, trademarks, packaging, size, color and product view in general will impact the distribution channels and more specifically the intermediaries networks (Pearson correlation coefficient = 0.464). This results was also evident in our former research (Papadopoulos et al., 2011).

The reliability test (Cronbach's Alpha = 0.815) of the above concerns' importance and the relevant decision making indicates that the deterministic variables (responses) are concrete and reliable structures, capable to contribute to the measurement of the factor they belong to. Factor analysis after the factor matrix rotation showed three major factors: financial and investment factor (variables 10, 11, 9, 12, 4, 8 of Table 1), company resources according to the market demand (variables 2, 1, 3 of Table 1), marketing (variables 5, 6, 7 of Table 2). These 3 factors have quite high eigenvalues which reach the 63.2% of the total variation.

Cronbach a (Alpha) are 0.858 for the first factor, 0.584 for the second and 0.719 for the third one. Besides the relatively low reliability of the second factor, the total reliability is quite high and significant (Siomkos and Vasilokopoulou 2005).

<i>Variables</i>	Pearson correlation coefficients											
	1	2	3	4	5	6	7	8	9	10	11	12
1. Do consumers, market conditions and competition allow for such changes?	1											
2. Can existing production facilities, know-how etc support this new business concept?	.599*	1										
3. Can existing resources (sales, channels, human capital etc) support this new business concept?	.284*	.397**	1									
4. What will be the variable cost and how will fix cost be charged? What about promotion and production costs?	.273*	.255*	.241*	1								
5. What is the optimum production quantity?	.043	.063	.100	.356*	1							
6. Which are the specific distribution channels and the relevant intermediaries' networks?	.174	.277*	.261*	.310*	.464*	1						
7. Questions on raw materials, trademarks, packaging, size, colors and product view in general	.118	.024	.046	.284*	.274*	.417*	1					
8. Prospective price, guarantees, potential discounts, economic	.294*	.253*	.169	.517*	.216	.274*	.420*	1				

<i>Variables</i>	Pearson correlation coefficients											
	1	2	3	4	5	6	7	8	9	10	11	12
supplies of the products												
9. What will be the process and the time needed to replace conventional wood with certified wood?	.310*	.240*	.133	.359*	-.022	.077	.165	.523*	1			
10. Investment size				.469*	.074	.071	.251*	.567*	.611*	1		
11. Best ways for fund sourcing: own funding, borrowing, leasing etc	.315*	.161	.227*	.357*	-.015	.150	.179	.494*	.585*	.674*	1	
12. business risk and size of uncertainty	.292*	.325**	.253*	.362*	-.077	.000	.098	.353*	.433*	.617*	.581*	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 2:** Pearson correlation coefficients of concerns on certified wood production and disposal

#### 4. CONCLUSIONS - PROPOSALS

Besides the rather severe consequences of the crisis on the Greek and Cypriot companies, eco-labeling and the related social responsibility are considered by them as very important. There is an increasing trend towards eco-labels for furniture and harmonization with the statutory ones be EU. However we should mention that none of them is totally suitable for all market sub-sectors and market criteria (European Commission 2008).

On the other side the analysis indicate a moderate to minor trend towards eco-furniture both in Greece and Cyprus. This is due to the severe economic crisis which caused a significant fall of the buying power (mainly in Greece for the time being). Customers of big companies seem to be more interested in eco-furniture; they are mostly women over 35 years old with high educational level and a monthly income of 2 to 3,000 €.

Price is a major determinant of the buying decision. Consumers report willing to spend an additional amount of 6 and 11% in Greece and Cyprus respectively on eco-furniture (compared to conventional furniture).

However, eco-furniture can constitute a significant competitive advantage for both Greek and Cypriot firms, especially after the recovery of the long-lasting recession. This is due to their focus on sensitive environmental issues and the arising markets of green products. Nedmark (1998) had even then indicated that firms which use environmental friendly raw-materials are able to improve their products and facilitate entrance in relevant markets. "Green Entrepreneurship" is according to recent literature (Trigkas et al 2011; Nikolaou et al. 2011; Rodgers, 2010; Zisis 2003) among the most important contemporary types of entrepreneurship. It regards the environmental dimension as an opportunity instead of a threat offering differentiation and affecting performances in positive ways.

The main obstacle that seems to exist is the business risk that such a turn to eco-furniture production and/or selling can cause. Yet, existing relevant cases indicate that this risk can be eliminated by a proper market research and a thorough analysis of certain factors which according to the present research are a) financial and investing factors, b) existing resources according market demand and c) effective marketing of the relevant firms. Considering that risk is inevitable in any type of investment, decision making is quite important and should be based on strictly organized methods and practices in order to be effective. Quoting Jim Rohn (2011) «*You cannot make progress without making decisions*», especially in difficult market conditions as the existing ones.

A major contribution of the present research is that it can constitute a useful basis for policy makers at governmental and institutional level in both Greece and Cyprus to encourage close collaborations of companies to academia, design and research centers for the sustainable development of the sectors through the eco-friendly practices and relevant innovations. In 2004 such an action took place in Finland (Finnish Furniture Panel, 2005; Nissinen and Parikka, 2007). A significant result of that project was the development of extensive networking which assisted the diffusion of information as well as of a pertinent culture on eco-products. There are many other actions which show the growing importance of the issue (Ecosmes, 2005; Nordic Eco-labeling, 2003; GRIP, 1998). A similar Greek research project, named e-furniture develops e-collaborations among non-competitive wood and furniture companies (<http://inflab.kard.teilar.gr/e-Furniture/index.php/en/>).

The present research is the first at Greek national level to question the significance of eco-wood and furniture products. It seems that it has indirectly contributed to eco-furniture culture development, since it has caused a fruitful brainstorming among sectoral entrepreneurs and offers solutions to the existing "cul-de-sac". We consider the changing of the entrepreneurial culture as the most important issue in order to achieve the turn to green entrepreneurship. According to the known Indian writer Pantatzali of the 3rd century B.C. *"When you are inspired by high aims and exciting plans, then your thoughts cast off, your brain transcends limitations, your consciousness is widened at all directions and you find yourself in an new, bright world full of miracles. The sleeping powers, your abilities and talents come to life and you find out that you are somebody greater than what you could ever imagine to be"*.

The present research has its certain limitations. Further research could extend to the exploration of the preferences, trends and specific buying attitudes of eco-furniture at certain sub-sectors as well as the strategic positioning of the relevant firms (a relevant study of AUEB, Avlonitis 2011).

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