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***PROCEEDINGS OF
THE 6TH JOINT CONFERENCE ON
FOOD, AGRICULTURE
AND THE ENVIRONMENT***

EDITED BY

**TIZIANO TEMPESTA
MARA THIENE**

UNIVERSITY OF PADOVA

UNIVERSITY OF MINNESOTA

1998

The Proceedings of Sixth Joint Conference on "Food , Agriculture and Environment", University of Minnesota, in honor of Philip Raup. Sponsored by Center for International Food and Agricultural Policy "The Retail Food and Agricultural Policy". With participants: University of Padova, Bologna, Firenze, Perugia, Piacenza, Siena, Alberta, Wisconsin.

The environmental management systems certification in the forestry sector in Italy

Franceschetti Giorgio¹, Pettenella Davide, Secco Laura
University of Padova, Italy

1. Introduction

Market demand for green products emerged during the 1980s, almost entirely in Developed countries, and since the 'green consumer' has exerted environmental pressure in a variety of sectors, which varies from country to country. In general, countries outside Europe and North America are experiencing very little environmental pressure; within Europe, Italy, France, Portugal and other Mediterranean countries demonstrate a low level of awareness compared to the UK, Germany and the Netherlands (Upton et Bass, 1995).

However, Italy and other European countries are being forced to consider the attitudes of consumers and market demand for green products elsewhere. In the case of Italy this is due to the fact that large volumes and values of tropical timber and more recently of temperate timber are used to make furniture and paper which is exported to other countries, especially within European market. Thus, the Italian timber trade is highly exposed to public attitudes and consumers preferences in export markets. Main importing countries are Germany, France, UK and other markets where environmental problems are much widely considered than in Italy. This situation could bring on the near future more attention to eco-labelling schemes at least in export-oriented companies.

With the broad objective of analyzing problems and perspectives of eco-certification in Italy, in the first part of the paper the two most important environmental certification schemes, respectively established by the International Standards Organization (ISO 14001/04) and the Forest Stewardship Council (FSC), are briefly described and compared. Main problems for the implementation of eco-certification schemes in Italy are related to the prevailing small and medium-size of forestry properties. As an example of these problems, the paper presents the experience of an alpine community forest property recently certified, which represents the first case of eco-certification not only in Italy but in the whole Alps area. Finally, some concluding remarks on market perspectives for eco-certification of wood products are briefly presented.

1.1. The two main schemes for environmental and forest certification: ISO and FSC

A certification scheme must have standards of sustainable forest management as basic components, which are used as reference indicators in assessment of applicants. Two types of standards, which represent two different approaches to forest certification, are currently available (Baharrudin et Simula, 1996; Elliott et Hackman, 1996):

- *procedural (management) standards*, which define the characteristics of the Environmental Management System (EMS) to be applied. These standards characterize the so-called *system-based approach*, generally adopted by ISO;

¹ The paper was devised and its redaction coordinated by Giorgio Franceschetti who has drawn up sections 1,3,5. Section 4 is written by Davide Pettenella and section 2 by Laura Secco.

- *performance standards*, which establish quantitative and qualitative targets or indicators against which assessment of forest conditions or management interventions can take place. These standards characterize the so-called *performance-based approach*, adopted by FSC.

The international debate is currently heavily focused around ISO and FSC, but the question on which approach (ISO, FSC, or even ‘mixed’ approaches) will offer effective forest management certification is still open.

At present, the *Forest Stewardship Council* (FSC) and its 5 accredited certification agencies offer the only established international system of forest management certification, through the provision of global Principles and Criteria (i.e. performance standards which are explicitly for certification), a centralized accreditation program, a trademark for products from certified forests and a communication program (FSC, 1996).

The *International Standards Organization* (ISO), through its ISO 14000 series, offers a framework for the certification of Environmental Management Systems (EMSs), which, however, does not specify forest management performance standards and does not permit a label to be attached to products (Bass, 1997). Although not explicitly for certification, the ISO 14000 framework includes many relevant elements for assessing the environmental quality of forest management.

Although both ISO 14001 and FSC aim to improve environmental performance, they are very different in structure and operation. Their respective approaches with respect to forest auditing are only partly compatible, but both valid in assisting enterprises to improve performance and to gain access to markets.

1.2 The ‘ISO approach’

- ISO as organization is a worldwide federation of national standards bodies (only one from each country) which drafts international standards for all sectors, based on the approval of voting members participating in the work. ISO is a non-governmental body existing since 1947 and recognized by WTO and governments as the competent body for developing international standards, which may then be reflected in legislation (Bass, 1997).
- ISO has originally focused on technical standards for products. More recently it has concerned also production systems and processes, quality management systems (through ISO 9000 series) first and environmental management systems (through ISO 14000 series) later. It does not itself certify or accredit, but provides a set of internationally accepted rules for the accomplishment of credible accreditation and certification (Forest Certification Committee, 1997). There is nothing specific to forestry.
- ISO is representative of industry (producers, private forest owners), some large corporate buyers and most governmental bodies. ISO 14001 was developed for commercial enterprises and government bodies world-wide that need standardized products and processes to work together. It is, therefore, oriented towards enterprises making decisions appropriate to local circumstances and to its own capacity (rather than the public decisions-making) (Bass, 1997). ISO tends, therefore, to have greater credibility with established governmental bodies and larger corporations, while it has been criticized by environmental and social non-governmental organizations (NGOs), indigenous peoples groups and the cultural, social and economic business environments of many developing countries (they do not have good access to participatory process of standards development).
- The main purpose of ISO 14001 is to specify the elements of an enterprise’s management system allowing the enterprise to recognize the opportunities for constantly developing its EMS and, consequently, for continuous improvement of its environmental performances. The

targets and rate of improvement are defined by the enterprise itself. Process standards are internal management tools.

- ISO 14001 - EMS standards are management system-based (procedural standards). Performance standards are not specified, even though ISO (through its TC207 technical committee) has produced an information document that sets out the various forestry performance standards (including the FSC P&C) that an enterprise might wish to consider in setting its own standards (the approach is not normative) (ISO/TC207/WG2, 1998). The fact that ISO allows performance standards to be defined by the enterprise is appropriate if this indeed ensures that performance matches local needs towards sustainable forest management. The risk is if it allows below-best-practice approaches. Moreover, social performance standards are more difficult to be integrate rather than environmental performance standards in the ISO 14001 scheme (Bass, 1997).
- Third-party certification ISO 14001 which demonstrates the enterprise's environmental management system is up to the optional targets established by the enterprise itself (the EMS is certified rather than the forest). Such a certification cannot be used for labelling products, but only for general publicity. Regarding ISO approach credibility with the market, ISO 14001 is not helpful in generating consumer awareness, neither retailers promoting precise enterprise's performance in the forest. The risk is that producers may use ISO 14001 as a 'false' label, which may create consumer confusion. Moreover, there is much potential confusion about first- and third-party claims, both of which are allowed under ISO 14001 (Bass, 1997).
- Trade distortions appear to be minimized within ISO approach. The WTO Technical Barrier to Trade (TBT) Agreement, which obliges the use of any international standard if it exists and is locally feasible, recognizes ISO as the competent body for developing international standards. ISO standards are considered not to present unnecessary trade restrictions and ISO 14001 is not prejudiced against any country or type of forest.

1.3 The 'FSC approach'

- ◆ FSC is a non-governmental body which has been set up as a specific accreditation body for forest management certification and labelling. However, its rules are based on those established by ISO. The FSC accredits certification bodies which carry out forest management assessments in accordance with the FSC's Principles and Criteria of Sustainable Forest Management (Forest Certification Committee, 1997). FSC as organization is an association formed and controlled by its members (private producers, peoples and workers organizations) which are committed to FSC's rules in supporting environmentally appropriate, socially beneficial, and economically viable management of the world's forests.
- ◆ FSC was designed precisely to deal with contemporary forest problems, and with environmental problems in particular (Bass, 1997). FSC is representative of environmental and social NGOs (notably World Wide Fund, WWF) concerned about weak government and uncontrolled business. It has a community approach, which stresses the impact of enterprises on forests (environmental impact) and outside interested groups (social impact). In addition, there are some key retailers organized into buyers' group in Europe supporting FSC certification, which adopt certification mostly because they wish to maintain an overall "green" image. FSC, however, has credibility also with industry and governmental bodies, because their representatives are participating in FSC work and because of the rigorous FSC accreditation and business procedures (based on ISO guidelines). There could be the risk of a lack of credibility if FSC's accredited certification body were found to be involved in fraud or merely poor judgment (Bass, 1997; Centeno, 1996).

- ◆ The main purpose of FSC is to define good forest stewardship through comprehensive national standards based on global principles and criteria of sustainable forest management; to accredit certifying bodies that certify forest management performance according to such standards; and to provide a trademark which can be used in labeling products from certified forests. Third-party certification is, therefore, essential.
- ◆ FSC Forest Certification is based on 10 global Principles and associated Criteria (P&C) of sustainable forest management (SFM), which are both qualitative and quantitative and can be applied to all world's forests (FSC, 1995). The approach is normative. Forest managers and certification body either interpret the global P&C directly or then national standards are interpreted (where they have been defined by national FSC working group) (Bass, 1997). Incompatibilities with SFM might arise with external stakeholder and certifier's interpretation of standards: they sometimes cannot understand the local ecological or silvicultural importance of certain issues.
- ◆ FSC has high credibility in certain markets in developed countries, notably North-West Europe (where buyers' group are growing) and North America. Nevertheless, there are still difficulties in ensuring adequate supplies of certified products (Bass, 1997), mostly because of chain-of-custody assessment problems.
- ◆ Regarding trade distortions, some risks are empirically present within FSC approach. While environmental standards are permissible under the 'WTO Code of good practice on Technical Barriers to Trade (TBT)', social standards might result in discrimination e.g. not allowing enterprises to make use of comparative advantages presented by low labor costs in a country (Bass, 1997). Moreover, international FSC standards could be higher than is needed to meet domestic environmental objectives, thus resulting in discrimination against those forest producers or countries which are not able to meet them. Finally, it is important to remind that the TBT Code is in favor of ISO standards (Bass, 1997).

The main features of the ISO 14001 EMS standard and the FSC system are briefly compared in Table 1.

Table 1 - A comparison between the ISO and the FSC forest certification systems

	ISO 14001 EMS Standard	FSC System
<i>Main protagonists</i>	<ul style="list-style-type: none"> • Industry, especially large producers; • some large corporate buyers; • governments; WTO 	<ul style="list-style-type: none"> • Environmental and some social NGOs • Buyers' groups (e.g. those recently established by WWF in 13 European countries)
<i>Sector of interest</i>	All economic sectors; all kind of businesses and organizations (there is nothing specific to forestry)	Only forestry sector; all types of forests
<i>Approach</i>	System-based approach	Performance-based approach
<i>Purpose</i>	Specify the elements of management system to improve environmental performance	Define "good forest stewardship" (based on FSC P&C); and accredit certification bodies
<i>Standards</i>	<ul style="list-style-type: none"> • Management system standards (procedural standards). (Forest performance standards are not specified, but an ISO/TC207/WG2 Information Document suggests options including also FSC P&C, which are not normative) • The enterprise has to define its own environmental performance objectives and targets. • Commitment to legal regulations and continual improvement is called for. 	<ul style="list-style-type: none"> • Performance standards, both qualitative and quantitative, based on 10 global Principles with associated Criteria (P&C) of good forest stewardship which cover both ecological and social, and economic sustainability (according to SFM as defined at UNCED '92). Their approach is normative. • FSC P&C also include procedural standards in calling for a forest management plan, monitoring and assessment, and publicity.
<i>Certification</i>	<ul style="list-style-type: none"> • It is not a specific forest certification program. • First-, second- and third-party certifications are both allowed, but they cannot be used as environmental claims for marketing purposes. 	<ul style="list-style-type: none"> • It is the only established international system specifically developed for forest management certification. • Third-party certification (with the two components "forest management" and "chain-of-custody") is essential.
<i>Product labelling</i>	EMS certification does not permit product labelling	The FSC label can be put on products from certified forests (when the chain-of-custody has been verified)
<i>Potential "force" of the certificate</i>	<ul style="list-style-type: none"> • A certified EMS is adequate for business-to-business communication (relationships between enterprises), but it is inadequate for showing on the markets that requirements of SFM have been satisfied. 	<ul style="list-style-type: none"> • An FSC certificate allows an enterprise to show on the markets that the international requirements for SFM have been satisfied
<i>Acceptability/credibility to stakeholders</i>	<ul style="list-style-type: none"> • greater credibility with the governmental bodies, larger corporations and in general with the established institutions that define forestry rules. • generally accepted (with the exception of some 'extreme environmentalists'). 	<ul style="list-style-type: none"> • greater credibility with the environmental/social NGOs (although the FSC evolution to accommodate industry interests has made it less credible with a few NGOs); • lower credibility with some governments (early lack of government involvement and lack of industry participation)
<i>Accessibility of certification in Italy</i>	Easy (several organizations are ISO 14001-accredited)	Limited (only 5 non Italian FSC-accredited certification bodies world-wide)

Sources: partly from "Comparing ISO and FSC main features as regards to forest certification" (prepared by Laura Secco for the European Forest Institute, Joensuu- Finland; published on WorldWideWeb: <http://www.efi.fi/cis/articles>)

2. General problems in implementing eco-certification schemes for small and medium-sized forestry organizations

Eco-certification, both under the ISO 14001-4 and the Forest Stewardship Council rules, risks to have a discriminating effect : large, market-oriented, industrial forest management units tend to have an easier access to certification than small forest owners. Smallholder private forestry is the dominating form of ownership in Europe. As regards Italy, at the moment the average farm woodland area is about 3.2 hectares; hence, woodlands are highly scattered and therefore wood harvesting more difficult and costly. Moreover, as much as 97-98% of woodland area is constrained for environmental (protection of soil against erosion and flood prevention) or landscape reasons (ISAF, 1985). In these woodlands removals are strictly regulated and only light selective fellings are allowed.

The main certification related problems which small and medium-sized forest owners and enterprises have to face with are the following:

- high costs, mainly due to initial certification and inspection visits. Forest certification requires an inspection team to make a field visit and examine relevant paperwork for each forest. The cost of assessment for a few hundred hectares or less are likely to be well out of proportion to the added value of a certificate. Obviously the costs per hectare and cubic meter wood sold are relatively high for small or medium sized properties;

- internal organization and practical arrangements : large, industrial forest enterprises are characterized by a high internal organization, which allow them to better manage and follow all the different management aspects within the organization itself and against external suppliers and clients. This is not the case of small and medium (family-owned) forestry organizations, which in general are not used to follow a systematic approach for practical arrangements. These aspects could be better planned by small forest owners associations; technical services, guidance and training could be provided by an “umbrella” organization to individual owners in implementing internal management systems and developing forest management practices.

Due to these reasons, it appears that certification in smallholder private forestry can be better implemented at a group level, where several woodlands are certified together as a group. A group certification of some kind seems to be absolutely necessary in those countries (including Italy) characterised by small forest ownership conditions to achieve economies of scale in certification and to take full advantage of the benefits provided by many related forest policy provisions. Such group certifications are based on the idea that costs could be reduced considerably for the individual owner if, for example, only a sample of sites within a group is visited each year. However, it has to be outlined that there is actually a lack of suitable international application models for group certification in smallholder forestry.

The following “groups” could be suitable for group certification schemes in Italy:

- a forest owners association;
- a timber marketing association;
- a co-operative of neighbouring owners;
- an association of private and public owners organized by the local public authorities;
- an association among the households with traditional legal rights to collect timber and fuelwood in public forests.

It is clear, therefore, that group certification raises many difficult questions in Italy as well as in Europe and world-wide, while a solution seems still far to be reached.

3. The example of the *Magnifica Comunità di Fiemme* (MCF)

In 1996, the *Magnifica Comunità di Fiemme* (MCF), a community forest in Northern Italy (Autonomous Province of Trento, Trentino-Alto Adige Region), began the process of seeking certification under the FSC's rules. An initial assessment was performed at the end of 1996 by SGS Ltd. Co. under its QUALIFOR Program. The final certification audit was performed in May 1997. The MCF's forest was finally certified in late 1997 by the certification body SGS-Forestry of Oxford, UK, under the Forest Stewardship Council (FSC)'s rules, thus becoming the first (and up till July 1998 the only one) such certified forest in the Alps (Pettenella et Cattoi, 1998). Although the MCF is one of the better-organized and most-productive forest enterprises in Italy and it is also managing the largest sawmill for local coniferous logs in Italy, it has to be considered a small-sized forestry organization, especially if compared with large industrial North American or Scandinavian forestry enterprises.

The MCF is a semi-public (partly private, partly public) institution, known under Italian civil law as a unique *sui generis* institution. It has no affiliation today with the local governments, maintaining its independence as an ancient communal institution, located in a remote alpine valley. In fact, because of its geographic isolation, it remained free to organize their social and economic life, unaffected by the political and economic changes experienced in urban society (Merlo, 1995). The land is held as common property by the MCF members (11 communities and 19,000 individual members, *vicini*), and it is unalienable. There are very strict and complex rules about membership: for example, one can become a member of the MCF (*vicino*) only by residing in one of the 11 communities for at least 20 years (Duinker P.N. et Pulkki R.E., 1997).

The total land area owned by the MCF is about 19,600 ha, with around 11,400 ha in forest. The forest is divided into protection forests (2,700 ha that are on high elevations and erosion-sensitive slopes), and production forests (8,700 ha), both dominated by Norway spruce (*Picea abies* [L.] Karst) species. Other species include: larch (*Larix decidua* Mill.) and Scotch pine (*Pinus sylvestris* L.) on abandoned range lands and steep slopes, or mixed with spruce; Swiss stone pine (*Pinus cembra* L.) at high elevations; and, rather rarely, silver fir (*Abies alba* Mill.) and beech (*Fagus sylvatica* L.). The domination by Norway spruce is partly a function of climate and topography, and partly a function of the long-standing propensity of local foresters to favor spruce because of its high-quality and much-sought-after timber (Morandini, 1996). The total growing stock is estimated at 3.7 million m³, which amounts to an average of ca. 330 m³/ha. In the production forest, growing stock averages about 390 m³/ha, and can peak at over 1,000 m³/ha. The total annual increment is about 60,000 m³/yr (or average of about 5 m³/ha/yr) (Morandini, 1996). The maximum allowable cut has been calculated to be 47,000 m³/yr, which corresponds to about 35,000 m³/yr of industrial roundwood yield.

The MCF forest management focuses mainly on production of timber. Strict management regulations are imposed (i.e. clear cuts are permitted only if smaller than about one hectare; all the trees to be harvested have to be marked by the foresters or technicians; blowdowns have to be immediately harvested to prevent bark beetle infestation; silvicultural regimes based on natural regeneration have to be planned). Since 1986, the production forest has been managed through a detail and complex management plan. Once approved, such a plan has the force of law and has to be audit every 10 years.

The MCF also owns a sawmill, where the sawlog input (35,000 m³/yr) is totally from the MCF's forest. The sawnwood outputs is about 21,000 m³/yr. Of the sawnwood, 9,000 m³ of the lower-grade knotty lumber is directed to high-quality finger-jointed material production (for the joinery, door and window-frame industries). The final production of finger-jointed material is 5,850 m³, which accounts for 50% of the sales value for the sawmill. Perhaps compared with Central, Nordic European and North American standards it is a small sawmill; but, it is the largest one working domestic roundwood in Italy. Probably, the MCF would be of

marginal economic viability if it did not have such a sawmill, making specialty, high-value-added products. The MCF direct costs for certification, including both external costs related to the SGS consulting work and internal costs related to the establishment and improvement of the MCF management system, have been evaluated. These costs are referred to the foreseen average value of wood forest products for the 5-years-validity of certification, assessed on the basis of final 1995- and 1996-end figures related to sales. The evaluation shows (see Table 2)² that the MCF has recorded an average total cost for certification of 0.91 US\$/ha, 0.22 US\$/cm related to the log price on the road side and 0.37 US\$/cm related to sawnwood. The total cost of certification appears to be 0.25% on the average price on the road side and only 0.07% on average price of sawnwood.

Table 2 - The costs of the *Magnifica Comunità di Fiemme* (MCF) certification (US\$)

External direct costs*

pre-assessment: SGS consultancy	1,805.8
pre-assessment: expenses refunded to SGS	1,060.0
assessment: SGS consultancy	11,195.8
assessment: expenses refunded to SGS	1,511.4
Total	15,573.0

Internal direct costs*

pre-assessment: administrative staff (2 days)	223.7
pre-assessment: directional staff (4 days)	894.8
Preparing documents, restructuring procedures with directional staff (7 days)	1,566.0
assessment: administrative staff (3 days)	335.5
assessment: directional staff (6 days)	1,342.3
Administrative expenses (5%)	218.0
Total	4,580.5

Annual costs

annual audits carried out by SGS (consultancy, travel, accommodation)	2,198.5
administrative staff involved in annual audits (2 days)	223.7
directional staff involved in annual audits (4 days)	894.8
internal auditing (5 days directional staff)	1,118.5
internal auditing (5 days technical staff)	559.3
administrative expenses (5%)	249.7
total	5,244.5
<i>Discounted value of the costs (over 5 years; rate: 5%)*</i>	<i>18,597.5</i>

Technical-economic indicators

total cost of certification	38,751.0
- of which external direct costs	40,2%
- of which internal direct costs	11,8%
- of which annual costs	48,0%
average cost of certification/productive forest (8,519 ha)**	0.91
average cost of certification/1 cubic meter of logs	0.22
average cost of certification/1 cubic meter of sawnwood	0.37
average cost of certification/average price on the road side	0,25%
average cost of certification/average price of sawnwood	0,07%

Note:

(*) referring to 4 years after certification

² The external direct costs are higher compared to those that can be expected in ordinary situations, because of the necessary payment for travel expenses of certification body representatives coming from England.

(**) since certification has a 5-years-validity period, this value is referred to the **annual** average cost for 1 certified hectare (the value for all the period is 4.5US\$/ha) .

If compared to those mentioned in literature, these costs are on average higher when related to the total area which has been certified, but lower when related to commercial value of wood-based forest products (Plauche-Gillon, 1996; Simula, 1996; Upton et Bass, 1995 ; Varangis *et al.*, 1995). Anyway, some indirect costs have not been included (for example, those for communication and promotion), neither the possible avoided expenditures (for example: reduction of the number of workers' accidents or lower stand damages during logging) and the possible higher proceeds. This aspect, in particular, should be taken into due consideration, especially because of the possibility that an environmental *premium* exists (which means a certified timber demand characterized by prices higher than those expected in ordinary markets).

Crucial points and follow-up corrective actions which have been identified by SGS Forestry were mainly focused on: (i) modalities for communicating and monitoring of contractors, (ii) organization of training and information activities for local foresters, (iii) formal establishment of procedures to safeguard environmental sensitive areas (long-river strips, nest-building areas, etc.), (iv) implementation and updating of a local flora inventory.

4. Concluding remarks

As follow-up of certification, the MCF has recorded an improvement of its external image towards both the market and the public. These benefits can by themselves justify the certification costs (which in any case are relatively low). Such a positive effect in promoting the enterprise's image on the market seems to be significant only for the first forest enterprises that are able to reach certification. Therefore, this economic motivation is not extendible to all the forestry organizations which can be interested in developing eco-certification in future.

As in the case of Quality Systems certification under the ISO 9000 standards, it seems that eco-certification lead also to an improvement on the internal management organization, such as, for example, to assign clear responsibilities to employees and contractors, to organize more efficient preventive actions, to record lower costs of control and less contentious jurisdiction, to increase the enterprise value, etc. These effects are more relevant to industrial enterprises or service agencies than to organizations within the agro-forestry sector, which at least in the Central and Southern part of Europe are generally less organized.

Analyzing the market demand of certified products and evaluating the returns or proceeds from selling such products, two aspects should be considered: (a) the market share, and (b) the willingness to pay a *premium* for environmentally certified products.

(a) Market share The certified products market is currently a 'niche market', quite similar to the organic products market or to the so-called "equitable trade" of products coming from community activities in developing countries (Bourke, 1996 ; Salim *et al.*, 1997), and it is linked with furnishings, interior decorations and toys sale and with the "eco-housing" (flooring, frames, beams, etc.).

In any case, it is difficult to foresee the future developments of such a market, which is still characterized by a lack of transparency and an inadequate public information (Chevalier, 1997). On the other side all the initiatives on eco-certification have been launched quite recently³ and in several countries have been launched also first-party certification activities by

³ The FSC was founded in 1993, the ISO 14001-4 EMS standards were approved in September 1996, the Guidelines for the implementation of ISO 14001 in the forestry sector were approved in June 1998.

some enterprises as well as other patterns of certification and labelling schemes, which overlap the ISO and FSC systems⁴. In the near future, it will be interesting to verify the developments on paper, packaging, furniture supply⁵ and “do-it-yourself” sectors, which are traditionally advanced in employing green marketing tools. Nevertheless, it seems difficult that those enterprises which operate within large markets of undifferentiated products can adopt business expansion strategies only based on promoting environmentally-friendly products (IDF, 1995). In future market developments, the environmental buyers’ groups (ECE, 1997), like those established in 13 Western countries by WWF, will certainly play an important role.

(b) Willingness to pay for an environmental premium An existing and growing market demand of environmentally certified wood products does not necessarily mean that an environmental *premium* exists. It only means that one enterprise which sells such products will possibly reduce its competitors firms and increase its market share.

Studies on willingness to pay for environmentally certified products are rather limited and lead to not completely optimistic results (Baharuddin et Simula, 1994). On the basis of a study recently carried out by Ozanne e Vlosky (1997), it was assessed that US consumers may be willing to pay for environmentally certified products an average premium of 12,5%. This willingness to pay is higher for the cheapest consumer goods, while rapidly decreases for more expensive products. Consumers which would be willing to pay higher prices, up to 20% more, have been estimated as 16.5 M. A study by the WWF in UK (Read, 1991) found that 66% of consumers would be willing to pay higher price, up to 13.6% more, for wood-based products originating from environmental certified tropical forests. In Italy, through more limited studies, it was estimated that consumers may be willing to pay for certified products a premium of 10.6% (Fasser, 1996). All these studies, accordingly with another study conducted by Winterhalter et Cassels (1993) in the US, show that income and willingness to pay for environmentally certified finished products are directly related, even the origin of products is not considered to be the first decision-making factor (design, solid wood, quality of finishing are considered major factors). Quite similar results were recorded in Costa Rica (Aguirre, 1997).

These data have to be carefully considered. In fact, they are referred to statements which consumers make about their willingness to pay and not to their real buying behavior or purchasing power. In addition, these statements answered questions related to environmental issues, towards which consumers show in theory higher interest and they may be willing to pay higher prices than it is in reality. Furthermore, it has to be noted that the part of costs due to raw material is generally lower to 10% of the finished product price (Buechel et Hauselmann, 1995). For this reason, even with a *premium* of 10-12% referred to environmentally certified finished products, the price paid to timber producers would record quite limited variations. Only vertical integration patterns (like those partly realized by MCF) would allow forest owners to draw advantage from the existence of a *premium* for environmentally certified forest products.

For an enterprise, therefore, the most significant benefits following eco-certification are likely those affecting its internal management (only in the case the enterprise has not already achieved a good organization!) and the expansion of its market share by selling products within niche markets (which are more protected from competition). Consequently, in order to maintain their

⁴ See, as examples, the *Green Label for African Timber* launched by the *African Timber Organization*; the certification scheme established by the *Institute for Sustainable Forestry*; the *Responsible Forestry Programme*; the *Initiative Tropenwald* certification system in Germany; the CERFLOR Brazilian scheme (*Certificado de Origen de Materia Prima Floretal*); the *Pro Natura* scheme in Austria.

⁵ IKEA, the largest furniture supply organization world-wide, is now member of FSC.

market share, it is advisable that the Italian forest owners and sawmills adopt market strategies increasingly oriented towards 'niche markets' of high-quality environmental-friendly products.

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