TIMBER LABELING AND CERTIFICATION
UNRESOLVED ISSUES

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ABSTRACT

Market driven timber labeling and certification (TLC) is defined and analyzed from different perspectives. TLC is an evolving trend and has historical roots in the consumer, environmental, and quality management movements. The current status of certification in both Europe and North America is discussed. Environmental interests in TLC sprang from concerns regarding tropical deforestation by European consumers. Interest has spread to include temperate forests of Europe, the former Soviet Union and North America. Business interests in certification vary and are examined. TLC is analyzed from an economic perspective and possible affects on resource allocation are discussed. Finally, numerous unresolved issues and potential areas of research are briefly examined.

INTRODUCTION

Timber labeling and certification in this paper is a non-regulatory, market driven preference for timber products which meet certain certification standards. As such it is not a function of trade or other government agreements, but a preference that is developing in the market. Timber labeling and certification (TLC) is a trend first established in Europe but now also slowly evolving in North America. It is a process whose components include: a) the determination of the origin of timber products and certification of this origin; b) specific standards of forest management that often include impacts on local communities of such management; c) certification tests to determine the degree to which actual forest management conditions
achieve specified standards; and d) the labeling of certified products.

It does not deal with the process or characteristics of manufacturing of such timber products, nor their shipment, use or ultimate environmental impact of such products. Such "life-cycle-analysis" is considerably broader than TLC and looks at more complete environmental trade-offs regarding the production and consumption of goods. Such analysis is being applied in the market place for some timber products like paper diapers.

The objectives of this paper are to:
1. Discuss the background and current status of TLC.
2. Explore the interest in and rational for TLC from environmental, business, and economic points of view.

BACKGROUND AND CURRENT STATUS

Background.

Consumer preferences for "green"\(^1\) products and "eco-labeling"\(^2\) is the outgrowth of a long term movement toward greater consumer input in determining the characteristics of products and services produced and traded in the market place. This movement has seen a rising importance in the "business function" of marketing, and changing competitive conditions which have forced an increase in customer focus. Three distinct but related trends are briefly discussed to provide additional background: the consumer movement of the 1950's and 60's; the environmental movement; and the development of "Quality Management" as a competitive strategy in satisfying consumer preferences.

Consumer movement. After WWII, the U.S. was operating in an economic environment characterized by a growing middle class with increasing revenues fueling consumer demand and promoting the development the U.S. economy. The business community in the U.S. was primarily concerned with increasing output to meet this growing market, and emphasis was on economies of scale and returns to capital. Relatively little consideration was given to consumer preferences, and production of commodities was

\(^1\)Products which have little absolute or comparative--relative to historical or other products--negative impact on the environment are often popularly referred to as "green".

\(^2\)Eco-labeling is a general term and has many meanings. It is usually used in reference to the labeling of products according to their impact on the environment.
emphasized rather than marketing and producing value for the consumer. During the late 1950's, a consumer movement began which challenged business to put more emphasis on consumer needs including safety. Part of this movement was reflected in the market place as consumer preferences began to play a more important role in product design. However, the development of some aspects of consumer value, safety for example, remained slow, and interest groups formed to promote and lobby for greater product compliance. This gave rise to the use of the court system, and regulation joined market incentives as a way to implement the consumer movement.

The Environmental Movement. The modern environmental movement began in the U.S. during the 1960's and spread to other Western developed nations relatively quickly. Currently this is most developed in some European countries, notably England and Germany (ESE). During the last decade the environmental movement has taken on a global perspective due to increased communication and trade, as well as potential changes in the global environment. The 1992 UN Conference on Environment and Development (UNCED) put the linkage between the environment and economic activity on center stage. The trend toward greater multinational business investment on a global basis has also increased awareness of the environmental impacts of business activity.

The environmental movement, like other parts of the consumer movement (safety for example), has seen both regulatory and market based strategies. It has become increasingly recognized that although a basic environmental regulatory system is necessary, environmental regulation has become increasingly costly and inefficient (Alm). Simultaneously, environmentally benign, or "green", products have become increasingly preferred in the market place. If "green" products do, in fact, reduce or eliminate traditional negative impacts on the environment, then via this development, the market has the ability to "internalize" traditional environmental costs into the mechanism of the market system. This internal balance has the potential to more efficiently and effectively allocate resources than regulatory systems which work against market incentives (Anderson, et al).

The Quality Movement. In the 1950's and 1960's, some U.S. businesses began to respond to market pressure regarding consumer choice, but progress was slow. Since competitive conditions did not force a rapid adoption of a more customer oriented business strategy, most U.S. businesses continued to operate under a traditional "production oriented" philosophy. These competitive conditions began to change considerably during the 1970's as Japan (and later Europe and the U.S.) adopted a "Quality Management" approach to business management and competition. Now more popularly referred to as Total Quality Management (TQM), this management paradigm emphasizes both the production of consumer value and cost savings. TQM challengesventional management philosophies and systems by pushing authority and
control to working levels and simultaneously increasing worker responsibility and accountability (Deming, Grant et. al., Jurrnan). Implementing this management strategy contributed greatly to Japan's rise as an economic superpower by increasingly winning market share in many regions of the world, including the Unites States. Due to competitive conditions, TQM has become a global standard for managing businesses which compete in open market conditions.

A primary goal of TQM is providing consumer value, and supplying "green" product characteristics is no different than any other characteristic that are valued and demanded in the market place. Those companies which have adopted TQM and which operate in markets with rising "green" demands, may be looking for ways to produce "green value" for their customers.

Current Status

The preference for environmentally benign products and services is an outgrowth of these related movements. Timber labeling and certification is part of this environmental preference now being found in the market. Coalitions of environmental, trade and development groups in Europe are fostering TLC as a means of improving tropical forest management as well as to reverse recent consumer boycotts against the use of tropical timber. For example, in Great Britain a "1995 club" of retail and wood trade interests has been formed and made a commitment that by 1995 they will sell only wood (tropical or temperate) that has been certified to come from sustainable sources (ESE). Retail stores have publicly made this commitment and have informed their timber suppliers of this action. This has sent relatively strong messages throughout the timber trade distribution channel in Europe that certification may become a short run market niche for some and a possible long run necessity from many European timber dealers. Similar efforts are under way in Germany via Projekt Tropenwald that will establish "by 1995 at the latest, regulations for labeling of tropical timber and other tropical forest products stemming from sustainable management" (ESE). This German effort has a variety of participants including trade, labor, development and environmental interests.

In North America, at least five groups have developed timber certification systems in the last 2-3 years. These include: The Rain Forest Alliance's "Smart Wood" program which works primarily with tropical sources; Scientific Certification System's "Green Cross" which has worked with tropical and Pacific Northwest forests; and three programs working primarily with Pacific Northwest forests--The Institute of Sustainable Forestry's "Pacific Certified Ecological Forest Products", the Rogue's Institute for Ecology and Economy's "Guidelines and Standards for Certification", and the Silva Forest Foundation in British Columbia (in coordination with the Ecoforestry Foundation in Victoria)(Knickerbocker).
Home Depot, an Atlanta based retail home improvement center, has recently announced that their lumber will come from Collins Pine Company (a Western U.S. source) certified by Scientific Certification System (cit). Furniture manufacturers and dealers in the U.S. like Herman Miller, Inc. and Smith & Hawken are dealing exclusively with certified timber sources (Schmidheiny).

At the international level, The Forest Stewardship Council (FSC) is an effort of establishing standards for sustainable forest management acceptable at the global level. Informally formed in 1992, and more formally in 1993, the FSC has a goal of promoting forest management that is environmentally appropriate, socially beneficial, and economically viable (FSC). To realize this goal, the council is working to develop "a worldwide standard for good forest management by promoting widely recognized and respected Principles of Good Forest Management". The FSC's "principles" are relatively comprehensive covering aspects from forest management planning to the land rights of local people. The FSC is attempting to play somewhat of a "clearing house" function and hopes to decrease consumer confusion and address the important aspect of certification reliability. Their aim is to establish a system whereby certification projects will apply to use the FSC's name in their label. The FSC will then assess the certification process to determine if it is in compliance with both local (generally government) standards and with recognized international conservation principles.

Due to the relative youth of these trends, there is little published information regarding the size of the green timber market or it's profitability. Recent research regarding wood furniture indicated that 68% of consumers would be willing to pay more for products made from sustainably managed forests, with 33% willing to pay 6-10% more (Winterhalter). Although reports of an "environmental premium" are noted by some wood dealers, in general such a premium has not yet developed in the market. Much of the past energies promoting TLC have come from environmental groups in developing green timber commitments from business interests. The kind and extent of continued market development that will be needed for TLC to grow is unknown. It is also unclear if environmental groups and foundations will continue to provide the resources (energy, guidance, financial, etc) necessary to support such development. For TLC to become a long term reality, the market will eventually have to pick up the costs of certification.

Interest in and Rational for Timber Labeling and Certification

Environmental.

As noted above, TLC has been fostered by a variety of groups which have common interests: improved forest management and a
sustainable timber trade. Environmental interests have played leading roles in developing and implementing certification schemes. Initial FSC efforts were primarily "environmental" in origin, promoting conservation and wise use of forest resources. In addition to these environmental interests, concerns regarding the impact of forest management on local people has also become a focal point, primarily in developing countries. The following are five of the nine "Principles" developed by the FSC and serve as examples of such environmental and social concerns (partial listing only).

2. Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented and legally established.

3. The legal and/or customary rights of indigenous people to own, use and manage their lands, territories, and resources shall be recognized and respected.

4. Forest management operations shall maintain or enhance the long-term social and economic well-being of forest workers and local communities.

6. Forest management operations shall maintain the critical ecological functions of the forest and minimize adverse impacts on biological diversity, water resources, soils, non-timber resources, and unique and fragile ecosystems and landscapes.

7. A management plan consistent with the FSC principles and appropriate to the scale of operations shall be written, implemented and kept up to date, clearly stating the objectives of management, and the means of achieving them.

Other certification groups have similar environmental and social elements. The intent of such requirements are obvious and provide an important environmental underpinning: timber products flowing from operations being certified by these standards will meet relatively rigorous standards when compared to traditional logging. The intent is to improve environmental and social conditions associated with logging.

Some individuals and groups (Barbier, Thompson) indicate that such environmental ends may be worth working toward, but that TLC will do little at the global level to address problems of tropical forest destruction. They point out that international trade is not a major source of tropical deforestation. "Not only is the conversion of forests to other uses such as agriculture a more significant factor, but an increasing proportion of tropical timber harvested in producer countries is for domestic consumption and does not enter international trade". (Barbier,p.2). According to current FAO and ITTO statistics, less than 10% of tropical non-coniferous roundwood production is destined for export markets and therefore subject to potential TLC influence. In addition, the majority of such timber is shipped to Japan and other Asian countries where TLC is not a market reality (Ostermeier).
Proponents of TLC acknowledge these issues but indicate that the development of market driven TLC will foster certification for in-country markets. They also indicate that if market certification can help develop improved values for forests, this will be an important incentive to slow down conversion of forests to other land uses (FSC). Accordingly, these groups recognize the limitations of TLC but indicate that such limitations may be short term and they hope TLC will be part of a trend toward greater environmental accountability.

The situation changes when discussing TLC from temperate sources. The growth of TLC in North America has centered on the forests of the Pacific Northwest, more specifically from Northern California to British Columbia. Standards developed for application in these areas reflect similar concerns as those noted above and focus on the economic, social and environmental conditions associated with logging. To the extent that there are negative impacts of logging in these areas, TLC proponents indicate that timber certification is one way to address these impacts by promoting standards and markets which will financial reward compliance with such standards. Doing this is the aim of the certification programs in the Pacific Northwest region. The mission of the Rogue Institute for Ecology and Economy is an example: "non-profit organization whose mission is to develop, advocate, and support forest resource management which restores and sustains forest-based communities, jobs and ecosystems, primarily in Southern Oregon." (Wert). These aims attempt to link forest resources and community stability through certified market activity.

Business

The interest in TLC from the business community varies. Some see it as a way of insuring the continued use of wood, others see it as a market opportunity of delivering value to the customer. However, other business interests view it as yet another environmental threat to business. Business interests were involved in the early evolution of TLC in England and Germany. This stemmed from negative consumer reaction to tropical deforestation. Trade and labor interests joined with environmental groups to foster such efforts as Projekt Tropenwald in Germany. A primary interest of these trade and labor groups was to develop a sustainable tropical timber trade, given that the traditional tropical trade was dying. To these groups, certified markets had to be developed to replace traditional ones.

In most regions of Europe and North America, consumer preference is not as "green" as it is in Germany and England. However, some business interests see TLC as a wave of the future in some markets and TLC as a means of entering an emerging market niche which will only become larger (Germain). The Western Wood Products Association recently released information on Life Cycle
Analysis of lumber versus alternative building products. Although the latter is more involved that TLC, it demonstrates the interest of the business community when the results serve their interests. This and other information demonstrates that wood does have advantages in characteristics like low energy input, renewability, etc. To the extent that timber certification serves a growing market niche that will pay for the production and certification costs of bringing timber to market, TLC represents a business opportunity. When production and certification costs can be recovered on a sustainable basis, business will increasingly invest in such opportunities.

Many individuals and groups that have traditionally been associated with timber production and marketing are skeptical about the potential of TLC; still others see TLC as another environmental constraint and a diversion from work on timber supply sustainability that is already in progress (Waffle). These interests argue that mechanisms like Best Management Practices (BMP's) are already in place to deal with issues of potential environmental consequences of logging. In addition, they argue that with the exception of some localized situations in the West, forest depletion is not an issue in the U.S. They cite that, for example, hardwood forests of the East still produce twice as much growth as drain. In sum, they argue that TLC does not have an environmental basis in much of the U.S. They also argue that certification will add another bureaucratic layer of inspection that will only increase costs.

In sum, some business interests see TLC working against their interests whereas others see opportunities. These reactions represent differing perceptions and differing factual situations. Changes like TLC will produce gains and losses, and these will not be evenly spread over all wood products markets. The reality is that some wood products markets will probably be hurt by certification, while others may be improved.

It can be argued that even if there is no environmental rational for TLC in the U.S., it is a mute point if certification of environmental impact is demanded in the market place. If certification of environmental responsibility becomes an important customer demand, it's relevancy doesn't matter. This is like arguing that a different style tennis shoe can't be justified. If consumers are willing to pay for the costs involved, no other justification is necessary. It is, however, far from clear if consumers are willing to pay for certification. In addition, some consumers may be willing to pay for certification for some products (high value teak furniture for example), but not for others. There is a tremendous amount of information about the customer that is unknown and this presents significant potential for research and development.
Economic.

There are at least two assumptions inherent in timber labeling and certification which warrant discussion: first, traditional wood markets have at least a threat of producing environmental or social side affects that are not in the best interests of society; second, the certification process is a good means of working toward the standards in question. The first assumption will not be analyzed or debated in the remainder of this paper. Negative side affects—traditionally called externalities—have been a traditional part of the history of timber extraction. Through changing incentives and technologies, and changes in values and will, the ability to reduce negative side affects has increased. However, many still exist and are very problematic in some locations throughout the globe.

The second of these assumption—that TLC is a good means of addressing these side affects—will be evaluated. This evaluation will begin by looking at the specific targets of certification. The following represents some of important environmental and social side affects that certification standards often address:

1. Land use rights should be clearly defined and adequately enforced.
2. Environmental degradation should be held to an acceptable level.
3. Logging and forest management should insure acceptable levels of economic growth of remaining and invested resources after harvest.
4. Forest use and management should insure acceptable levels of equity and community stability.
5. Forest regeneration should insure acceptable levels of non-market values such as watershed protection and biodiversity.

To the extent that these conditions have traditionally not been met in logging and forest management, it is important to ask WHY? Why aren't these conditions already being achieved? That is, if these conditions are in the best interests of society—and it is suggested that they are—why don't they already exist. If these questions can be answered, this should help determine if TLC is an effective way to address the constraints found.

It is increasingly argued that with the possible exception of equity, well functioning markets will go a long way toward dealing with traditional "market externalities" and insuring conditions like those noted above (Panayotou, Smith, Anderson). The market system has emerged from economic and political debate

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3The issue of private property rights is probably more applicable to tropical timber than to temperate timber because such rights are often more ill defined in developing economies. Likewise the issue of indigenous people's rights will vary depending on location.
as the most efficient and sustainable system for allocating scarce resources via a decentralized system serving countless producers and consumers. In situations where markets function well, important roles of the state are preserving law and order (including enforcement of tenure and other rights of access to markets), ensuring macroeconomic stability and containing inequality (Panayotou). The reality is that often these state roles are not effectively executed and the allocation mechanism of the market system is distorted, resulting in outcomes of resource waste and other inefficiencies. In many cases, not only does government not effectively execute these roles, it often becomes overly involved in the functioning of the market further distorting allocation. Historical water pricing policy has been a classic example of where many governments (including the U.S.) control water prices, resulting in overuse and waste which send the wrong signals regarding scarcity.

Those promoting private market solutions to environmental problems would take a general position that to the extent that the standards noted above are not found, it is often because conditions insuring that markets will function effectively are not in place. Another way of stating this is that there have been policy failures and distortions that inhibit markets from functioning effectively and this is why these side-affects arise. This hypothesis will be evaluated by discussing the following two case.

In many countries of Southeast Asia, forest land and timber are state properties while timber extraction is privately executed via logging concessions. In addition, the development of an industrial forest sector is privately executed but often in an environment of considerable government intervention. Centralized government institutions control how concession decisions are made, and what the conditions of concession contracts should be. In addition, the inability of government institutions to enforce such contract conditions have historically not been openly discussed. Historically, the decision of who receives concessions are not openly bid or established. In addition, concessionaires generally do not have the right to trade or sell their contracts or concessions. Since this absence of use rights gives the concession little incentive to safeguard the economic value of the site after logging, there are no deterrents to land abuses other than contractual conditions within the concession contract. These contracts often provide little influence regarding environmental safeguards, either because of an absence of effective contract standards or a lack of contract enforcement.

This situation is often exacerbated by government trade policies which impose export bans or tariffs resulting in controlled log prices at levels significantly below those which would be set by open competition. Since log prices that industry pays are below equilibrium price levels, industry will overcut and resource "scarcity" signals are repressed. In addition, high
industrial rents\textsuperscript{4} are often associated with these artificially depressed prices and this provides additional incentives for over-production and excessive harvesting. In sum an operating environment is created whereby government:

**has often not fulfilled it's minimum roles necessary for well functioning markets--specifically preserving and enforcing contracts and preserving open and fair access to resources.
**has become heavily involved in regulation and control which increases distortion in the allocation mechanism of markets. Such distortions includes price controls, insecure rights to use property and trade policies limiting competition.

In cases like this where there is considerable public policy distortion, it is unclear how effective timber certification might be. Some alternatives include:

**If traditional markets continue to exist with traditional governmental policies, TLC will probably have little if any impact. The incentives and momentum found in the market place will most likely be too powerful for TLC to have any influence.

**If traditional markets are threatened, market incentives may change enough such that TLC may be a viable alternative for at least some concessions. The degree to which TLC will impact the market in this case is proportional to the degree to which traditional markets are no longer an alternative.

**If government policies change and some of the distortions noted above are addressed, and if certification becomes increasingly demanded in the market place, TLC could become an important ally of government policy reform.

Another example considers corporate forest land ownership and community rights in the United States. A large U.S. paper company is currently considering the purchase of approximately 90,000 acres in a three county area of East Tennessee. The intent of land purchase is future hardwood fiber to supply mills outside the East Tennessee area. There is concern among at least some residents of this area that standards like those noted above (near footnote 3) will not be upheld and they oppose the potential land sale. Do incentives and/or regulations currently exist which will insure that these standards will be met? If there are "holes" in these standards, that existing incentives and/or regulations do not fill, can TLC fill those? If so, would this be as effective and efficient as market or policy reform? The five standards noted above will be briefly addressed separately.

\textsuperscript{4}Rents are payments for using factors of production. In cases of government log ownership and where log prices are artificially depressed, rents to governments are lower and rents to industrialists are higher than if log prices where competitively set at higher levels.
The establishment and enforcement of private priority rights has evolved in this country to a level such that these rights are generally adequately defined and enforceable. That is, there is generally little question regarding legal ownership of land, and the legal system has the capacity to give exclusive rights of use to these owners. Accordingly, standard number one seems currently upheld, at least regarding timber use rights.

Given these property rights and assuming adequate markets for timber and/or other goods and services in the future, the company will likely have sufficiently strong incentives not to let the resource become degraded nor depleted. Resource degradation simply works against the interests of the company. This suggests that standards 2 and 3 may be sufficiently covered.

On the other hand, a possible scenario is that some degradation of the resource will occur that is acceptable to the company but may not be acceptable to others. For example, what is an acceptable level of soil erosion to the company may not be to some within the local community. This is one of the reasons for the development of Best Management Practices resulting from non-point source water pollution legislation. This type of degradation will be taken care of if BMP's are adequately enforced. Currently, compliance with such BMP's are voluntary through educational efforts of two state agencies, the Tennessee Water Pollution Control Board and the Tennessee Division of Forestry.

In sum, there may be some environmental degradation that is acceptable to the company and not so to the community. What are possible ways to handle this and is TLC one of these?

**A possible alternative is legislation making BMP's mandatory. This assumes that political backing exists in Tennessee to do this which is currently probably not the case. It also assumes that environmental degradation warrants "taking" the private rights of the company, which is also uncertain. It further assumes that mandatory compliance can be effectively and efficiently monitored and enforced. This is again uncertain.

**Another possibility is to develop a process of conflict resolution with an aim of obtaining sufficient common ground among the participants to proceed with the potential economic activity. Various types of environmental dispute resolution techniques have been applied in mediated sessions involving interested stakeholders (Crowfoot, Cubbage et. al.). Successfully developed and implemented, this offers a good alternative.

**Yet another alternative might be TLC, and this will be addressed after consideration of standards four and five.

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5Exceptions to this include exclusive rights of ownership of wild animals, free flowing water systems and other elements of biodiversity which are not privately owned.
Standard four deals with equity and community values, and standard five concerns biodiversity and other non-market environmental values. To comply with these standards, the values in question must be precisely defined and the following questions must be determined: precisely what are the community or environmental values in question; what are acceptable levels of such values; and who will be involved in establishing the values. Under existing law, custom and market conditions, these questions will most likely not be adequately considered. If the prospective owner of these 90,000 acres purchases these lands, logging operations will most likely be executed without formally and openly addressing these questions. The company simply has little incentive to do so. Yet addressing these questions will most likely become increasingly important in the future. The inability of the market to provide direction in allocating these community and environmental values associated with forest land ownership and use raises important questions regarding policy reform. This is especially the case since processes to address these questions politically are unclear.

In sum, this case illustrates that standards number three, four and five may not be adequately addressed. Is this a combination of market and/or policy failure, or do these standards contain enough inherent social value to warrant consideration? If enough social significance exists, what should be done? How effectively and efficiently can TLC address these needs?

If the company in question were to have it's future operations certified, certification standards would have to be developed. One possibility might be to develop standards for the Southern Appalachian region of the U.S. which would meet FSC Principles. For efficiency and to promote linkages with environmental standards already developed for forestry operations, these standards could reflect BMP's already developed by the Tennessee Division of Forestry and/or other states in the region. Standards affecting biodiversity and other "non-market" values are site specific, as are standards regarding community impacts associated with the sale of the property to a timber company. Accordingly, a generic process of establishing such standards could be suggested from an umbrella group like the FSC. However, the application of such a process would involve the specific local interests, namely the company and various community interests.

Even though there are numerous unresolved questions regarding an involved process like TLC (especially since it still is in the early stages of evolution), it appears that TLC would be feasible in this latter case. The application of TLC in this case would have the following characteristics:

1- Additional entities are brought into a case which began between a local community and a large timber company including: an independent certifier and a standards organization or entity. This would have the disadvantage of
adding additional costs and at least some bureaucracy regarding the establishment and certification of the standards.
2- Centralized standards will be developed and this may result in some--perhaps considerable--application which may not be locally appropriate.
3- Significant accounting and monitoring problems will have to be worked out since the mill these lands will source also gets supplies from other sources. The company will need to see sufficient benefits of certification to commit the resources necessary to effectively execute a TLC process.

Does this mean that TLC won't work in this case? Not necessarily. It probably means that unless market demand is relatively strong, that the company will use other alternatives to work out problems and conflicts regarding purchasing and logging these lands. In this case, unless there is sufficient rewards (which seem currently non-existent) TLC does not seem to offer the company any benefits in resolving local conflicts. In the end if market demand is strong enough, certification will be tolerated and the system will be put into place.

CONCLUSIONS

1. Market driven timber labeling and certification is a trend whose underlying pressures will only continue to grow. This does not necessarily mean that TLC will be an important element of many timber markets. It does mean that TLC will most likely continue to grow and may become important in some markets. The process of certification is involved and relatively unproven. There is much to be learned about the process and about the level of demand in the market.

2. Currently a debate is underway regarding the necessity, relevancy and workability of TLC. In most cases, the views of individuals and institutions depend on whether they see TLC as benefiting or harming their primary interests. However, if TLC is demanded in the market (if consumers are willing to pay for the costs of certification), such debate may not be relevant. In some markets in Europe this demand seems relatively strong; however, in the vast majority of wood markets in the U.S. and the world, demand has not yet been demonstrated and it's growth is uncertain.

3. Although market driven TLC is not a public policy tool, there are important linkages between the two.
   a) First, many of the standards sought by timber certification are socially desirable and in the public interest. Traditionally, and still in many places in both
tropical and temperate forests, there are negative impacts of logging and timber extraction. TLC provides a possible mechanism of "internalizing" these negative social costs. In addition, some business interests are increasingly arguing that because standards like those of TLC are in the public interest, they are also in the long-run interest of the business community (Schmidheiny). Accordingly, private business interests and those of the public have much common ground.

b) Second, a significant reason for some resource degradation leading to calls for TLC is that public policy distorts market functioning. In many cases, TLC will have little affect without public policy reform.

4. There is a lot we don't know about the degree to which TLC might internalize traditional environmental or social side affects of logging activity.

a) An inherent advantage of the market system is that benefits and costs "clear and are balanced" at each point of a market transaction (Anderson). TLC is an effort to trace and account for market costs across many different transactions which may be both costly and inefficient. How effective and efficient (costs) can wood commodities be traced through the many market transactions they sometimes pass? If there are costs that are not being internalized (such as traditional side affects of logging), would it not be more effective and efficient to address these through market incentives or public policy which focus more directly on logging and forest management activities, such as tax incentives for loggers who comply with BMP's? What do we know about alternatives like these?

b) Where demand for certified timber is sufficiently strong and were effective certification systems can be developed, certification will bring environmental compliance. In these cases and if compliance would have not otherwise taken place, TLC may be the most effective means of internalizing traditional secondary side affects of logging. How realistic are these conditions? The costs of certification will be an important factor in determining it's potential use--what do we know about these costs, how do costs vary with size and product value?

5. Given the early evolution of certification, there is much we don't know. For example:

a) How important should acceptable levels of equity and community stability be in the allocation of forest resources? The recent paradigm of "sustainable development" once again raises questions about the linkage between market activity and local communities. What are "rights" of local communities in regard to extractive industries like timber or non-extractive ones like forest based tourism. How should community values and needs be considered? In much of the Eastern U.S., land use policy has given control to private individuals and exclusive use rights are important elements
of an effectively functioning market. But in doing so, have we ignored other "rights", community rights in this case? Has the forestry research community focused sufficiently on these kinds of rights in evaluating the allocation of forest resources?

b) Total ecosystem management has put increased emphasis on acceptable levels of non-market values such as watershed protection and biodiversity. A basic assumption is made that society's demand for such values will increase. How should we make these allocation decisions? Can TLC play a role in providing these kinds of values? What are other means of more effectively and efficiently providing these values? Are there conflict resolution processes that can be applied at the local level which can be integrated into economic decision making such that these value are served?

c) Unless consumers demand certificated products and are ready and willing to pay for the costs of certification, TLC will not be a reality. Building sustainable economies, including sustainable timber markets, are important long term social goals. Most of the focus regarding sustainable timber markets has been on the supply channel—developing sustainable supplies and suppliers. What about sustainable consumers? To arrive at a sustainable timber trade, don't we have to develop both sustainable suppliers and consumers? How much research has been done on developing sustainable timber product consumers? In the information age, are we not at a point of being able to furnish such logging process information to consumers? What are incentives that would increase consumer's ability to buy certified products?

In sum, we believe there is a lot of opportunity for the research community to address questions like these such that we more effectively allocate resources in the future—not only among traditional demands, but also among those that are continually developing.

LITERATURE CITED


FSC, Forest Stewardship Council. P.O. Box 849, Richmond, VT 05477.


