MARKET PROSPECTS FOR WOOD PRODUCTS CERTIFIED FOR FOREST MANAGEMENT AND/OR LEGALITY IN JAPAN

by

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ABSTRACT

Japan is one of the world’s major importers of wood products. Most of the wood entering the country is destined to Japan’s house building industry. However, Japan has been an indifferent market regarding demand of wood products certified for sustainable forest management. Current pressures that may indicate a shift in market conditions include: the recent economic recovery, increasing Corporate Social Responsibility (CSR), and the new government’s public purchasing policies (PPP) titled Timber Procurement Policies.

In order to assess the market prospect (in the next 5 years) for wood products certified as coming from sustainable and/or legal sources a study was completed focusing on Japanese home builders. Data was collected through a self administered mail survey of residential builders in Japan.

Results show that there is a low level of understanding, as well as willingness to adopt, forest management certification among Japanese builders. Consequently, current market demand for certified products is low and builders expect little change in consumers’ demand for wood materials certified for sustainable management as well as those certified for legality in the next five years. Builders considered the most important potential drivers for increased demand for certified and/or legal wood products to be rigorously implemented public purchasing policies, followed by increasing final consumers’ demand and the growth in CSR. Builders also estimated that the positive impact of PPPs would be rather modest but widespread. Finally, builders indicated that PPPs would favour demand for certain product categories, such as: domestic wood, softwoods, wood from plantation and to a lesser degree wood from temperate forests.
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1 INTRODUCTION

Japan is one of the world’s major consumers and importers of forest products (FAO 2007). It is the most important offshore market for North American (Canada and the US) wood products (Gaston et al. 2006). The Japanese market has traditionally been considered reluctant to accept wood products certified for sustainable forest management (Owari & Sawanobori 2006). However, recent changes may indicate a shift in this reluctance.

Some of these changes include: the recent economic recovery (Economist 2007a, Nikkei 2007a) and increasing consumer environmental awareness related to International Conventions and agreements such as the Kyoto Protocol (FAO 2007, FAJ 2006). In addition, recent government Timber Public Procurement Policies (PPP) together with Corporate Procurement Policies (CPP) may indicate a shift in demand trends for forest products, and particularly for market opportunities for those certified as coming from sustainable and/or legal sources (FAJ 2006, Simula 2006).

Given these changes it was deemed an appropriate time to conduct a study to identify the changes in demand trends for legal and/or certified wood construction products in the Japanese market. The overall objective was to assess market opportunities, in the next 3-5 years, for wood products certified as coming from sustainable and/or legal sources. The specific objectives were:

- To evaluate builders’ understanding, willingness and capacity to implement certification programs for wood products
- To evaluate market demand of certified and/or legal wood products over the next 5 years
- To identify drivers of market demand for certified and/or legal wood products in the next 5 years
• To evaluate the impact of PPPs on market demand of certified and/or legal wood products over the next 5 years.

A survey questionnaire was the primary research method to gather information necessary to address the objectives. The target population consisted of major residential builders located in urban centers all over the Japanese territory. Builders are the main specifiers of wood in construction in Japan (Cohen & Gaston 2001, Eastin et al. 2004).

Following the introduction, section 2 presents a literature review and background information. The problem statement and research objectives are described in section 3, while section 4 describes the research methodologies used in this study. In section 5 the results are presented and described. Finally, the discussion and conclusions are contained in section 6 and 7 respectively.
2 LITERATURE REVIEW

2.1 Forest Certification

Forest certification is the process of verifying that a forest is managed in accordance with a set of standards considered environmentally appropriate, socially beneficial and economically viable (Vogt et al. 2000, Nussbaum & Simula 2005). Accredited certifying organizations assess that these principles have been achieved in a forest and issue a written certificate, which can be recognized by the public, authorities and other stakeholders (Vogt et al. 2000, Nussbaum & Simula 2005).

Forest products certification is a voluntary program that originated based on the conviction that consumers would be inclined to place a higher value on products from firms and companies devoted to adopt a protective attitude towards forests and the environment (Vogt et al. 2000, Nussbaum & Simula 2005).

The ultimate objective of certification is the promotion of sustainable forest management working as a voluntary market driven tool improving market access and share for the products of such management (Cashore et al. 2004). To achieve this goal, products from the certified forest must also undergo a certification process to guarantee its provenance in the marketplace. This process is known as Chain of Custody (CoC) (Hansen 1997, Vogt et al. 2000).

2.2 Development of Forest Certification

Contemporary forest certification emerged in the late 1980s after strong criticism about international public harvesting policies and efforts to curb ecological deterioration of the world's
forests. At that time, there was growing public concern about deforestation rates of tropical forests. As a result of this increasing concern, boycotts of tropical forest products were organized by a number of environmental NGOs (Nussbaum & Simula 2005, Vogt et al. 2000).

In 1992 an international attempt to deal with sustainable development issues produced the United Nations’ Earth Summit, held in Rio de Janeiro. Although this led to no legally binding commitments regarding management of the forests, it launched an action plan to look into sustainable forestry issues and was a decisive event paving the road for the starting of forest certification. It was indeed after the United Nations Conference on Environment and Development that the first set of principles, criteria and indicators was released on how sustainable forest management should be conducted and evaluated for forest certification (Vogt et al. 2000). Initial discussions focussed on tropical forest; however it was not too long after the UN Earth Summit that discussions were extended to forests from all latitudes.

Global efforts continued with the Helsinki Process in 1993 which developed general guidelines for sustainable forest management in Europe. The Montreal Process in 1993 was an equivalent attempt which developed criteria and indicators for the sustainable management of non-European temperate and boreal forests (Nussbaum & Simula 2005).

Also in 1993 a voluntary, non-profit organization, funded by the World Wildlife Fund (WWF), the Forest Stewardship Council (FSC) was formed. FSC's prime purpose was to develop a global certification system for forest management (Nussbaum & Simula 2005). During the same year, the International Standards Organization (ISO) launched its 14000 series on Environmental Management Systems; not too long after that, a technical committee (TC207)
was set up to develop standards and guidelines that would link ISO 14000 to sustainable forest management (Vogt et al. 2000, Nussbaum and Simula 2005).

The politics and complexity involved in the development of the certification process have subsequently encouraged other organizations, government and industry associations, to explore alternative processes to create forest certification standards as well as mutual recognition among them (Cashore 2004).

2.3 Forest Certification Schemes and Standards

One way to classify forest certification schemes is by the type of standards they use: Performance-based and management-based schemes are the two most common classification types. A performance-based scheme means that the audited party is meeting a set of accepted outcomes, but does not specify the process to attain these outcomes. A management-based scheme specifies the processes that must be implemented within an organization to ensure that they are managing specific operational aspect such as quality or environment consistently (Nussbaum & Simula 2005, Vogt et al. 2000).

FSC focuses on prescriptive requirements of forestry elements to be attained in the field, and therefore is primarily a performance based scheme; while ISO 14000 emphasizes generic and descriptive requirements that are industry or production oriented, and is principally considered a management based scheme (Vogt et al. 2000). Other organizations have developed their own set of standards creating numerous forest certification schemes that actually combine elements from both performance and management types of standards. These schemes include: the Sustainable Forest Initiative initiated (SFI) by the American Forest and Paper Association,
the Canadian Standards Association (CSA), and the Program for Endorsement of Forest Certification (PEFC) (Vogt et al. 2000, Hansen & Juslin 1999). There are also numerous schemes developed for specific countries or regions, such as the Sustainable Green Ecosystem Council in Japan (SGEC), the Malaysian Timber Certification Council in Malaysia (MTCC), the Lembaga Ekolabel Indonesia in Indonesia (LEI) and Certfor in Chile. These organizations usually accredit third-party certification bodies that work in accordance with their pre-specified standards (Vogt et al. 2000, Owari and Sawanobori 2007). The following table (Table 2.3.1) summarises year and country of foundation for these certification schemes:

<table>
<thead>
<tr>
<th>Year of creation</th>
<th>Country</th>
<th>Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>Mexico</td>
<td>FSC</td>
</tr>
<tr>
<td>1993</td>
<td>Switzerland</td>
<td>ISO14000</td>
</tr>
<tr>
<td>1994</td>
<td>USA</td>
<td>SFI</td>
</tr>
<tr>
<td>1996</td>
<td>Canada</td>
<td>CSA</td>
</tr>
<tr>
<td>1998</td>
<td>Indonesia</td>
<td>LEI</td>
</tr>
<tr>
<td>1998</td>
<td>Malaysia</td>
<td>MTCC</td>
</tr>
<tr>
<td>1999</td>
<td>France</td>
<td>PEFC</td>
</tr>
<tr>
<td>2003</td>
<td>Chile</td>
<td>CERTFOR</td>
</tr>
<tr>
<td>2003</td>
<td>Japan</td>
<td>SGEC</td>
</tr>
</tbody>
</table>


2.3.1 Chain of Custody

One of the objectives of certification is to allow forest managers to make immediate claims about the quality of their forest management. This is particularly important where the demand for certification comes from investors, governments, shareholders or local communities. Another main driver behind forest certification remains the “expected” market demand for products that come from well-managed forests. It is therefore necessary to have a mechanism

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1 PEFC (Program for Endorsement of Forest Certification), CSA (Canadian Standards Association), SGEC (Sustainable Green Ecosystem Council), SFI (Sustainable Forest Initiative), MTCC (Malaysian Timber Certification Council), LEI (Lembaga Ecolabel Initiative)
which links products to the forest where the original tree was grown (Nussbaum & Simula 2005, Vogt et al. 2000).

Chain of custody (CoC) is the term applied to the process of tracking a unit of production through its entire supply chain from raw material to end product available for the final consumer (Vogt et al. 2000). In the forest industry, this tracking follows the piece of wood through the various distribution mechanisms and manufacturing processes it undergoes while being transformed from a tree to a finished product. The wood must be segregated from non-certified wood along the entire supply chain. Chain of custody must be established and certified for a producer to make a claim of forest certification in association with its products in the form of a product label (Nussbaum & Simula 2005). Chain of custody usually provides a labelling system which ensures that the environmental attribute of the wood product can be easily recognized in the market place.

2.3.2 Supply and Demand of Certified Wood Products

Several studies and international conventions such as the FAO/UNECE Working Party on Forest Economics and Statistics in May 2006, have noted that there are no official statistics available regarding trade in certified forest products (CFPs). This situation is also evidenced in the fact that CFPs are not present in the Harmonized Commodity Description and Coding System (HS) of the World Customs Organization (Kraxner et al. 2007).
2.3.2.1 Supply

By May 2007, approximately 294 million hectares of forest were certified in the world (ICFPA 2007, Kraxner et al. 2007). The capacity to manage forests sustainability has increased as well as the capacity to certify. While the rate of growth had been rapid during the previous four years, in part due to the increasing market demand in certain regions, the expansion of certification schemes, and the emergence of new schemes; the rate of increase in certified forest areas has slowed down in the last year (Simula 2006).

In terms of certified forest area per certification scheme, the market seems relatively equally divided. As of May 2007, FSC is slightly ahead, accounting for 30% of the area certified globally. With a share of 26%, CSA is the second largest scheme, slightly ahead of PEFC, with 23%, followed by SFI, with 20%. The smallest market share among the five major schemes is still held by ATFS, with 3%. As the CSA scheme and the SFI scheme were endorsed by PEFC in 2005, the total market share of the combined systems that are allowed to use the PEFC label on their forest products has increased to more than 67% (Kraxner et al. 2007).

The potential industrial round wood supply from certified forests has been estimated at approximately 387 million m$^3$ per year. This would be equivalent to approximately 25% of the world’s production of industrial roundwood. The corresponding regional breakdown is: North America 13.2%, EU/EFTA 10.5%, EECCA $^2$ 0.82%, Oceania 0.10%, Africa 0.01%, Latin America 0.12%, and Asia 0.03% (Kraxner et al. 2007). However, the actual proportion of harvest coming from certified forest is not reported. Also, it is known that not all the material flows through channels with chain of custody; as a result not all products produced from wood sourced from certified forests carry identifiable labels in the market place. In addition, some

$^2$ Eastern Europe, Caucasus and Central Asia
retail organizations may purchase wood that is from certified forests and supplied from sources with chain of custody certification, but choose not to sell the wood as certified. This condition results in the proportion of timber that is certified being much greater than the proportion of manufactured wood products that are marketed as certified (Simula 2006).

2.3.2.2 Demand

By 2005, the Forest Stewardship Council (FSC) estimated the size of the global market in FSC-certified products in excess of US$5 billion (FSC 2005). However, similar figures for the other schemes are not available.

Currently the number and type of existing CoC certificates are widely being used as practical tools for estimating the potential amount of CFPs in business-to-business transactions. Since 1998 the amount of certificates has greatly increased. Between May 2005 and May 2006 there was a rate of increase of 20%, about the same as in the preceding year (Kraxner et al. 2006). By Mid 2007 the amount of certificates issued globally neared 8,600, of which 63.4% were by FSC and 36.6% by PEFC (Kraxner et al. 2007). While most schemes now offer CoC certification, initially FSC and PEFC were the only schemes on the market offering full CoC for CFPs. FSC’s CoC certificates have so far been issued in 71 countries and PEFC certificates in 27 countries (Kraxner et al. 2007).

However, most of the wood now being harvested on forest land with forest management certification worldwide is not reaching the store shelf with a CoC label. Marketing certified wood all the way to the retail shelves has proved to be much harder than initially thought by proponents of certified products (Irland 2007).
In North America, it seems that certification is driven by business-to-business market players, but has not yet reached the mainstream final consumers (Duery and Vlosky 2006). Big retailers and importers, such as Home Depot, B&Q and Lowe’s, have been purchasing CPFs without paying or receiving price premiums or other type of market benefits but rather as part of purchasing policies aiming to communicate their environmental and social commitment. Thus, certification does provide some market access advantage but little price premium in these markets. Additionally there is a niche market created by “green building” movements such as the Leadership in Energy and Environmental Design (LEED) seeking to promote the greening of the construction sector. These frameworks seek to motivate designers and building owners to employ environmentally desirable materials such as CFPs (Irland 2007).

A number of European countries, such as Netherlands, United Kingdom and Finland are exceptions. Final consumers are the driving force for CFPs’ demand; a phenomenon considered a true market pull (Kraxner et al. 2006). Public procurement policies also seem to be a new force triggering increased demand of CFPs (Kraxner and Rametsteiner 2005).

The initial idea behind the creation of forest certification was that demand for environmentally friendly products would be translated into price premiums (Anderson and Hansen 2004). Following this assumption, several studies investigating customer willingness to pay these premium prices showed positive results (Ozanne and Smith 1995, Ozanne and Vlosky 1997). However, subsequent studies have documented that an expressed willingness to pay does not necessarily translate into purchase behaviour (Anderson and Hansen 2004, Anderson et al. 2005, Archer et al. 2005).

In general, mainstream industries do not usually request that wood products to be certified. Hence, potential supply of CFPs exceeds actual demand in most markets with supply
continuing to grow faster than consumer demand and most companies are reporting that there are no premiums for certified wood products (Anderson and Hansen 2004, Owari & Sawanobori 2006).

The next section will provide an overview of Japan and its wood market before discussing the status of CFPs in Japan.

2.4 The Japanese Wood Market

2.4.1 Japanese Macroeconomic Conditions

Economic policies and reforms implemented both by the government and the corporate sector during the 2001-2006 period seem to have produced the long expected results. The Japanese economy is now in a process of slow but steady expansion after a decade of stagnation characterized by a series of recessions (Economist 2007a, Japan Times 2007). Included among past positive actions are: government regulations to cut public spending and reduce its control over public funds, and a looser monetary policy in order to keep the yen from strengthening against other currencies (Nikkei 2007c). These measures were coupled with the slow, but effective, elimination of non-performing debts by Japanese banks and firms’ policies to reduce costs and focus on profits (Economist 2007a).

As of September 2007, the Japanese real gross domestic product (GDP) has shown over 10 consecutive quarters of growth and the government predicts a 2.3% expansion for fiscal 2007 (Economist 2007a; Nikkei 2007d). The unemployment rate has reached a nine year record low of 3.8% (Nikkei 2007a). The Nikkei stock market index has also been rising, and real estate prices have picked up, mainly in urban regions (Nikkei 2007b). Other key macroeconomic indicators
such as consumer price index (a shift from price deflation to slight inflation) and capital investment have also improved.

On February 2007, the Bank of Japan increased interest rates to 0.5%; the highest level in 8 years. However not all economic indicators are positive. Deflation, contributing to household’s poor consumption and stagnant income, is still haunting the economy (Economist 2007b, Nikkei 2007c). Additionally, an aging population is expected to exert a huge budgetary burden on the social and health systems together with a reduction of the work force (Nikkei 2007b).

Nevertheless, the overall perspectives are positive for the Japanese economy, with optimistic short and medium term projections; and growth expected to continue into the future (Economist 2007a).

2.4.2 Domestic Supply and Imports of Wood Products

Japan has 24.1 million hectares (ha) of forest land representing 64 percent of Japan’s total land area. Forty–four percent of the Japanese forest land (10.6 million ha) are plantations, mostly planted after Second World War (Fujiwara 2002). However, Japanese self sufficiency in timber has never surpassed 20 percent for the last 20 years (Cohen et al. 2005, MAFF 2007a). The topography in Japan is very steep, making it very difficult and costly to harvest timber on forested areas. In addition, Japanese labour costs are notoriously high (Eastin et al. 2002, Fujikake 2002).

These two factors raise the price of Japanese domestic forest products and lead to the importation of less expensive ones (Fujikake 2002, Gaston et al. 2006). This situation caused the
shrinking of the Japanese sawmill industry, which further increased the demand for imported lumber products (Eastin et al. 2002, MAFF 2007a).

In 2004, the volume of imported sawn wood into Japan totalled 9.1 million cubic meters and the volume of wood based panels totalled 6.5 million cubic meters (FAO 2007). Most imported wood is used in Japanese housing construction. Japan is second only to the U.S. in the number of annual wooden housing starts (Sasatani et al. 2005, Gaston et al. 2006).

2.4.3 The Housing Industry in Japan

The Japanese residential construction sector is an attractive market for any firm or region that supplies wood-based building materials. Despite a reduction in housing starts in the mid 1990s, annual housing starts have surpassed 1.1 million for the past 5 years (Cohen et al. 2005, MLIT 2007, JAWIC 2007). Approximately 45 percent of all new houses are built with wooden structural members; and this proportion has been stable for the last two decades (Cohen et al. 2005, MLIT 2007). In addition, almost all houses use wood in architectural finish applications (Cohen et al. 2001, Eastin et al. 2004).

Wooden houses are classified into three categories according to construction method: post and beam, 2 by 4, and prefabricated (Ogi 2002, Sasatani et al. 2005). In Japan, 1,290,391 houses were built during 2006, and 43% (559,201) of that amount were built using wood as primary structural material. Out of the total number of wooden houses, 77% were post and beam, 4% were prefabricated and 19% were 2x4 (JAWIC 2007).

A study conducted by the Japan Housing and Finance Agency reported that the average price of a house purchased together with land (built for sale) was 38.8 million yen, with an average constructed area of 106.6 m²; while the price of a house alone (individually
commissioned) was 29.8 million yen, with an average constructed area of 143.2 m². The same report also indicated that the average price of a construction lot was 15.0 million yen (JHFA 2007).

Construction companies are traditionally classified into three main categories. The first group are the big builders, also called home manufacturers. These companies, headquartered in main urban centers, operate at a national level building houses in different prefectures across Japan with a minimum of 500 houses completed per year. The second group are the medium size builders; these usually operate within a specific region and build between 100 and 500 houses per year. The small builders, also referred to as contractors, can be subdivided into Komutens (Japanese term for “builder”) and carpenters. Carpenters build less than forty houses per year, while Komutens complete less that 100 houses per year. Both of these small builders are locally based (Barlow and Ozaki 2001, Sasatani et al. 2005).

Many traditional post-and-beam houses are built by small builders; while medium and big builders have a bigger share of the prefabricated and 2 by 4 systems (Barlow and Ozaki 2001, Ogi 2002).

Over 75 percent of all new dwellings in Japan are built by the small builders (Barlow and Ozaki, Ogi 2002). However, while the big builders enjoy only a 25% of the housing market, this group exerts the greatest influence on every aspect of the industry, from type of housing to interior design (Ogi 2002). It is these larger builders that have the most influence over building regulation changes and set stylistic trends.

Despite the attractiveness of the Japanese residential construction sector, there exist a series of drivers of change, which have made Japan a much more challenging export target
market. A better understanding of the changing consumer preferences for housing can serve to improve opportunities for wood products exporters (Cohen et al. 2005).

There are two main factors that have substantially contributed to recent changes in consumers’ preferences in housing. The first factor is the economic recession of the 1990s in Japan which has forced consumers to become more price sensitive and value conscious (Cohen et al. 2005).

A second factor is the significant evolution in building regulations to increase the quality of new houses in Japan (Cohen and Gaston 2001). These new legislative efforts include: changes to the requirements for loans from the Government Housing and Loan Corporation (GHLC), a revision of the Building Standards Law (BSL); and the Housing Quality Assurance Law (HQAL) passed in 2000 (Cohen and Gaston 2001, Cohen et al. 2001). Also, a new element that could be added to this group of legislative factors are the recent public purchasing policies (PPPs), which are expected to promote demand for certified wood products (JLJ 2006a, Simula 2006).

An additional group of recent factors reshaping the house building environment are related to demographic trends and include: a shrinking population and increasing influence of the aged. These trends have spurred a demand in healthy housing and demand in the repairs and remodelling sector (Gaston et al. 2006). Another group of factors is related to changes in the dynamics of wood supply and include: the growing diversification of international supply, which has intensified competition among global suppliers (Cohen et al. 2005); as well as the increasing competitiveness, specifically from a price perspective, of domestic timber resource compared to European woods (Cohen et al. 2005, Edgington 2005). Finally, the recent economic recovery, as did the recession of the 90’s, could undoubtedly have a role in modifying the demand of wood products in Japanese market (Economist 2007a, Nikkei 2007d).
2.4.4 Demand for Certified Forest Products in Japan

Japan has traditionally been considered an indifferent market regarding demand for CFPs. A survey conducted by the Japanese Ministry of Agriculture, Forestry and Fishery in 2002 found out that only 8% of consumers, 7% of distributors and manufacturers (including home builders) and 13% of forestry professionals were highly familiar with forest certification. The research also reported that only 8% of foresters and 7% of distributors and manufacturers in Japan were highly interested in joining or in participating on a forestry certification program (MAFF 2007b).

However, recent developments, such as the increased demand for CoC certification, suggest that this condition may change (Kraxner et al. 2006). Currently, the leading certification scheme is FSC, followed by PEFC. However, since the introduction of a national scheme, the Sustainable Green Ecosystem Council (SGEC) in 2003, major paper manufacturers and house-building companies have started to apply for this certificate (Kraxner et al. 2006).

The paper and tissue industries represent the majority of CoC certificate holders in Japan. Additionally, major paper manufacturers have procurement policies which increasingly require the use of certified products (Kraxner et al. 2006).

A study of the certified companies from the Japanese forest sector and paper industry found that 77% of respondents had sold CFPs in 2004. Paper and paper related products accounted for 90% of the total sales value of certified products reported by respondents. Wood products, such as those used in do-it-yourself chains and the housing industry, represented only a small proportion of sales. The differences in sales and general levels of adoptions of certification between the two industries may lie in the relative simplicity of the supply chain structure in the paper industry compared to that of the wood products industry. Technical complexities in the
procurement of materials in the housing industry may impose greater challenges when it comes to products segregation (Owari and Sawanobori 2007).

It was not possible for most Japanese companies to receive premium for CFPs; therefore the great majority of certified forest products are marketed with no indication of their environmental certification (Owari and Sawanobori 2007).

The same study also explains that the reason for the late and slow incorporation of forest certification by the industry in Japan was primarily due to an absence of radical consumer’s campaign by environmental NGO’s during the previous decade (Owari and Sawanobori 2007).

2.5 Public Procurement Policies for Forest Products

2.5.1 General Overview and its Relation with CSR

Several importing countries (primarily economically developed countries) have incorporated, or are in the process of incorporating, public procurement policies (PPPs) into their government purchases of forest products. These policies consist of laws and regulations setting standards for the acquisition of forest products by governmental bodies (ITTO 2006, UNECE/FAO 2006b). These policies are being implemented within the framework of broader public sector efforts to promote environmental conservation through “green” procurement.

PPPs are the outcome of international efforts and agreements to tackle environmental and sustainability issues such as deforestation and illegal logging. Some of these agreements include: the EU Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan, the G8 summits, and the Kyoto protocol (Simula 2006). In many cases, PPPs development has also been accelerated by an increasing number of publications and media reports portraying illegal logging
as a main factor that contributes to global environmental degradation and as an obstacle for sustainable forest management (Simula 2006, ITTO 2006).

These policies are usually obligatory market instruments whose main objective is to improve sustainable forest management and governance, in both producing and importing countries, by promoting demand for sustainably and legally sourced forest products (Simula 2006, ITTO 2006).

Public procurement policies are envisioned to work in conjunction with the private sector’s initiatives in order to create synergies and benefit from each other’s influence on the supply chain of forest products. For instance, in some European countries public procurement policies together with corporate social responsibility (CSR) efforts are one of the main market drivers of certified forest products (Simula 2006).

CSR is the private sector’s initiatives to incorporate environmental and social issues in their decision-making and operational frameworks. Firms in the forest sector usually focus their CSR efforts on timber sourcing by the implementation of private or corporate procurement policies (CPP) and/or the adoption of voluntary third party certification (Bowyer et al. 2007).

Emerging PPPs in various regions share many common elements but there are also differences concerning to the type of acceptable evidence, the degree of obligation and the level of detail required. At the initial stage, legality is usually defined as a basic requirement for government procurement while proof of sustainability tends to lead to preferential treatments such as priority in the bidding and tendering processes (Simula 2006).

There are also various concerns on how these policies may negatively influence the trade of wood products. Among the main areas of concern identified are: substitution towards products other than wood, which may be much more environmentally hazardous but are not subject to
similar regulations; unfair advantages for regions and products better positioned to implement certification program, which may result in economic harm to lesser developed regions; and non-tariff trade barriers originated from often inconsistent and complicated policies (ITTO 2006, Simula 2006).

2.5.2 Use of Forest Management Certification

Public procurement policies tend to rely on the use of certificates and audit statements issued by bodies with varying levels of independence (Simula 2006). While alternative means of verification of legality are being developed (JLJ 2006a), procurement policies for wood and paper products are increasingly specifying existing independent forest certification schemes for assurance, not only of sustainable forest management but also of legality (UNECE/FAO 2006a; UNECE/FAO 2006b). While the debate as to whether forest certification can guarantee proper forest management only or actual forest sustainability is not resolved yet, forest certification can be used as an effective tool for verifying legality (Vogt et al. 2000).

National assessment guidelines or criteria have been developed by governments for assessing certification systems with the vision that they would play a leading role in implementation of PPPs. These guidelines typically cover both procedural criteria and substantive requirements for sustainability and chain-of-custody. The UK, Belgium, Denmark, Germany and Japan have already assessed certification schemes (Simula 2006, UNECE/FAO 2006b).
2.5.3 Impact on Demand of Products with Forest Management and/or Legality Certification

Public sector procurement can be a significant factor influencing market demand for forest products. The first form of influence is related to direct demand. While the available information currently does not allow accurate calculation of the size of the public sector market for forest products in the countries applying procurement policies, it has been estimated to be around 3% for countries like Japan (Kraxner et al. 2007), and in the range of 10% to 25% for EU countries. These proportions may vary by types of product, such as wood or paper products; and by end use segment, such as central or local government (Simula 2006).

For solid wood products, the greatest influence would be in building construction and civil works, particularly applications where timber has an established position like marine construction. Most of the wood for the public sector is in fact purchased by contractors, furniture manufacturers, and so on, who would engage themselves in buying products which comply with the legality and sustainability requirements (UNECE/FAO 2006a).

The second, and probably the most important, form of influence is related to the wider message being delivered in Public Purchasing Policies. The potential impact of public procurement on the behaviour of market actors could be larger than what its relative share indicates because public purchasing can act as a standard setter and example for the private sector. It could be expected to change their broader business patterns such the need to segregate certified material from that which is not (UNECE/FAO 2006a). There is, however, no factual information on such potential leverage effect of the public procurement on the market as a whole (Simula 2006).
2.5.4 PPPs in Japan

At the G8 Environment and Development Ministerial Conference in 2005, Japan committed to a range of environmental actions. This commitment included the adoption of a public procurement policy to control illegal logging and associated trade and to assist timber producing countries towards equivalent developments (G8 Gleneagles 2005). In addition, Japan's Climate Change Initiative requests the addressing of illegal logging through government procurement policy and other related policies (MOFA 2005).

The Japanese government issued the “Guidelines for Verification on Legality and Sustainability of Wood and Wood Products”, which came in effect in April 2006 and mandates the procurement of legally verified products by government bodies. The framework used was the amending of the "Basic Policy on Promoting Green Purchasing" of the "Law Concerning the Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities" (Forest Agency of Japan 2006).

In this policy 'legality' is considered a basic 'Evaluation Criteria', and 'sustainability' is a 'Factor for Consideration'. There are three basic means of verification described in the guidelines: 1) forest certification and chain of custody, 2) verification under the authorization of industry association and 3) original method of each company. Other methods with the same level of reliability are also accepted (Goho Wood 2007, Forest Agency of Japan 2006). At this initial stage, the objective of the policy is to secure a minimum level of legality and sustainability, and necessary amendments will be added as occasion demands (Goho Wood 2007).
3 PROBLEM STATEMENT AND OBJECTIVES

Research regarding demand for certified forest product in Japan is fairly scarce; however it is common knowledge, in both the academic and wood business environment, that the Japanese consumers have been rather indifferent when it comes to interest for certified forest products (Owari & Sawanobori, 2006, Cohen et al. 2005). Furthermore in Japan there has been a traditional preference towards wood products featuring types of certification other than for forest management, such as those related to health, durability or performance issues (Eastin et al. 2004, Wahl et al. 2002). This interest has been further supported by the media coverage and governmental regulations.

Recently, Public Procurement Policies have been gaining considerable momentum in international forums. They are seen as effective government tools to influence demand in favour of forest products certified for sustainability and/or legality (UNECE/FAO 2006a). These government policies, together with the increase in corporate social responsibility which usually incorporates private purchasing policies with similar objectives to those of the PPPs (Bowyer et al. 2007), are expected to affect the market demand of forest products in favour of those bearing some kind of certification that guarantees legality and/or sustainability (Simula 2006).

Additionally, after approximately 10 years of stagnation, Japan has been experiencing a consistent economic recovery with an average GDP growth of 2% in the last 3 years, a reduction in the unemployment rate to 3.8%, and improvements in real estate prices and in the Nikkei index (Nikkei 2007a). The housing industry continues to show signs of growth with housing starts surpassing 1,200,000 units in 2005 (Sasatani et al. 2006).

In Japan, builders and housing developers are one of the main specifiers of wood products. Previous research has examined numerous product attributes demanded by Japanese

All these recent changes indicate a need to re-examine the Japanese market regarding potential for legal and/or certified wood products. The main objective of this research is to assess market opportunities, in the next 3-5 years, for wood products coming from sustainable and/or legal sources. The specific objectives are:

- To evaluate builders’ understanding, willingness and capacity to implement certification programs for wood products
- To evaluate market demand of certified and/or legal wood products over the next 5 years
- To identify drivers of market demand for certified and/or legal wood products in the next 5 years
- To evaluate the impact of PPPs on market demand of certified and/or legal wood products over the next 5 years.

Results from the objectives above can contribute to the development of marketing strategies to improve trade of environmentally acceptable wood products in Japan. They can also aid policy makers and other stakeholders interested in the promotion of sustainability and legality in the trade of wood products. This research represents a starting point for further projects in other wood importing markets where similar demand drivers and developments are already being identified.
4 METHODOLOGY

4.1 Research Methodology

A mail survey was used to collect the data for this study. A self-administered questionnaire was designed with input from academic experts at the University of British Columbia and industry representatives in Japan and Canada. Respondents were required to answer questions designed to obtain information about their knowledge of certified wood products and legislation pertaining to certification, their perceptions about current and expected demands of certified and/or legal wood products, as well as drivers influencing on these demands.

4.2 Definition of Population and Sampling Method

The target population of this study consisted of the medium and large wood home builders in Japan. The builders, often in response to government regulations (e.g. Housing Quality Assurance Law of 2000) or public pressure and preferences (e.g. the shift to solid surfaces flooring including laminate and wood) are one of the main specifiers of wood materials and products used in construction in Japan (Cohen & Gaston 2001, Eastin et al. 2004).

The sampling frame was provided by researchers at the Center for International Trade in Forest Products (CINTRAFORE) based in the University of Washington. The Center developed a list of builders following the methodology for Judgmental Sampling (Babbie 2004). Information on developing the sample frame was provided in an email as described below:

“The unit of analysis was a company (or a builder) as an organization. Since a company may have several branches, departments and brand names within its
organization; all of them were integrated into the company that was surveyed. Unfortunately, there is no complete list of the whole population of top Japanese builders available; therefore all builders that matched the criteria were selected from multiple publicly available literature and from consultation with several experts. Initially, 300 wooden housing builders were selected from industry related publications such as Nikkei Home Builder (2004), Nikkei Housing and Condominiums Supply Survey (2005) and Mokuzai Kenzai Weekly (2005). These sources include not only builders name but also some demographic characteristic such as annual housing starts. Yet, there was no contact information of these builders. Addresses were downloaded from appropriate web sites. Then, five Japanese industry experts examined the list and suggested adding 122 more builders. A total of 422 companies made up the final list. All of these 422 firms received a survey.”

4.3 Survey Design

4.3.1 Mail Questionnaire

The mail questionnaire designed to survey builders in Japan had 25 questions divided into three different sections (see Appendix I for the questionnaire in English, and Appendix II for the questionnaire in Japanese). Section one collected company profile information such as location, area of operation, number and sizes of houses built, types of customers served, and materials used.
Section two was designed to collect information about the levels of understanding and familiarity with forest management certification and legality of wood products; as well as with policies and regulation associated to those topics such as public procurement policies. In Section three, questions about current demand levels, expected increases and drivers of demand for forest management certified and/or legal products were asked.

Those companies that wanted a copy of the results of this study were able to include their e-mail address in the space provided at the bottom of the last page.

4.3.2 Cover Letters

Two letters were created to accompany with the questionnaires (see Appendix III for letters in English and Appendix IV for letters in Japanese). While both letters had in essence a similar content, the differences between them were related to the different phases of the implementation process when each was sent.

The first letter focused on presenting and clarifying the project in detail, explained the importance of the respondent’s voluntary participation, guaranteed their anonymity, and offered contact information. The second letter, a follow up, had a more determined tone and included the same element as the first one but also thanked recipients for their participation to those that had already responded and asked those that have not done so. It also asked recipients to pass the questionnaire onto someone in the organization to whom it may be of interest or were more suitable to complete the questionnaire.
4.3.3 Ethics Considerations

The study was conducted under the guidelines set forth by UBC Behavioural Research Ethics Board, with approval certificate issued on March 21st 2007 (see appendix V). This process guarantees that no harm would be applied to participants, that their participation will be absolutely voluntary and that the anonymity and confidentiality of the respondents’ personal information is assured.

4.4 Implementation

The principles described in the Tailored Design Method (Dillman 2000) were used as reference for the implementation process of the survey. However, this method was customized to fit both the conditions of this study and budgetary constraints.

The questionnaires and cover letters were translated into Japanese by a Japanese native translator who has a specialty in environmental issues with assistance of the graduate student. This was done to ensure not only an accurate language and cultural translation but also a correct interpretation of the key messages from its original English version into the Japanese language.

The next step consisted of pre-testing the questionnaire (Babbie 2004). This process allowed for the verification of possible errors both due to format and content issues such as ambiguous statements, unanswerable questions and typos. Eight questionnaires, four in Japanese and four in English, were distributed among individuals familiar with wood products and the Japanese housing industry, whom were asked to complete the questionnaires representing actual respondents in the sampling frame. Minor adjustments in the survey were made after input from the eight respondents in the pre-test.
The questionnaires, letters and envelops were printed in Japanese by a professional printing firm in Japan. The questionnaire and letters were printed on A4 paper which is the customary format used in Japan for business communications and official documents.

The survey was personally administered by the graduate student in Japan. Only two mail outs were prepared due to the considerable costs of postal service in Japan, and the mailings were done from the researcher’s residence in Kanazawa city, Ishikawa prefecture.

The first mail out included the questionnaire, a cover letter and a business reply prepaid envelope, and were sent on April 3rd, 2007. The second mail out consisted of a letter, a second questionnaire and business reply prepaid envelop, and was sent two weeks after (April 18th, 2007) the first one to all 422 companies on the list. Responses were collected for four weeks after the first mail out. Results of the survey were sent back to UBC in Canada after the fifth week for data analysis.

4.5 Data Analysis

Descriptive statistics was the primary approach employed for the analysis of the data collected in the survey. Univariate inferential statistics was also used for a group of questions in order to provide a clearer perspective of differences between means; however given the non-random nature of the sample, outcomes from significance tests might be taken with discretion. The analysis plan for each questionnaire item was then defined in accordance to the type of scales used, the nature of the data, as well as the research questions posed in the project. Microsoft Excel 2000 and SPSS 16.00 were the statistical software programs employed.
5 RESULTS

Following a brief analysis of the response rate and its implications for inferential analysis, this section is organised in accordance to the structure of the survey questionnaire, which was divided in three sections: demographics and profiling; knowledge and attitude about forest management, legality and other types of certification; and expectations regarding supply, demand and main drivers of certified and/or legal wood product.

Results are presented using a combination of graphs and tables plus descriptive text of the most important information.

5.1 Response Rate

The response rate (RR) was calculated as follows:

\[
RR\% = \frac{\text{Total Responses}}{\text{Total Mail Out} - \text{Total Returns}} \times 100
\]

A total of 422 questionnaires were mailed out to construction companies in Japan. Twelve were returned to the sender because the address was changed or nonexistent. Sixty two respondents mailed back completed questionnaires. The response rate calculated was 15.1%.

5.2 Demographics and Business Profile

Section I (from question 1 through 8) was designed to gather demographic and profile information from respondents. Question 1 asked respondents about the location of their head office by city and prefecture. This information was then organized into location by regions as shown in Figure 5.2.1.
The regions with the highest percentages of company’s head offices were: Kanto (including Tokyo), Chubu and Tohoku, with 34%, 21% and 19% of head offices respectively; making up for a total of 74% head offices located within these three regions (Table 5.2.1).

In a similar fashion, respondents were required to provide information regarding the regions where they build houses (Question 2). Table 5.2.1 shows that the highest percentages of companies operations are located in: Kanto (including Tokyo), Chubu and Tohoku, with 29%, 16% and 13% respectively; making up for a total of 58% within these three regions.
Table 5.2.1 Respondents' head office location and regions where they built houses

<table>
<thead>
<tr>
<th>Regions</th>
<th>Location of Head Office</th>
<th>Location of Operation (Houses Built)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>%</td>
</tr>
<tr>
<td>Chubu</td>
<td>13</td>
<td>21</td>
</tr>
<tr>
<td>Tohoku</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>Kanto (Except Tokyo)</td>
<td>11</td>
<td>18</td>
</tr>
<tr>
<td>Tokyo</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Kinki</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Hokkaido</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Kyushu/ Okinawa</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Shikoku</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Chugoku</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td></td>
</tr>
</tbody>
</table>

Question 3a asked companies about the quantity of houses built per year. This information was subsequently organized into company size classes for big builders, small home builders and so on. Figure 5.2.2 shows the percentage of respondents falling into the different size classes.

Figure 5.2.2 Respondents' percentage by size classes (number of houses built per year)
“Companies building less than 40 houses a year (carpenters)” was the category with the higher percentage, with 38% of respondents; and the second biggest category was that of “companies building between 40 and 100 houses a year (Komutens)” with 23% of respondents.

In question 3b respondents specified the percentage of houses sold with land compared to the percentage of housed sold without land (house only). Figure 5.2.3 shows that, on average, the majority of houses are sold without land.

![Figure 5.2.3 Distribution of average sales of houses with land vs. houses only](image)

In questions 4a and 5a, respondents indicated the sales price for “houses with land “and “houses only” according to price categories in Japanese yen. Figure 5.2.4 shows that the majority of houses sold as “houses only” fall within the two lowest price categories of: “between ¥20,000,000 and ¥29,999,999”, and “Less than ¥ 20,000,000, with 57% and 38% of houses respectively. Meanwhile, the majority of houses sold as “houses with land” are located within higher prices categories of: “between ¥40,000,000 and ¥49,999,999”, and “between ¥30,000,000 and ¥39,999,999”, with 24% and 29% of houses respectively.
The average price of houses was estimated, for both “houses with land” and “houses only”, by assigning a central value (the midrange) to each price category response. The new values were summed up and the results divided by the total number of respondents. The arbitrary nature of the data does not allow carrying out statistical significance test. Figure 5.2.5 shows that the estimate of the average price for houses sold with land (¥32,073,171) was higher than that of houses sold without land (¥19,827,586).
In questions 4b and 5b information about the average area of houses was obtained for both “houses with land” and “houses without land”. Figure 5.2.6 shows means and standard deviation for each type of house. A simple T test shows that there is a significant difference between the two means ($\alpha = 0.05$). This indicates that the average area of houses without land (135m²) is greater than that of houses sold with land (121m²).³

![Figure 5.2.6 Average area of houses sold (p < 0.05)](image)

Together with the estimated information about average price of houses and information about average area of houses, the unit area price per square meter was also estimated. Figure 5.2.7 shows that, once the average price of a lot (¥15,000,000) is subtracted, the unit area price of houses sold with land (¥141,559/m²) is lower than the unit area price of houses sold without land (¥147,010/m²). Because arbitrary data from the previous question was used, a significance test was not carried out.

³ In Japan the area of a house does not include area of the basement.
In question 6 companies are asked to indicate the percentage of houses built according to two classification systems: “By type of construction method” in (Q6a), and “By type of material used” (Q6b). Figure 5.2.8 shows that the greatest percentage of houses were built under the “Post & Beam” method with 64.9%; this was followed by “2 x 4 (North American)”, “Others”, “Hybrid” and “Prefabricated” methods, with 26.4%, 4.5%, 3.8% and 0.3% respectively.

---

4 Unit price of houses sold with land does not include the price of the land
Figure 5.2.9 shows that the majority of houses were built with “Wood” as the primary structural material, with 95.8% of the total. This category was followed by houses built with “Steel”, “Mixed Material”, “Others” and “Reinforced Concrete”; with much lesser amounts.

![Average distribution of houses by structural material](image)

**Figure 5.2.9 Average distribution of houses by structural material**

Question 7 provided an idea of the sources of wood materials used in housing construction. Respondents indicated, in percent, the origin of their wood products according to types of suppliers. Figure 5.2.10 demonstrates that “Medium sized Distributors” with 36%, and “Domestics Mills” with 32%, are the two major sources of wood products; while the other categories: “Large (regional) Distributors”, “Directly from Foreign Countries” and “Retailers or DIY Stores”; accounted for 18%, 10% and 4% respectively.
Figure 5.2.10 Average distribution of wood products suppliers

Question 8 was designed to provide information regarding types of consumers of housing in Japan. Respondents were requested to indicate the percent of house sales according to customer categories. Figure 5.2.11 shows that the greatest bulk of customers fall into the “Individuals” category with 98.7% of the market; while the rest of the market is shared by “Private institutions” with 0.9% and “Government or Public institutions” with 0.5% of the market.

Figure 5.2.11 Average distribution of houses sold per customer category
5.3 Knowledge and Attitude about Forest Management, Legality and Other Types of Certification

Section 2 of the questionnaire was designed to collect information on builders’ understanding, familiarity and attitudes regarding issues related to certification and legality of forest products; as well as associated regulations and policies such as public procurement policies.

Question 9 presents respondent with a list of 7 current global issues related to the environment and sustainability. Companies were asked to specify levels of importance placed to these issues by selecting responses from a five-point Likert scale varying from “Not at all Important” (5) to “Very Important” (1). For each environmental issue, means and standard deviations were calculated and presented in Figure 5.3.1. Ninety-five percent confidence intervals were also computed for each topic and the means were tested against a neutral point (Table 5.3.1). This hypothesis test verified if responses were significantly different from “3” (alpha level of 0.05), which is the point in the scale that represents an undecided or neutral attitude. All seven issues had means significantly different from 3 and fell in the “important” side of the scale. This indicated that, on average, respondents give importance to: “energy efficiency, use of renewable resources, etc.” (1.38), “global warming” (1.39), “forest sustainability” (1.44), “soil conservation” (1.72), “bioregionalism of design and construction” (1.8), “fresh water conservation” (1.8) and “protection of the oceans” (1.9) in decreasing order of importance. Respondents neither “give” nor “do not give” importance to only one option: “others” (1.67).
Figure 5.3.1 Importance of environmental issues

Table 5.3.1: 95% confidence interval for average level of importance

<table>
<thead>
<tr>
<th>Environmental Issue</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection of the oceans</td>
<td>1.90 ± 0.24*</td>
</tr>
<tr>
<td>Fresh water conservation</td>
<td>1.80 ± 0.21*</td>
</tr>
<tr>
<td>Bioregionalism of D&amp;C</td>
<td>1.80 ± 0.17*</td>
</tr>
<tr>
<td>Soil conservation</td>
<td>1.72 ± 0.20*</td>
</tr>
<tr>
<td>Other</td>
<td>1.67 ± 0.86</td>
</tr>
<tr>
<td>Forest sustainability</td>
<td>1.44 ± 1.44*</td>
</tr>
<tr>
<td>Global warming</td>
<td>1.39 ± 0.15*</td>
</tr>
<tr>
<td>Energy efficiency, use of renewable sources, etc</td>
<td>1.38 ± 0.12*</td>
</tr>
</tbody>
</table>

*Significantly different from a neutral point of 3 (α = 0.05)

The next question measured builders’ level of familiarity with different operational and legislative aspects related to forest certification such as: “Certification procedures” (Q10a) “Procurement of certified forest products” (Q10b) and “Policy and regulations” (Q10c). Respondents were requested to specify their levels of familiarity with different items from each
category using a five-point Likert scale which varied from “not at all familiar” (5) to “totally familiar” (1).

Figure 5.3.2 displays means and standard deviation calculated for each element of certification. Ninety-five percent confidence intervals were also computed for each element and the means were tested against a neutral point (Table 5.3.2). All elements had means significantly different from 3 ($\alpha = 0.05$) and were in the “not familiar” side of the scale. This means that, on average, builders had fairly low levels of familiarity with: “certification fees” (4.02), “periodical audits” (3.98) and “product segregation” (3.92).

![Figure 5.3.2  Familiarity with elements of certification procedures](image)

**Table 5.3.2: 95% confidence interval for average familiarity with certification procedures**

<table>
<thead>
<tr>
<th>Element</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certification fees</td>
<td>4.02 ± 0.27*</td>
</tr>
<tr>
<td>Periodical audits</td>
<td>3.98 ± 0.27*</td>
</tr>
<tr>
<td>Product segregation</td>
<td>3.92 ± 0.26*</td>
</tr>
</tbody>
</table>

*Significantly different from a neutral point of 3 ($\alpha = 0.05$)

In Figure 5.3.3 the mean and standard deviation calculated for each aspect of procurement of certified forest products are plotted. Ninety-five percent confidence intervals were also computed for each item and the means were tested against a neutral point (Table 5.3.3).
All items had means significantly different from 3 ($\alpha = 0.05$) and were in the “not familiar” side of the scale; meaning that, on average, builders were not familiar with: “prices of CFPs”, “types of CFPs available” and “existing suppliers of CFPs”, with 4.03, 3.85 and 3.85 average scale values respectively.

![Figure 5.3.3 Familiarity with procurement aspects of certified forest products](image)

**Table 5.3.3: 95% confidence interval for average familiarity with procurement aspects.**

<table>
<thead>
<tr>
<th></th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prices of CFPs</td>
<td>4.03 ± 0.23*</td>
</tr>
<tr>
<td>Types of CFPs available</td>
<td>3.85 ± 0.26*</td>
</tr>
<tr>
<td>Existing Suppliers of CFPs</td>
<td>3.85 ± 0.25*</td>
</tr>
</tbody>
</table>

*Significantly different from a neutral point of 3 ($\alpha = 0.05$)

In a similar fashion, Figure 5.3.4 shows means and standard deviation for a list of policies and regulations associated with forest certification and legality of forest products. Ninety-five percent confidence intervals were also computed for each item and the means were tested against a neutral point (Table 5.3.4). All items had means significantly different from 3 ($\alpha = 0.05$). In this case, respondents indicated that they were familiar with only two policies and regulations: the Housing Quality Assurance Law (2.23) and “the Kyoto protocol” (2.56); while they were not familiar with the other three policies and regulation: “Guidelines for Verification
on Legality of Wood Products” (3.82), “Corporate purchasing policies” (3.93) and “Public procurement policies” (4.00).

![Figure 5.3.4 Familiarity with policy and regulation regarding certification of forest products]

Table 5.3.4: 95% confidence interval for average familiarity with policy and regulations.

<table>
<thead>
<tr>
<th>Policy and Regulation</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPP</td>
<td>4.00 ± 0.22*</td>
</tr>
<tr>
<td>CPP</td>
<td>3.93 ± 0.23*</td>
</tr>
<tr>
<td>Guidelines for Ver. on Leg. of WP</td>
<td>3.82 ± 0.24*</td>
</tr>
<tr>
<td>Kyoto Protocol</td>
<td>2.56 ± 0.21*</td>
</tr>
<tr>
<td>HQAL</td>
<td>2.23 ± 0.27*</td>
</tr>
</tbody>
</table>

*Significantly different from a neutral point of 3 (α = 0.05)

The purpose of question 11 was to measure a different dimension of builders’ knowledge about certification by requesting them to indicate their familiarity with various forms of certification which were grouped into two categories: “By issues being certified” (Q11a) and “By certification scheme” (Q11b). Respondents specified their levels of familiarity with the different types of certification by selecting from a five-point Likert scale which varied from “not at all familiar” (5) to “totally familiar” (1).
Figure 3.5.5 shows means and standard deviation calculated for the types/issue of certification. Ninety-five percent confidence intervals were also computed for each type and the means were tested against a neutral point (Table 5.3.5). Three types of certification had means significantly different from 3 ($\alpha = 0.05$). This indicates that builders were familiar with “Structural stability, durability, etc” (2.34); and that builders were not familiar with: “Forest management” (3.75) and “Legality” (3.77).

![Figure 5.3.5 Familiarity with certification by issues to be certified]

**Table 5.3.5: 95% confidence interval for average familiarity with issue of certification**

<table>
<thead>
<tr>
<th>Issue</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>4.00 ± 4.30</td>
</tr>
<tr>
<td>Legality</td>
<td>3.77 ± 0.27*</td>
</tr>
<tr>
<td>Forest management</td>
<td>3.75 ± 0.25*</td>
</tr>
<tr>
<td>Health/toxicity</td>
<td>2.68 ± 0.26</td>
</tr>
<tr>
<td>Structural stability, durability, etc.</td>
<td>2.34 ± 0.26*</td>
</tr>
</tbody>
</table>

*Significantly different from a neutral point of 3 ($\alpha = 0.05$)

Figure 5.3.6 shows the means and standard deviation calculated for builders’ familiarity with different certification schemes. Ninety-five percent confidence intervals were also computed for each scheme and the means were tested against a neutral point (Table 5.3.6). Eight
types of certification had means significantly different from 3 ($\alpha = 0.05$), indicating that respondents, on average, were not familiar with: FSC, PEFC, CSA, SGEC, SFI, MTCC, LEI and others. Also, respondents were neither familiar nor unfamiliar with ISO 14000.

![Figure 5.3.6 Familiarity with certification schemes](image)

**Table 5.3.6: 95% confidence interval for average familiarity with certification scheme**

<table>
<thead>
<tr>
<th>Certification Scheme</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>4.86 ± 0.35*</td>
</tr>
<tr>
<td>LEI</td>
<td>4.43 ± 0.15*</td>
</tr>
<tr>
<td>MTCC</td>
<td>4.37 ± 0.19*</td>
</tr>
<tr>
<td>SFI</td>
<td>4.31 ± 0.18*</td>
</tr>
<tr>
<td>SGEC</td>
<td>4.27 ± 0.19*</td>
</tr>
<tr>
<td>CSA</td>
<td>4.25 ± 0.21*</td>
</tr>
<tr>
<td>PEFC</td>
<td>4.17 ± 0.24*</td>
</tr>
<tr>
<td>FSC</td>
<td>3.97 ± 0.28*</td>
</tr>
<tr>
<td>ISO 14000</td>
<td>2.82 ± 0.29*</td>
</tr>
</tbody>
</table>

*Significantly different from a neutral point of 3 ($\alpha = 0.05$)

Question 12 sought out to determine builders’ opinions about the appropriateness of several existing certification schemes for the current condition of the Japanese forest product market. Respondents were asked to rank the three most appropriate forest management schemes
(1 = first most appropriate, 2 = second most appreciate, and 3 = third most appropriate). These ranks were then assigned arbitrary scores of 3, 2 and 1 respectively; and then summed up to calculate evaluation points for each scheme.

Figure 5.3.7 shows that respondents ranked the FSC as the most appropriate certification scheme for the Japanese market with 51 points. A group consisting of SGEC, ISO 14000 and PEFC, with relatively close rankings: 32, 25 and 20 points respectively, can be considered to be the second most appropriate set of certification schemes. In the same manner, the remaining schemes can also be grouped together as the third most appropriate schemes: SFI with 8 points, MTCC with 8 points, LEI with 8 points and CSA with 5 points.

![Figure 5.3.7 Most appropriate certification schemes for the Japanese wood market](image)

In question 13 respondents were asked to specify the reasons for choosing the schemes in the previous question (Q12). Respondents were presented with seven possible reasons and asked to select all options which applied to them. Then relative frequencies were calculated for each option, as shown in Figure 5.3.8. “Stronger presence and implementation in Japan”, with 40.4%
of responses, was the primary reason for choosing a scheme as appropriate for the Japanese market; followed by “higher international recognition” with 34% of responses.

![Figure 5.3.8 Reasons for choosing schemes in Q12](image)

Question 14 was designed to obtain information regarding builders’ levels of adoption of CoC certification and/or procurement policies as well as the reason for such adoptions. Respondents were asked to indicate separately whether they were CoC certified and/or had implemented purchasing policies of forest products (Q14a). Then relative frequencies were computed for each instance. Figure 5.3.9 shows that only seven percent of the respondents indicated they were CoC certified and that also a similar figure (7%) stated to have a procurement policy in place. Also approximately 6% specified to that they had both CoC and a procurement policy.
In Question 14b respondents were requested to indicate the reasons for having either CoC or a procurement policy (PP) of wood products. They were presented with eight possible reasons and asked to select all options which applied to them. Then relative frequencies were calculated for each reason. Figure 5.3.10 shows that the primary reasons were “Improve environmental and social profile” and “Fight illegal logging and environmental degradation” with 33.3% of responses each. “Improve public relations”, “Increase profit” and “Improve tracking and control of materials” with 11.1% of responses each, can be considered secondary reasons.
In Question 15a, respondents who previously confirmed not having either CoC and/or a procurement policy in place were asked to specify whether they were planning to incorporate any of these two options in the next five years. Relative frequencies were then calculated for each option as illustrated in Figure 5.3.11. Only 8% of the respondents indicated that they had plans to become CoC certified, and 12% said to have plans to adopt a forest products procurement policy in the next five years. Also approximately 2% specified that they had plans to adopt both CoC and a procurement policy.
In Question 15b respondents were requested to specify the reasons for planning to incorporate either CoC or a procurement policy (PP) of wood products in the next 5 years. They were presented with a similar set of options as in Question 14b and asked to select all options applicable to them. Relative frequencies were then calculated for each reason. Figure 5.3.12 shows that the first, second and third reasons were (in corresponding sequence): “Improve environmental and social profile” with 36.8%, “Fight illegal logging and environmental degradation” with 21.1%, and “Increase/maintain market share” with 15.8% of responses.
The last two questions of this section obtained information regarding builders’ current and future ability to segregate certified and/or legal wood products, in case of being requested to do so by either CoC or a procurement policy adopted. The purpose was to estimate the possible influences of this procedural requirement on levels of adoption of certification.

Question 16 presented respondents with three different options regarding levels of ability (“high ability, “moderate ability” and “low ability”) to segregate their wood materials and asked them to indicate which level better described their companies’ current conditions. Relative frequencies were computed for each option as illustrated in Figure 5.3.13. While most of the respondents described their companies’ ability to segregate as being low (58%), a considerable percentage (34%) of respondents described their companies’ ability as being moderate. “High ability” was chosen by only 8% of respondents.
In question 17, respondents were asked to specify how they expected their ability to segregate certified products to change in the next five years. They were asked to choose from three options presented: “Increase”, “Stay the same” and “Decrease”; then relative frequencies were calculated as illustrated in Figure 5.3.14. The majority of respondents expected their ability to segregate to stay the same, with 54%. This percentage was followed by 42% of respondents who expected their ability to segregate to increase. Only 4% of respondents expected their ability to decrease.
Also in question 17, respondents were asked to indicate in percent how much they expected their ability to segregate certified products either to increase or decrease. Average and standard deviation were calculated for each option, as show in Figure 5.3.15. Respondents who expected their ability to segregate to decrease indicated that it would do so by 30% on average; while respondents who expected their ability to segregate to increase indicated it would do so by an average of 28%.

![Figure 5.3.15 Percentage of change in ability to segregate in Next 5 yrs](image)

5.4 Expectations Regarding Supply, Demand and Main Drivers of Certified and/or Legal Wood Products

In section three of the survey, aspects regarding the Japanese housing market for certified and/or legal wood products were investigated. This section included questions about builders’ opinions and expectations regarding current and future conditions of supply, prices, demand, drivers and legislation associated with certified and/or legal products.

Question 18 investigated builders’ perceptions of the reasons that final consumers have for building or buying a new house. Builders were presented with a list of options which ranged
from social to environmental to economic aspects. They were then asked to rank the three main reasons that they thought their customers might have for buying or building a new house (1 = first most important, 2 = second most important, and 3 = third most important). These ranks were then assigned arbitrary scores of 3, 2 and 1 respectively; and summed to calculate evaluation points for each reason.

Figure 5.4.1 shows that respondents ranked “want/need healthier home” as the most important reason for final consumers, with 89 points. “first time home”, “financial terms are favourable” and “use material from environmental/social/legal sources” can be grouped out into a secondary set of important reasons since they showed very similar totals of 56, 56 and 53 evaluation points respectively. The third most important reason, with 41 points, was “want/need newer home”.

![Figure 5.4.1 Reasons for final consumers to build/buy a new house](image)

**Figure 5.4.1 Reasons for final consumers to build/buy a new house**
Information regarding the attributes of construction materials that final consumers were likely consider when they are going to buy or build a new house was obtained in Question 19. Builders were presented with a list of seven options considered relevant for the Japanese market which dealt with social, environmental, economic, and material performance aspects of wood products. Respondents then were asked to rank the three main attributes that their customers might consider when buying or building a new house (1 = first most important, 2 = second most important, and 3 = third most important). These ranks were assigned arbitrary scores of 3, 2 and 1 respectively; and then summed up to calculate evaluation points for each reason.

Figure 5.4.2 shows that respondents ranked “Structural performance”, with 104 points, and “Health and toxicity properties”, with 85 points, as the first and second most important attributes for final consumers respectively. “Durability” and “Price” had similar rankings points of 67 and 56 respectively, and can be grouped into a third most important category.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Evaluation Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social/legal properties</td>
<td>0</td>
</tr>
<tr>
<td>Environmental properties</td>
<td>9</td>
</tr>
<tr>
<td>Aesthetics/appearance</td>
<td>39</td>
</tr>
<tr>
<td>Price</td>
<td>66</td>
</tr>
<tr>
<td>Durability</td>
<td>67</td>
</tr>
<tr>
<td>Health/toxicity properties</td>
<td>85</td>
</tr>
<tr>
<td>Structural performance</td>
<td>104</td>
</tr>
</tbody>
</table>

*Figure 5.4.2 Most important materials’ attributes when considering buying or building a house*

Question 20 was designed to assess whether builders considered that consumers would pay price premiums (higher prices) for different types of certifications featured in the wood
products of their houses. Builders were presented with four certification types as per the classification proposed in Question 11a and then asked to indicate which types their customers would be willing to pay a premium for. Then relative frequencies were computed for each option. Figure 5.4.3 shows that in all cases builders felt that the majority of customers were not willing to pay premiums for certification. The lowest proportions were for “forest management certification” and “legality certification/assurance”, with 16% and 35% of responses; while the greatest proportion being for “health and toxicity certification” and “structural performance and durability certification” with 45% and 48% of responses respectively.

![Figure 5.4.3 Proportions of willingness to pay premiums for types of certification](image-url)
Question 20 also asked respondents to indicate the amount, in percentage, above the regular cost of the house that their customers would be willing to pay for the different types of certification. Average and standard deviations were calculated for each type of certification and illustrated in Figure 5.4.4. Consistently with the first part of the question, the higher premiums that customers were willing to pay corresponded to both “health and toxicity certification” and “structural performance and durability certification” with 24.4% and 23.9% increase above the regular price respectively; while the lowest proportions were for “forest management certification” and “legality certification/assurance”, with 6.5% and 13.1% increase above the regular price respectively.

![Figure 5.4.4 Premiums which customers are willing to pay for types of certification](image)

Question 21 was designed to gather information regarding consumers’ future demand of forest management certification (Q21a) and legality certification (Q21b) for specific kinds of wood products. The objective was to compare demand differences between product options. Builders were presented with sets of pairs featuring differing kinds of wood products, and then asked to indicate to what degree they expected their customers would request, in the next five
years, each of these products to be certified. They did so by selecting from a five-point Likert scale which varied from “will never be requested” (5) to “will always be requested” (1).

Figure 5.4.5 shows means and standard deviation calculated for demand of forest management certification of different products categories. Ninety-five percent confidence intervals were also computed for each product category and the means were tested against a neutral point (Table 5.4.1). All types of wood products had means significantly different from 3 ($\alpha = 0.05$). This indicates that demand of forest management certification would be low for: domestic woods (3.47), structural components (3.54), softwoods (3.58), non-structural components (3.68), imported woods (3.72) and hardwoods (3.76), in decreasing order of demand.

![Chart showing means and standard deviations for demand of forest management certification](image)

**Figure 5.4.5 Customer’s request of forest management certification for products options in next 5 years**

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestics woods</td>
<td>3.47 ± 0.24*</td>
</tr>
<tr>
<td>Structural components</td>
<td>3.54 ± 0.23*</td>
</tr>
<tr>
<td>Softwoods</td>
<td>3.58 ± 0.22*</td>
</tr>
<tr>
<td>Non-structural</td>
<td>3.68 ± 0.19*</td>
</tr>
<tr>
<td>Imported woods</td>
<td>3.72 ± 0.21*</td>
</tr>
<tr>
<td>Hardwoods</td>
<td>3.76 ± 0.19*</td>
</tr>
</tbody>
</table>

*Significantly different from a neutral point of 3 ($\alpha = 0.05$)
As with the previous section, Figure 5.4.6 shows mean and standard deviations for demand of legality certification of each product category; while Table 5.4.2 shows 95% confidence intervals for each mean. All product categories had means significantly different from a neutral point 3 (\(\alpha = 0.05\)), and laid in the “won’t be requested” side of the scale. This indicates that final customers’ demand of legality certification would be low for: structural components (3.48), domestic woods (3.48), softwoods (3.65), non-structural components (3.72), imported woods (3.81) and hardwoods (3.83), in decreasing order of demand.

![Graph showing the demand of legality certification for different product categories with standard deviations](image)

**Figure 5.4.6 Consumers’ request of legality certification for products options in next 5 years**

<table>
<thead>
<tr>
<th>Product Category</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural components</td>
<td>3.48 ± 0.27*</td>
</tr>
<tr>
<td>Domestic woods</td>
<td>3.48 ± 0.27*</td>
</tr>
<tr>
<td>Softwoods</td>
<td>3.65 ± 0.22*</td>
</tr>
<tr>
<td>Non-structural</td>
<td>3.72 ± 0.20*</td>
</tr>
<tr>
<td>Imported woods</td>
<td>3.81 ± 0.19*</td>
</tr>
<tr>
<td>Hardwoods</td>
<td>3.83 ± 0.16*</td>
</tr>
</tbody>
</table>

*Significantly different from a neutral point of 3 (\(\alpha = 0.05\))
The effect that Public Purchasing Policies will exert on future markets of certified products specifically was assessed in question 22. Builders were asked to estimate the impact that Public Purchasing Policies will have on demand of certified forest products, in the next five years, both for its company only and for the Japanese market in general. They had to select from a five-point Likert scale which ranged from “Substantially decrease demand” (5) to “Substantially increase demand” (1). Means and standard deviation were then calculated and plotted out in Figure 5.4.7. A T-test indicated that there was no significant difference between the two means ($\alpha = 0.05$).

Respondents estimated that Public Purchasing Policies will increase demand of certified forest products both for the general Japanese market and for the individual company, with 2.27 average points for each option.

In question 23 builders provided information to estimate the effect that Public Purchasing Policies will have on market demand for specific wood product categories. Respondents were confronted with pairs of opposing kinds of wood products, and then asked to estimate the impact that “public purchasing policies” will have on general market demand for each of these products.
in the next five years. They did so by selecting from a five-point Likert scale varying from “Substantially decrease demand” (5) to “Substantially increase demand” (1).

Figure 5.4.8 shows means and standard deviations for demand of each product category; while Table 5.4.3 shows 95% confidence intervals for each mean. Four product categories had means significantly different from a neutral point 3 ($\alpha = 0.05$), and that fell in the “will be requested” side of the scale. This means that PPPs, on average, will increase demand of: “domestic woods”, with 2.13 average points; followed by “wood products”, “softwoods” and “woods from plantations” with 2.49, 2.54 and 2.62 average points respectively.

![Figure 5.4.8 Impact of PPP on demand of wood products in next 5 years](image)
Table 5.4.3: 95% confidence interval for demand of wood products in next 5 years

<table>
<thead>
<tr>
<th>Wood Product</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestics wood</td>
<td>2.13 ± 0.22*</td>
</tr>
<tr>
<td>Wood</td>
<td>2.49 ± 0.23*</td>
</tr>
<tr>
<td>Softwoods</td>
<td>2.54 ± 0.23*</td>
</tr>
<tr>
<td>Wood from plantations</td>
<td>2.62 ± 0.28*</td>
</tr>
<tr>
<td>Hardwoods</td>
<td>2.78 ± 0.25</td>
</tr>
<tr>
<td>Imported wood</td>
<td>2.78 ± 0.29</td>
</tr>
<tr>
<td>Non-wood</td>
<td>2.78 ± 0.25</td>
</tr>
<tr>
<td>Temperate wood</td>
<td>2.82 ± 0.27</td>
</tr>
<tr>
<td>Tropical wood</td>
<td>2.96 ± 0.29</td>
</tr>
<tr>
<td>Wood from natural forests</td>
<td>3.02 ± 0.31</td>
</tr>
</tbody>
</table>

*Significantly different from a neutral point of 3 (α = 0.05)

The final question (Q24) gathered information characterizing those drivers that would play an important role on the future demand (medium term) of Certified Forest Products. Builders were presented with a list of seven options identified as relevant for Japanese market conditions, which included economic and political aspects as well as social and environmental ones. Respondents then were asked to rank which they expected to be the three main drivers of market demand for Certified Forest Products in the next five years (1 = first most important, 2 = second most important, and 3 = third most important). These ranks were assigned arbitrary scores of 3, 2 and 1 respectively; and then summed up to calculate evaluation points for each driver.

Figure 5.4.9 shows that respondents ranked “Public Purchasing Policies” as the most important demand driver, with 70 points; followed by “final consumers demand” as the second most important demand driver, with 58 points; and “Corporate Social Responsibility and Procurement Policies” as the third most important demand driver, with 51 points.
Figure 5.4.9. Demand drivers for CWPs in the next 5 years
6 DISCUSSION

This section begins with demographics and comparison of certain characteristics of the respondents to assess the implication of inferring the results to the target population. Discussion will be further organized in accordance to the study’s objectives:

- To evaluate builders’ understanding, willingness and capacity to implement certification programs for wood products
- To evaluate market demand of certified and/or legal wood products over the next 5 years
- To identify drivers of market demand for certified and/or legal wood products in the next 5 years
- To evaluate the impact of PPPs on market demand of certified and/or legal wood products over the next 5 years.

The results obtained are discussed within the context of the literature review and their implications to business and marketing strategy. Also, each sub-section will explore potential opportunities and threats for the trade of certified wood products in Japan both in the short and medium term.

6.1 Respondents’ Demographics and Comparison of Sample to Population

Looking at respondents’ company size and area of operations, our sample shows to be highly representative of the medium and big builders groups. These builders have been described as typically being headquartered in main urban centers but with operations covering different regions of the Japanese territory (Barlow and Ozaki 2001, Sasatani et al. 2005). Hence, while
there was a greater concentration of respondent’s head offices (74%) in the three most populated urban regions of Japan (Kanto, Chubu, and Tohoku), this concentration decreased when looking at companies’ regions of operations (58%). In fact the distribution of operations was more scattered along the entire Japanese territory (Table 5.2.1). Additionally, a much higher percentage (39%) of builders were in the two classes: “500 houses and more” and “between 100 and 500 houses” (Figure 5.2.2), compared to the national average of less than 5% builders belonging to these size classes (Barlow and Ozaki 2001, Ogi 2002). This group of builders (top builders) are indeed the target population of the study described in Section 4.2.

When evaluating characteristics of the houses built themselves; similar conclusions can be drawn. While many of the results, such as percentage of houses sold with land vs. house only, house prices and the area of houses, all show similarities with national statistics of the housing industry in Japan; some results, such as construction method, which had a higher percentage (26 %) of houses built by the 2 x 4 system compared to that of the population of builders (19%), differed from national averages, as shown in Table 6.1.1. Overall, the result of this sample corresponds to Japan’s medium and big builders group. These conditions support the statistical representativeness of our sample and also support further inference of the survey results onto the target population.
Table 6.1.1 Comparison of housing data from survey sample vs. entire population

<table>
<thead>
<tr>
<th>Source</th>
<th>Sample</th>
<th>National statistic*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Builder’s houses data</td>
<td>Post &amp;beam</td>
<td>65%</td>
</tr>
<tr>
<td></td>
<td>2 by 4</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>Prefab</td>
<td>0.3%</td>
</tr>
<tr>
<td></td>
<td>Hybrid</td>
<td>4%</td>
</tr>
<tr>
<td>Percent. houses built by Construction method</td>
<td>House with land</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>House without land</td>
<td>79%</td>
</tr>
<tr>
<td>Percent. Houses built with land vs. house only</td>
<td>House with land</td>
<td>32 million yen</td>
</tr>
<tr>
<td></td>
<td>House without land</td>
<td>19.8 million yen</td>
</tr>
<tr>
<td>Average house price</td>
<td>House with land</td>
<td>121m²</td>
</tr>
<tr>
<td></td>
<td>House without land</td>
<td>135m²</td>
</tr>
<tr>
<td>Average house area</td>
<td>House with land</td>
<td></td>
</tr>
<tr>
<td></td>
<td>House without land</td>
<td></td>
</tr>
</tbody>
</table>

*Source: JAWIC 2007, JHFA 2007

From Table 6.1.1 we can also obtain differences in price of house with land (built for sale) vs. price of house without land (individually commissioned) ranging from 12.2 million yen (sample)⁵ to 9 million yen (national average). If comparing these differences with the average price of a lot in Japan, 15 million yen (JHFA 2007), it can be observed that houses built for sale, once the land price is removed, tend to be lower cost than houses that are rebuilt on land already owned by the home occupant.

Respondents specified that the majority (72%) of their suppliers are either local mills or regional suppliers (Figure 5.2.10). This indicates that for CFPs to become main stream in supply, they will have to be accepted in the distribution channels at the local and regional level. This would require producing regions and certification schemes to include both medium distributors and domestic mills as targets of their promotional and communication efforts in Japan.

The small percentage of sales to government (0.5%), shown in Figure 5.2.11, is relatively consistent with reports estimating the size of the public sector market for forest products to be

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⁵ It should be noted that prices calculated from the sample were obtained using middle points of price ranges, therefore are less precise than data based on the national average.
around 3% in Japan (Kraxner et al. 2007). These percentages mainly corroborate suggestions that the impact of PPPs will lay principally in their role as a standard setter rather than as a direct driver of market demand for forest products certified for sustainable management and/or legality (Simula 2006).

6.2 Current Understanding, Attitude and Capacity to Implement Certification

By almost all dimensions measured (implementation procedures, procurement aspects, policies and regulations, issue of certification, and schemes), builders showed a low level of understanding of forest certification and the legality of wood products (Figures 5.3.2, 5.3.3, 5.3.4, 5.3.5 and 5.3.6). This condition indicates that little has changed since 2002 as reported in a study from the Japanese Ministry of Agriculture, Forestry and Fishery which found that only 7% of distributors and manufacturers were highly familiar with forest certification (MAFF 2007b). The low level of knowledge combined with the high level of importance of environmental issues (Figure 5.3.1) may open opportunities to influence how they translate their concern into action. Supplying countries may do this by providing services in capacity building and education in forest certification. Some experiences in this area could be drawn from the Canada Tsuga program of the coastal forest industry in collaboration with the BC government, which was a promotional and educational effort to reposition hemlock in the Japanese market (Edgington 2005, JLJ 2006b, JLJ 2007a).

However, builders do have a high level of familiarity and/or knowledge about two forms of certification (Figure 5.3.5): Health Certification, pertaining to the Japanese Agricultural Standards (JAS), which are regulations concerning the content of Volatile Organic Compounds
in construction materials; and Structural and Durability Certification, associated with the performance indicators of the Housing Quality Assurance Law (HQAL) passed in 2000 and that is applicable to the construction of new houses in Japan. These results were expected, and the two items were included in the survey as comparison tools. Traditionally builders have been dealing with and adapting to these requirements since their implementation in the late 1990s, and these regulations have become important standards in the building and construction materials industry in Japan (Eastin et al. 2004, Cohen and Gaston 2001).

When it came to assessing third party certification schemes, builders selected ISO14000 as the only scheme that they were significantly familiar with (Figure 5.3.6). ISO14000 is in fact not a forest management or legality certification, but an environmental certification dealing with industrial processing and its applications.

Also it is important to note that among forest management schemes, builders not only indicated that they are most familiar with FSC, but also that this scheme was the most appropriate for the Japanese market because of its stronger presence and level of implementation in Japan (Figures 5.3.7 and 5.3.8). These results are consistent with a previous study (Owari and Sawanobori 2007) which illustrated how FSC significantly dominates the issuance of CoC certificates in Japan. However, the fact that in prior sections respondents showed low familiarity with the issue of forest management certification (Figure 5.3.5) and with forest certifications schemes including FSC (Figure 5.3.6), calls for a further interpretation of these results. An indication of preference of FSC against other schemes could merely reflect a familiarity with name rather than a through understanding of each scheme that would be required for an adequate judgment. This condition suggests that promotion and education efforts of other schemes could impact builders’ opinion and preferences for certification scheme.
Regarding the level of adoption of CoC certification and/or procurement policies (associated with CSR), the lack of penetration of these environmental and social supply chain management options into the mainstream of construction industry is pretty obvious, since only a small proportion of builders (7%) have implemented either one of them as part of their company’s business structure (Figure 5.3.9). In addition, only a similarly small percentage, 8% and 12% respectively (Figure 5.3.11), indicated that they planned to adopt them in the next five years. The results indicate a lack of urgency among builders to adopt environmental wood purchasing policies and that more rigorous regulation combined with strong communication may be necessary for builders to start using certified wood. Results are also in accordance with previous reports indicating that it is in fact the pulp and paper sector, and not the building and wood product industry, which is driving the increase in demand of CoC in Japan (Kraxner et al. 2007, Owari and Sawanobori 2007).

It is also revealing that the small percentage which indicated to either have or plan to incorporate CoC and/or Procurement policies, specified that the primary reason for doing so was to improve the company’s environmental and social profile (Figures 5.3.10 and 5.3.12). This condition might indicate that, for this sector of the building industry, interests related to CSR are currently the main drivers for certification rather than consumers’ demand, profit or other traditional business aspects.

Studies in North America have found a relationship between the levels of adoption of CoC and the companies’ perceived cost for efforts required to implement segregation procedures (Vidal et al. 2005). Also it was suggested that the lack of adoption of CoC in the building industry is related to higher complexity of its materials segregation compared to that of the pulp and paper industry in Japan (Owari and Sawanobori 2007). While most builders (58%) in the
study indicate a low ability to segregate, and a similar percentage (54%) considered that their ability would not change in the next five years (Figures 5.3.13 and 5.3.14); a large minority (42%) indicated their ability to segregate to be either moderate or high. Assuming that moderate and high ability could translate into relative low cost for adoption of CoC, then many builders would be able to adopt certification than the proportion which is currently planning to do so (due to relatively low cost), provided they receive adequate education, incentives and information.

6.3 Demand of Certified Products (for Legality and/or Sustainable Management)

The lack of market demand for forest management and/or legally certified wood products in Japan has been well known among the construction and other industries (Owari & Sawanobori 2007, Kraxner et al. 2007). The current survey results not only confirmed that this state of affairs has not changed; they also showed that, despite the potential effect of external factors such as ENGO’s pressures, government regulations and other drivers discussed in the introduction, builders expect consumers’ demand to stay low in the next five years both for wood materials certified for sustainable management as well as those certified for legality (Figures 5.4.5 and 5.4.6).

Respondents also indicated that they expected no significant differences in consumers’ request for different types of products that feature certification of legality and/or forest management (Figures 5.4.5 and 5.4.6). This response might indicate that, when it comes to certified products for residential construction, some final consumers would be more interested in a house built entirely with certified products rather than having certified materials to be present only in certain parts of the house, such as flooring or structural components.
While the numbers might not be large, probably limited to a few thousand houses a year, the results definitively point to the existence a niche market for houses built completely from certified wood.

The findings also indicate that, from the respondents’ point of view, consumers might not discriminate about the provenance of the material, such as domestic wood versus imported wood (Figures 5.4.5 and 5.4.6).

6.4 Drivers of Demand for Certified and/or Legal Wood Products

Trends such as the declining population, the aging population, the increasing diversification of international supply, growing interest in CSR, etc., have been described as important factors in the reshaping of the general demand and supply dynamics of wood products in Japan (Gaston et al. 2006, Cohen et al. 2005). Additionally, factors that could be directly driving the demand for certified wood products have also been identified and include economic recovery (Nikkei 2007a), international commitments (G8 Gleneagles 2005) and the recent PPPs (Simula 2007, Forest Agency 2006).

The fact that public purchasing policies were considered by far the most important potential drivers of demand, followed by final consumers’ demand and CSR (Figure 5.4.9), clearly indicates that builders see that force for change in the next 5 years would come from regulatory initiatives or from true market players. This condition differs from other regions, such as some parts of Europe and North America where support for certification has been propelled by pressures from social and environmental NGOs.
Respondents indicated that structural and health aspects are currently given greater importance than environmental concerns and even are more valued than price attributes (Figures 5.4.1, 5.4.2, 5.4.3, and 5.4.4). This shows that builders consider Japanese consumers to have greater concern about issues which directly impact their living conditions or their immediate environment rather than the global environment. Since indoor health and the structural performance of housing are currently highly regulated by the government; it seems logical for most builders to expect that it would take government regulations to increase consumption towards certified and/or legal products. In both these cases the government was responding to clearly identified consumer concerns.

At this stage of development of PPPs there is emphasis only on proof of legality, with several options for verification other than just forest management certification (FAJ 2006). From a market perspective, greater opportunities and increases in demand of certified forest product could be expected at a further phase in PPPs, if proof of sustainability were emphasized as a basic requirement rather than just recommended.

### 6.5 Impact of PPP on Market Demand

The positive leverage that PPPs will have on demand for certified forest products has been suggested both for the international markets (Simula 2006) and for the Japanese market (Owari & Sawanobori 2007). Builders in Japan seem to be in line with this scenario by indicating that they would expect an increase in demand for certified forest products primarily as consequence of government purchasing policies (Figure 5.4.9). However this increase might be rather modest, falling within the range of “no impact” and “slight increase” (Figure 5.4.7).
It is also important to note that respondents expected that their companies’ increase in demand would be the same as that occurring in the general Japanese market (Figure 5.4.7). This might indicate that builders would take a followers, or do-what-others-do, approach rather than actively support or champion the consumption of certified products. However, they would not take an opposing attitude or attempt to hinder a move towards increased consumption of these types of products. In a marketing context, it points out that suppliers of certified materials should be prepared for modest increases in demand that would be widespread among builders. This assumes that once certified and/or legal products start being requested by the market, this increase in demand would occur across the whole industry simultaneously.

The literature also identifies groups of products that might benefit, in terms of access to the supply chain, from the application of public procurement policies. This advantage would result either because the regions or countries where the products originate are better positioned to implement forest certification or because the type of forest management that they require facilitates the application of certification. These products are: wood from plantations, wood from temperate forests, wood from developed countries, softwoods and non-wood materials (ITTO 2006, Simula 2006). In Japan, PPPs are seen as a potential leverage for increasing demand for domestic wood, as importers would face greater pressure to demonstrate the legality of imported materials (Chatham House 2006). Builders confirmed this prediction by stating that these policies would significantly increase demand for domestic wood, as well as increase demand for softwoods, plantation wood and to a certain degree for temperate wood (Figure 5.4.8).

The substitution of wood products in favour of non-wood products, which are not required to submit proof of legality, has also been predicted as a likely scenario (ITTO 2006, Simula 2006). However this trend was not confirmed by respondents. They actually expected a
higher increase in demand of wood products compared to increases in non-wood product. This position may be explained by the expectation that increased PPPs will promote greater consumption of local timber. Builders might rationalize that because local timber is a widely available and underutilized resource in Japan, then the policies might increase consumption of wood in absolute terms as a construction material regardless of its provenance.

6.6 Future Research

Recently (in 2007) two major housing companies, Sumitomo Forestry and Sekisui House, have adopted procurement policies with clear objectives regarding elimination of wood products from non-legally certified sources from their supply chains (JLJ 2007b, ITTO 2007). Also, according to the Japan Federation of Lumber Associations (JFLA) the number of legal lumber supplying organizations reached over 6000, including companies and producers groups, by the end of June (JLJ 2007b). Additionally, capacity building efforts such as conferences on methods for verification of legality of wood products are continuously being organised in Japan.

While most of these public and private initiatives focus on methods of verification which do not exclusively require forest certification as proof of legality; they are clear indications of strong momentum in Japan regarding developments of legality and sustainability of wood products that are subsequent to the time of the survey. There should be not only a constant monitoring of these type of actions but also additional research, which incorporates interviews with key regulatory personnel such as government officials and other stakeholders, to determine if sustainability may become required as a further step in the development of the Japanese public purchasing policies of forest products. This research was probably conducted a year or two before the changes noted in the introduction actually impact the house construction sector in Japan.
6.7 Research Limitations

A basic limitation of this research is related to the sampling methodology employed. Purposive or judgemental sampling is considered in the literature to be appropriate for exploratory research, such as this study; however the non-random nature of this approach does not allow making statistical inference of the results onto the target population of medium to big builders in Japan.

Also this methodology restricted the data analyses to remain within the range of descriptive univariate statistics. In subsequent research, implementing a random sampling would be more appropriate for conducting multivariate inferential analysis to evaluate relationships of relevant variables that were identified in this research such as cross tabulations of prices of houses built or future demand expectations according to builders’ size classes.

Another limitation might lay in the fact the builders were used in a number of question as a proxy for estimating issues regarding final consumer’s preference and attitudes. A complementary study targeting final consumers as respondents would have been appropriate for providing more accurate information about these topics.

The third limitation was the use of ranges for obtaining house prices information from respondents. This led to the use of midpoints of ranges to estimate price averages, an imprecise method. Readers are cautioned from over reliance on these averages.
7 CONCLUSIONS

There is a low level of understanding as well as willingness to adopt certification among Japanese builders, other than certification of healthy and structural performance aspects of building material. The current driver for adoption of forest management and/or legally certification seems to be CSR. Capacity to implement material segregation programs is also small. However this lack of awareness and interest might create opportunities for carrying out education and promotional campaigns in order to influence demand and interest for certification as well as preference for certification schemes.

Current market demand for certified products is low in the residential construction industry. Also, independently from the effects of potential demand drivers such as government regulations and economic growth; builders expect consumers’ demand to primarily stay low in the next five years both for wood materials certified for sustainable management as well as those certified for legality. In addition, the results point out the existence of important niche markets, such as that of houses built entirely from certified wood materials.

Public purchasing policies, followed by final consumers and CSR, were considered by far the most important potential drivers in case of a possible increase in demand for certified and/or legal wood products by Japanese builders. This indicates that builders see that force for change in the next 5 years would come from regulatory initiatives or from true market players.

Builders also estimated that the positive impact that PPPs would have on demand for certified and legal products will be rather modest but widespread. Also, builders considered that PPPs would favour demand for certain product categories such as: domestic wood, also there would be increase for softwoods, for wood from plantation and to a certain degree for temperate wood.
While results from this study indicated a limited improvement and discreet expectations in the market prospects for certified and legal products in Japan; further developments in verification of sustainability and legality of wood products that are subsequent to the time of the survey indicate that there should be a constant monitoring of these activities and other legislative changes that may result in higher demand and market opportunities for certified products.
8 REFERENCES


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Nikkei. 2007d. Growth in April-June slows to crawl. Nihon Keizai Shimbun, Inc. (August 20th)


APPENDIX I: INSTRUCTIONS AND QUESTIONNAIRE (ENGLISH VERSION)
BUILDERS SURVEY OF CERTIFIED WOOD PRODUCTS IN THE JAPANESE MARKET

A Marketing Study from the University of British Columbia, Canada

Instructions:

1. We would be grateful if you take the time (about 30 minutes) to complete this survey.

2. This questionnaire is intended to collect important research information. To ensure the quality of the result, we urge you to answer the questions as completely as possible. If you wish to add more information about any question please feel free to do so.

3. Many of the questions require you to place a check mark or circle a number, or rank with a number beside the applicable response category.

4. Before question No. 9 you will find a list of definitions that we encourage you to read carefully.

5. When you have completed this survey please fold and mail back the completed questionnaire form in the recipients-paid envelop provided, or fax it to: 81 76 257 13 83.

6. The questionnaire is printed on BOTH sides of the paper – please be careful not to skip any pages.

7. If you would like to receive a summary of the survey results, please leave your email address in the area provided in the questionnaire and an electronic copy will be emailed to you upon completion.

Thank you very much for you cooperation
### Section I

We would like to start asking you some general questions about your company and business.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Where is your company’s head office located?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prefecture: ..............................................</td>
<td>City/Town: ..................................................</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Please indicate the regions where you build houses: (Please check all that apply)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ All Japan territory</td>
<td>□ Chubu</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Hokkaido</td>
<td>□ Kinki</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Tohoku</td>
<td>□ Chugoku</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Tokyo</td>
<td>□ Shikoku</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Kanto (except Tokyo)</td>
<td>□ Kyushu/Okinawa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3a</td>
<td><strong>Please provide an estimate of how many houses you sold last year:</strong> ........................................... houses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3b</td>
<td><strong>What percentage of those houses did you:</strong> (Please fill all categories)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>sell as house and land together? ...........%</td>
<td>sell as house only? ..............%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4a</td>
<td><strong>What is the average price of the houses you sold WITHOUT land (Please check only one box):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Less than ¥ 20,000,000</td>
<td>□ Between ¥ 40,000,000 and ¥ 49,999,999</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Between ¥ 20,000,000 and ¥ 29,999,999</td>
<td>□ Between ¥ 50,000,000 and ¥ 59,999,999</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Between ¥ 30,000,000 and ¥ 39,999,999</td>
<td>□ ¥ 60,000,000 and more</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4b</td>
<td><strong>The average area of these houses was:</strong> ........................... tsubos</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5a</td>
<td><strong>What is the average price of the houses you sold WITH land (Please check only one box):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Less than ¥ 20,000,000</td>
<td>□ Between ¥ 40,000,000 and ¥ 49,999,999</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Between ¥ 20,000,000 and ¥ 29,999,999</td>
<td>□ Between ¥ 50,000,000 and ¥ 59,999,999</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Between ¥ 30,000,000 and ¥ 39,999,999</td>
<td>□ ¥ 60,000,000 and more</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5b</td>
<td><strong>The average area of these houses was:</strong> ........................... tsubos</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please indicate the types of houses that your company builds as a percent of total quantity:

<table>
<thead>
<tr>
<th>a) By construction method</th>
<th>b) By structural material</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Post &amp; Beam ...........%</td>
<td>• Wooden ...........%</td>
</tr>
<tr>
<td>• 2x4, North American style ...........%</td>
<td>• Steel ...........%</td>
</tr>
<tr>
<td>• Prefab ...........%</td>
<td>• Reinforce concrete ...........%</td>
</tr>
<tr>
<td>• Hybrid (mix of any of the above) ...........%</td>
<td>• Mixed material ...........%</td>
</tr>
<tr>
<td>• Others (specify…………………………) ...........%</td>
<td>• Others (specify…………………) ...........%</td>
</tr>
<tr>
<td>Total 100%</td>
<td>Total 100%</td>
</tr>
</tbody>
</table>

Please indicate the origin of your wood products supply as percent of the following categories:

• Materials purchased from large (regional) distributors ...........%
• Materials purchased from medium sized (local) distributors ...........%
• Materials purchased from retailers or DIY stores ...........%
• Materials purchased directly from domestic mills ...........%
• Materials Imported directly from foreign countries ...........%
Total 100 %

Please indicate what percent of the total number of sold houses during the last 3 years were in each of the following categories:

• Sales to Individuals ...........%
• Sales to the government or public institutions ...........%
• Sales to private institutions or corporations ...........%
Total 100 %

Section II

Now we would like to ask about your knowledge and attitude about forest sustainability, legality and other types of certification.

Before continuing to the next questions, we will define the following terms related to wood products certification:

**Sustainable Forest Management Certification (Forest Certification):** A guarantee issued by a competent third party body that a forest management operation attains to sustainable, social (and legal) agreed upon principles.

**Legality Verification or Certification:** An assurance issued by a competent body that a wood product comes from legal sources. It is usually implied in a Forest Management Certification.

**Chain of Custody Certification:** A certification issued by a third party body that a wood product purchased really comes from certified forest sources.

**Procurement Policy:** A private or public entity’s policy stating a set of sustainability and legal requirements to be met for the purchase of wood product.

**Certified Forest Products (CFPs):** Forest products, such as wood, which bear a certificate issued by a competent body that they come from sustainably managed and/or legal sources.
9. Indicate the importance of the following environmental issues in your company: (For each topic please circle or check only one number)

<table>
<thead>
<tr>
<th>Issue</th>
<th>Not at all important</th>
<th>Not important</th>
<th>Neutral</th>
<th>Important</th>
<th>Extremely important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global warming</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Forest sustainability</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Energy: efficiency, use of renewable sources, etc.</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Bioregionalism of design &amp; construction</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Fresh water conservation</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Soil conservation</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Protection of the oceans</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Other (specify)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

10. How familiar is your company with the following aspects related to certification: (For each topic please circle or check only one number)

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Not at all familiar</th>
<th>Not very familiar</th>
<th>familiar</th>
<th>Very familiar</th>
<th>Totally familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Certification procedures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Product segregation</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>• Certification fees</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>• Periodical audits</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>b) Procurement of certified forest products</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Existing suppliers of CFPs</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>• Types of CFPs available</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>• Prices of CFPs</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>c) Policy and regulation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Public purchasing policies- PPP</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>• Corporate purchasing policies- CPP</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>• Guideline for Verification on Legality of Wood and Wood Products</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>• Housing Quality Assurance Law- HQAL</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>• Kyoto Protocol</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

11. How familiar is your company with the different forms of certification: (For each type please circle or check only one number)

<table>
<thead>
<tr>
<th>Form of certification</th>
<th>Not at all familiar</th>
<th>Not very familiar</th>
<th>familiar</th>
<th>Very familiar</th>
<th>Totally familiar</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) By issue to be certified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Forest management certification</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>• Legality certification or verification</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>• Health/toxicity certification (e.g JAS cert. for VOC)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
Which would you say are the three (3) most appropriate forest certification schemes for the Japanese wood market: (Rank from 1 to 3, with number “1” being most appropriate scheme)

- FSC ____
- PEFC ____
- SFI ____
- CSA ____
- SGEC ____
- SFI ____
- MTCC ____
- ISO 14000 ____
- Other (specify…………………………………….) ____

Please indicate the reasons for choosing the three schemes in the previous question(Q12) (please check all boxes that apply):

- Higher international recognition
- Higher ENGO support
- Wider range of products
- More flexible requirements
- Stronger presence and implementation in Japan
- Customer’s preference
- Others (Specify ………………………………………..)

Does your company currently have either of the following? (For each item please check only one box):

- Chain of custody certification? Yes No
- A procurement policy? Yes No

If you replied "Yes" to either of the previous questions (Q14a), please indicate the reasons for this: (check all that apply)

- Increase/maintain market share
- Increase profits
- Improve tracking and control of materials
- Improve environmental and social profile
- Meet public/government procurement policies
- Improve public relations
- Fight illegal logging and environmental degradation
- Others (Specify……………………………………..)

Does your company have plans to incorporate either of the following in the next five years (For each item please check only one box):

- Chain of custody certification? Yes No
- A procurement policy? Yes No
If you replied "Yes" to the previous questions (Q15a), please indicate the reasons for this: (check all that apply)

- Increase/maintain market share
- Increase profits
- Improve tracking and control of materials
- Improve environmental and social profile
- Meet public/government procurement policies
- Improve public relations
- Fight illegal logging and environmental degradation
- Improve environmental and social profile
- Others (Specify……………………………………..)

How would you describe your company’s ability to segregate certified from non-certified materials in case of being required to do so? (Please check only one box):

- High ability
- Moderate ability
- Low ability

How do you expect this ability (answered in Q16) to change over the next five year? (Please check only one box and indicate percentage of the change):

- Decrease (%.....)
- Stay the same
- Increase (%.....)

Section III

Finally we would like to know about your expectations regarding certified wood product supply and demand; and its main drivers.

What are the main three (3) reasons for your customers to build/buy a new house? (Rank from 1 to 3, with number “1” being the primary reason, 2 being the secondary reason and 3 being the third most important reason)

- Want/need newer home
- Financial terms are favourable
- Want/need healthier home
- New job/marital status
- Want/need larger home
- Use materials that come from environmental/legal/social sources
- First time home
- Retirement home/apartment
- Other (specify……………………………………..)

Which would you say are the three (3) most important materials’ attributes for your customers when considering buying or building a house? (Rank from 1 to 3, with number “1” being the main attribute)

- Health/Toxicity properties
- Structural performance
- Durability
- Aesthetics/Appearance
- Price
- Environmental properties
Would your customers be willing to pay a premium (higher price) for wood products in their house featuring any of the following types of certification? (For each type of certification please check only one box):

<table>
<thead>
<tr>
<th>Certification Type</th>
<th>Yes</th>
<th>No</th>
<th>If “Yes”, by what %?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Forest Management Certification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legality Certification/Assurance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health/Toxicity Certification- VOC JAS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Performance/Durability Certification (HQAL)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To what degree do you expect your customers will request the following wood products to be certified in the next five years: (For each category, please circle check only one number)

a) Certified as coming from sustainably managed forests

<table>
<thead>
<tr>
<th>Component Type</th>
<th>Will never be requested</th>
<th>Will rarely be requested</th>
<th>Will be Sometimes requested</th>
<th>Will usually be requested</th>
<th>Will always be requested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural components</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Non structural components</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Hardwoods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Softwoods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Domestic woods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Imported woods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

b) Certified as coming from legal sources

<table>
<thead>
<tr>
<th>Component Type</th>
<th>Will never be requested</th>
<th>Will rarely be requested</th>
<th>Will be Sometimes requested</th>
<th>Will usually be requested</th>
<th>Will always be requested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural components</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Non structural components</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Hardwoods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Softwoods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Domestic woods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Imported woods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Please estimate the impact that public purchasing policies will have on demand of certified forest products in the next five years for: (For each topic, please circle or check only one number)

<table>
<thead>
<tr>
<th>Impact Type</th>
<th>Substantially decrease demand</th>
<th>Slightly decrease demand</th>
<th>Have no impact</th>
<th>Slightly increase demand</th>
<th>Substantially increase demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your company’s demand of CFP</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>General market demand for certified forest products in Japan</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
Please estimate the impact that “public purchasing policies” will have on the general Japanese market demand for the following types of products in the next the five years (For each category, please circle or check only one number):

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Substantially decrease demand</th>
<th>Slightly decrease demand</th>
<th>Have no impact</th>
<th>Slightly increase demand</th>
<th>Substantially increase demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood products</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Non-wood products</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Domestic woods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Imported woods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Temperate woods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Tropical woods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Hardwoods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Softwoods</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Wood from plantations</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Wood from natural forest</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Which would you expect to be the main three (3) drivers for the general Japanese market demand of certified wood products in the next five years? (Rank from 1 to 3, with number “1” being the main driver)

- Public procurement policies __________
- Corporate social responsibility/Private procurement policies ______
- Final consumers’ demand __________
- Increased ENGO pressures ______
- Increased availability and supply of CFP’s ______
- Economic recovery ______
- Kyoto Protocol ______
- Others (specify……………………………………….) ______

Do you have additional comments regarding forest certification and legality of wood products?

........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................

Thank you very much for your time and cooperation in filling out this survey. If you would like to receive a summary of the survey results, please leave your email address below and a copy will be sent to you upon completion.

Email address.....................................................................................................................
APPENDIX II: COVER LETTERS (ENGLISH VERSION)
To whom it may Concern:

Spring has come. We hope your business is prosperous. Along with the changes in Japan’s economy and demographics and hence the preferences of housing consumers; recently there has been a set of regulations issued by the government, known as Timber Public Purchasing Policies (PPP). These policies are aimed at promoting the usage of wood products coming from legal and sustainable sources.

We are contacting you as part of a project designed to determine the marketing potential or limitations of certified and/or legal wood products in Japan. This study is also part of a Master thesis at the Department of Wood Science in the Faculty of Forestry at the University of British Columbia in Canada.

We are interested in learning about the perception, knowledge and concerns of your company and your customers regarding the legal and sustainability aspects of wood products when evaluating the purchase or building of housing. While your participation is voluntary, it would be very much appreciated and extremely important to the improvement of marketing strategies and policy regarding certified wood products in Japan, as well as for completion of the student’s master thesis.

If the questionnaire is returned, it will be assumed that consent has been given to use the information you provided in aggregated form only. We would appreciate if you send it by April 17th (Tue). You can be assured of the confidentiality and your name will not appear in any of the results that are made public. Your email address should be included in the questionnaire only if you wish to request a copy of the survey results. Data analysis will be conducted by the University of British Columbia in Canada and all results will be stored in a secure location.

We would be glad to answers any questions you may have. Please call, fax or e-mail us to: Jorge Duran, Msc. Candidate, in charge of conducting the study at: 81 76 257 1383 (jduran@interchange.ubc.ca)-In Japan, or Dr. David Cohen, the principal investigator at: 1-604-822-6716 (david.cohen@ubc.ca)-in Canada. Also if you would like to receive an electronic version of the questionnaire, please let us know by email.

If you have further concerns about your rights or treatment of your information you may also telephone the Research Subject Information Line in the UBC Office of Research Services at the University of British Columbia, at 1-604-822-8598.

Thank you very much for your cooperation.

Sincerely,

Dr. David Cohen
Professor
Faculty of Forestry, UBC

Jorge Duran
MSc. Candidate.
Faculty of Forestry, UBC
To whom it may concern:

Spring has come. We hope your business is prosperous. Two weeks ago, a questionnaire seeking your opinion about certification and legality of wood housing products was mailed to you. You were one of the scientifically selected builders across Japan to participate in this study— one of the most comprehensive studies of this type ever undertaken.

If you already completed and returned the survey to us, please accept our sincere thanks. If not, please do so before May 2\textsuperscript{nd} (Wed).

We are attempting to identify the perception, opinions, knowledge, and concerns that builders like you have about attributes of housing materials related to forest management certification and legality as well as the new Public Procurement Policies. In so doing we hope to gain better understanding of coming changes to the Japanese market for certified and legal wood products. It is extremely important that your thoughts on this subject be included in our study to ensure that the results accurately reflect the opinions of wood material buyers across Japan. Your response also will help complete the requirements for the student’s Masters of Science degree.

Remember, your responses are completely confidential and your name will not appear in any of the results that are made public. Your email address should be included in the questionnaire only if you wish to request a copy of the survey results.

We would be glad to answer any questions you may have. Please call, fax or e-mail us to: Jorge Duran, Msc. Candidate, in charge of conducting the study at: 76 257 1383 (jduran@interchange.ubc.ca)-In Japan, or Dr. David Cohen, the principal investigator at: 1-604-822-6716 (david.cohen@ubc.ca)-in Canada.

Please use the enclosed questionnaire, which is the same as the one previously sent. Also if you would like to received and electronic version of the questionnaire please let us know by email and we will be pleased to send it to you.

Thank you very much for your cooperation.

Sincerely,

Dr. David Cohen
Professor
Faculty of Forestry, UBC

Jorge Duran
MSc. Candidate.
Faculty of Forestry, UBC

Ps: If for some reason you cannot fill out this survey, PLEASE pass it onto someone in your organization to whom it may be of interested.
APPENDIX III: INSTRUCTIONS AND QUESTIONNAIRE (JAPANESE VERSION)
1. ご多忙中恐縮ですが、本調査票記入に御協力いただきますようよろしくお願いします（約 30 分程度で終了します）。

2. 本調査は重要な研究情報を収集することを目的としております。調査結果の質向上のため、できる限り全ての設問にご回答下さい。各設問に対し、より詳細な情報を追加したいとお考えの場合には、回答欄のそばに記載する等して下さい。

3. 回答方法は、選択肢に印をつける、数字を○で囲む、又は該当する順位を記入する等の簡単なものです。

4. 問9の直前に各用語の定義の一覧がございますので、ご参照の上、次の設問にお進み下さい。

5. 設問への回答が終わりましたら、調査票を折りたたみ、同封の封筒（受取人払い）を用い郵送にてご返信下さい。FAXの場合には、076-257-1383までお願いします。

6. 調査票は両面に印刷されておりますのでご注意下さい。

7. 本調査結果の概要をご希望される場合は、調査票の最終ページの該当欄にEmailアドレスをご記入下さい。本調査完了時に、結果概要（電子バージョン）を送付いたします。

ご協力よろしくお願いします。
I. 貴社及びその事業の概要についてお伺いします。

問1 本社の所在地はどちらですか。
都道府県: .............................. 市区町村: .................................

問2 貴社の住宅施工エリアを選択してください（該当するもの全てについて□に印をつけて下さい）。
- 全国
- 北海道
- 東北地方
- 東京都
- 全日本（東京都以外）
- 九州　沖縄地方
- 都道府県
- 市区町村

問3a 昨年の住宅販売戸数をご記入下さい。約...................戸

問3b 昨年の住宅販売戸数のうち、以下の内訳の割合はおよそ何％ですか（全てご回答下さい）。
住宅及び土地をともに販売 ..........％ 住宅のみ販売 ........％

問4a 土地を含まず住宅のみを販売した場合について、それらの住宅の平均価格は何円ですか（一つの□のみに印をつけて下さい）。
- 2千万円未満
- 2千万円以上3千万円未満
- 3千万円以上4千万円未満
- 4千万円以上5千万円未満
- 5千万円以上6千万円未満
- 6千万円以上

問4b それらの住宅の平均の延床面積をご記入下さい。..............坪

問5a 土地及び住宅をともに販売した場合について、それらの住宅の平均価格は何円ですか（一つの□のみに印をつけて下さい）。
- 2千万円未満
- 2千万円以上3千万円未満
- 3千万円以上4千万円未満
- 4千万円以上5千万円未満
- 5千万円以上6千万円未満
- 6千万円以上

問5b それらの住宅の平均の延床面積をご記入下さい。..............坪
問6 貴社が施工する住宅の内訳を総施工数に対する割合（％）でご記入下さい。

a) 取扱い工法
・木造軸組（在来）工法  ……％
・2x4（ツーバイフォー）工法（北米スタイプル）  ……％
・プレハブ工法  ……％
・ハイブリッド（上記3工法の組み合わせ）  ……％
・その他（…………………………）  ……％
合計 100％

b) 構造材料
・木材  ……％
・鉄骨材  ……％
・鉄筋コンクリート  ……％
・上記3材料の組み合わせ  ……％
・その他（…………………………）  ……％
合計 100％

問7 貴社の木材入手方法について、その内訳を割合（％）でご回答下さい。

・大手（地方規模）の卸業者より購入  ………％
・中規模（地域規模）の卸業者より購入  ………％
・小売業者又は日曜大工店より購入  ………％
・国内の製材工場より直接購入  ………％
・外国より直輸入  ………％
合計 100％

問8 過去3年間に販売した住宅の販売先について、その内訳を総販売数に対する割合（％）でご回答下さい。

・個人  ………％
・政府又は公的機関  ………％
・私的機関又は企業  ………％
合計 100％

II. 次に森林の持続可能性、合法性等の認証に関する貴社の認知度、意向についてお伺いします。

木材製品の認証に関する用語の定義は以下の通りですので、ご参照下さい。

| 持続可能性森林管理認証（以下「森林認証」という。）： | 森林管理が、定められた持続可能性、社会性（合法性）に関する基準に適合することについての資格ある第三者機関による認証。 |
| 合法性の証明又は認証：木材製品が合法的に生産されたことに関する能力を有する者による保証。 | 通例、森林認証に含まれる。 |
| CoC (Chain of Custody) 認証：購入した木材製品が森林認証を取得した森林において実際に生産されたものであることについての資格ある第三者機関による認証。 | 調達方針：木材製品の購入に際し、持続可能性及び合法性に関する条件を満たさなければならないことを示している私的機関又は公的機関の方針 |
| 認証林産物：持続可能又は合法的に生産されたことについての能力を有する者による認証を保持する木材等の林産物 |

問9 以下の環境問題について、貴社にとっての重要性を教えてください（それぞれの項目について一つだけ）
<table>
<thead>
<tr>
<th>問10</th>
<th>認証に関する以下の点に関し貴社の認知度を教えてください（それぞれの項目について一つだけ番号に○をつけて下さい）。</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>全く知らない</th>
<th>部分を持つ</th>
<th>知っている</th>
<th>よく知って</th>
<th>大変よく知っている</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) 認証手続き</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>分別管理</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>審査料</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>定期審査</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>b) 認証林産物の調達</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>認証林産物の既存供給者</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>入手可能な認証林産物の種類</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>認証林産物の価格</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>c) 方針及び規制</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>公的機関の調達方針</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>企業の調達方針</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>木材・木材製品の合法性、持続可能性の証明のためのガイドライン</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>住宅品質確保促進法</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>京都議定書</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

問11 | 認証の種類に関する貴社の認知度を教えて下さい（それぞれの項目について一つだけ番号に○をつけて下さい）。 |
| --- | --- |

<table>
<thead>
<tr>
<th></th>
<th>全く知らない</th>
<th>部分持ち</th>
<th>知っている</th>
<th>よく知って</th>
<th>大変よく知っている</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) 認証内容</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>森林認証</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>合法性認証又は証明</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>振発性有機化合物（VOC）に関するJAS規格</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>構造の安定及び劣化の軽減等に関する評価（住宅品質確保促進法に基づく住宅性能表示制度）</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
| 問12 | 日本の木材市場において最も適当と考えられる認証機関を3つ選択し、その順位をご記入下さい（最も適当と考えられる機関から1、2、3とつけて下さい）。
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• FSC (Forest Stewardship Council)</td>
<td>5</td>
</tr>
<tr>
<td>• PEFC (Programme for Endorsement of Forest Certification)</td>
<td>4</td>
</tr>
<tr>
<td>• SFI (Sustainable Forest Initiative)</td>
<td>3</td>
</tr>
<tr>
<td>• CSF (Canadian Standard Association)</td>
<td>2</td>
</tr>
<tr>
<td>• 緑の循環認証会議（SGEC）</td>
<td>1</td>
</tr>
<tr>
<td>• MTCC (Malaysian Timber Certification Council)</td>
<td>5</td>
</tr>
<tr>
<td>• LEI (Lembaga Ekolabel Indonesia)</td>
<td>4</td>
</tr>
<tr>
<td>• ISO 14000</td>
<td>3</td>
</tr>
<tr>
<td>• その他（……………………………………）</td>
<td>2</td>
</tr>
</tbody>
</table>

| 問13 | 問12で3つの認証機関を選択した理由を教えてください（該当するもの全てについて〇に印をつけて下さい）。
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>□ 国際的な認知度の高さ</td>
<td>□ 日本における実績の高さ</td>
</tr>
<tr>
<td>□ 環境 NGO の支持の強さ</td>
<td>□ 顧客の好み</td>
</tr>
<tr>
<td>□ 製品の種類の幅広さ</td>
<td>□ その他（……………………………………）</td>
</tr>
<tr>
<td>□ 条件の柔軟さ</td>
<td></td>
</tr>
</tbody>
</table>

| 問14a | 現在、以下の認証又は方針をお持ちですか（それぞれの項目について一つだけ〇に印をつけて下さい）。
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• CoC（Chain of custody）認証</td>
<td>はい</td>
</tr>
<tr>
<td>• 調達方針</td>
<td>(機構名……………………………………)</td>
</tr>
</tbody>
</table>
| 問14b | 問14aのいずれかについて「はい」と回答した場合、その理由を教えてください（該当するもの全てについて〇に印をつけて下さい）。
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>□ マーケットシェアの維持増加</td>
<td>□ 公的機関の調達方針の満足</td>
</tr>
<tr>
<td>□ 利益増加</td>
<td>□ 広報活動の改善</td>
</tr>
<tr>
<td>□ 材料の追跡・コントロールの向上</td>
<td>□ 違法伐採及び環境悪化の防止</td>
</tr>
<tr>
<td>□ 環境面及び社会面の信頼性の向上</td>
<td>□ その他（……………………………………）</td>
</tr>
</tbody>
</table>

| 問15a | これから5年以内に以下の認証又は方針を導入する予定がありますか（それぞれの項目について一つだけ〇に印をつけて下さい）。
| --- | --- |
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問15b はい いいえ
・CoC（Chain of custody）認証
  □ (機構名……………….) □
・調達方針
  □  □
問15aのいずれかについて「はい」と回答した場合、その理由を教えてください（該当するもの全てについて□に印をつけて下さい）。

問16 認証林産物とそうでない林産物を分別することを求められた場合、貴社はどの程度分別する力があると思いますか（一つだけ□に印をつけて下さい）。

□ 非常によく分別できる □ 分別できる □ うまく分別できない

問17 これからの5年間に、問16で回答された分別する力がどの程度変化すると思われますか（一つの□に印をつけ、その変化の割合(%)をご記入下さい）。

□ 約………%悪化する □ 変化しない □ 約………%向上する

III. 最後に、認証林産物の供給及び需要、及びその要因について貴社が期待されることについてお伺いします。

問18 貴社のお客様が新しく住宅を建築又は購入する要因のうち主要なものを下記より3つ選択し、その順位をつけて下さい（最も主要な原因から1、2、3とつけて下さい）。

・より新しい家に住みたい □  □  □
・環境面・合法性・社会面に配慮した材料を使った □  □  □
・金額面の条件が良い □  □  □
・家に住みたい □  □  □
・健康面に配慮した住みたい □  □  □
・初めてのマイホームがほしい □  □  □
・就職・結婚により新しい家が必要である □  □  □
・退職を契機に新しい家に住みたい □  □  □
・その他(………………………………….) □  □  □
・より大きな家に住みたい □  □  □

問19 貴社のお客様が住宅の建築又は購入を検討する際に、最も重要な材料の特徴を下記より3つ選択し、その順位をつけて下さい（最も重要な特性から1、2、3とつけて下さい）。

・健康面への配慮 □  □  □
・構造性能 □  □  □
・耐久性 □  □  □
・美的側面・外観 □  □  □
・価格 □  □  □
・環境面の特徴 □  □  □
・社会面の特徴 □  □  □

問20 住宅に使用される木材製品について、以下の各認証を満たした製品に対し、貴社のお客様は追加費用を払うと思いますか（それぞれの項目について一つだけ□に印をつけて下さい）。

…...
・森林認証  
・合法性認証又は証明  
・揮発性有機化合物（VOC）に関する JAS 規格  
・構造の安定及び劣化の軽減に関する評価（住宅品質確保促進法に基づく住宅性能表示制度）  
・その他 (………………………………………)

<table>
<thead>
<tr>
<th></th>
<th>はい</th>
<th>いいえ</th>
<th>「はい」と回答した場合、何%まで？</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>□</td>
<td>□</td>
<td>……%</td>
</tr>
<tr>
<td></td>
<td>□</td>
<td>□</td>
<td>……%</td>
</tr>
<tr>
<td></td>
<td>□</td>
<td>□</td>
<td>……%</td>
</tr>
<tr>
<td></td>
<td>□</td>
<td>□</td>
<td>……%</td>
</tr>
<tr>
<td></td>
<td>□</td>
<td>□</td>
<td>……%</td>
</tr>
</tbody>
</table>

問21 これからの5年間に貴社のお客様からどの程度認証木材製品の注文があると思いますか（以下の製品ごとに一つだけ番号に○をつけて下さい）。

<table>
<thead>
<tr>
<th>a) 森林認証を取得した木材製品</th>
<th>決して注文はしない</th>
<th>めったに注文はしない</th>
<th>ときどき注文がある</th>
<th>たいてい注文がある</th>
<th>いつも注文がある</th>
</tr>
</thead>
<tbody>
<tr>
<td>構造材</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>構造材以外</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>広葉樹材</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>針葉樹材</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>国産木材</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>輸入木材</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b) 合法性認証又は証明を取得した木材製品</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>構造材</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>構造材以外</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>広葉樹材</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>鉄葉樹材</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>国産木材</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>輸入木材</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

問22 公的機関の調達方針の影響により、これから5年間以内に認証林産物の需要がどの程度変化すると予想しますか（それぞれの項目について一つだけ番号に○をつけて下さい）。

<table>
<thead>
<tr>
<th></th>
<th>大幅に減少</th>
<th>わずかに減少</th>
<th>変化なし</th>
<th>わずかに増加</th>
<th>大幅に増加</th>
</tr>
</thead>
<tbody>
<tr>
<td>貴社の認証林産物の利用</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>日本市場における一般的な認証林産物の需要</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

問23 これからの5年間に、公的機関の調達方針による以下の製品の日本市場における需要に対する影響を予想してください（それぞれの項目について一つだけ番号に○をつけて下さい）。
問24 これからの5年間の日本市場における認証林産物の需要に影響を与えると考えられる要因を下記より3つ選択し、その順位をつけて下さい（最も主要な要因から1、2、3とつけて下さい）。

- 公的機関の調達方針
- 企業の社会的責任又は企業の調達方針
- 最終消費者による需要
- 増加する環境NGOからの圧力
- 増加する認証林産物の入手可能性及び供給量
- 景気回復
- 京都議定書
- その他（……………………………………）

問25 森林認証及び木材製品の合法性に関し、その他コメントがあればご記入下さい。

調査結果の概要をお受け取りになりたい場合には、以下の欄にEmailアドレスをご記入下さい。調査完了の際に、お送りいたします。

Emailアドレス：________________________________________________________

調査にご協力いただき大変ありがとうございました。
APPENDIX IV: LETTERS (JAPANESE VERSION)
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2007年4月3日

各位

陽春の候、貴社ますますご清栄のこととお慶び申し上げます。

日本における経済情勢及び人口構造の変化を受け、住宅を購入する人の優先事項が変わりつつあるところ、合法性、持続可能性が証明された木材製品の調達を促進するために、昨年政府により環境物品等の調達の推進等に関する法律（グリーン購入法）に基づく環境物品等の調達の推進に関する基本方針が改定されました。

これを受け、ブリティッシュコロンビア大学森林学部木材科学科では、日本における認証木材製品及び合法的に生産された木材製品の市場潜在能力、さらにその限界について調査することとなりました。このため、本調査に貴社のご協力を賜りたくお手紙を差し上げている次第です。なお、本調査は修士論文の一環として行われます。

当方、貴社及び貴社のお客様が住宅の購入又は建築を検討される際の、木材製品の合法性及び持続可能性に関する認識、知識、懸念事項について、特に関心を持っております。ご協力は任意でございますが、貴社のご意見は、日本の認証木材製品に関する市場戦略及び政策の改善、並びに本修士論文の完成に当たり非常に重要であると考えておりますので、是非ともご協力いただきますようよろしくお願いいたします。

なお、調査票を返信された際、貴社にご記入いただいた情報を当方にて集約した上で利用することにご同意いただいたものとしてまいりますのでご承知置き下さい。本調査票は、2007年4月17日（火）までにご返信下さいますようお願いいたします。貴社の情報は守秘していきましょう。貴社のEmailアドレスについては、調査結果の受け取りをご希望される場合のみ、調査票にご記入下さい。本調査で得た情報はブリティッシュコロンビア大学において解析し、その結果は全部に管理致します。

本調査に関しご質問等ございました場合は、以下の連絡先まで電話、FAX又はE-mailでお問い合わせ下さい。

日本国内連絡先：Jorge Duran（修士学生）
電話＆FAX：(076)-257-1383 E-mail：jduran@interchange.ubc.ca

カナダ連絡先：Dr. David Cohen（教授）
電話＆FAX：1-604-822-6716 E-mail：david.cohen@ubc.ca

また、電子ファイルによる調査票の記入をご希望される場合には、当方までその旨メールにてご連絡下さい。

さらに、貴社の情報に関する権利及びその取扱いに関し懸念事項がある場合は、ブリティッシュコロンビア大学UBC Office of Research ServicesのResearch Subject Information Line（1-604-822-8598）にお電話下さい。

ご協力よろしくお願いします。

ブリティッシュコロンビア大学森林学部

（Faculty of Forestry, University of British Columbia）

教授 Dr. David Cohen
修士学生 Jorge Duran

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各位

陽春の候、貴社ますますご清栄のこととお慶び申し上げます。

約2週間前、当方より、住宅で利用される木材製品の認証及び合法性に関し貴社のご意見をお伺いするため、調査票をお送りしました。この種の調査の中で最も包括的な本調査へのご協力をお願いしたものです。これに対応していただき誠にありがとうございます。

既に調査票への記入を完了され当方にお送りいただいているようでしたら、行き違いにつきましてお詫び申し上げるとともに、本調査へのご協力を心より感謝いたします。まだご参加いただいていないようであれば、2007年5月2日(水)までに当方まで調査票をお送り下さいますよう重ねてお願い申し上げます。

本調査は、森林管理認証及び合法性に関する住宅資材の特徴、さらには新たな政府の調達方針についての建築業者の認識、意見、知識及び懸念事項について把握し、認証木材製品及び合法木材製品の日本市場における今後の変化について理解を深めることを目的としています。したがって、国内の木材購入者の意見を調査結果に適切に反映させるため、貴社のご意見をおいただくことは大変重要であると考えております。また、貴社のご回答は、修士論文を完成させる支援ともなりますので、是非ともご参加下さいますようお願いいたします。

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本調査に関しご質問等ございまいます場合は、以下の連絡先まで電話、FAX又はE-mailでお問い合わせ下さい。

日本国内連絡先：Jorge Duran (修士学生)
電話&FAX: 076-257-1383  E-mail: jduran@interchange.ubc.ca
カナダ連絡先：Dr. David Cohen (教授)
電話&FAX: 1-604-822-6716  E-mail: david.cohen@ubc.ca

調査票につきましては、前回送付したもの同じものを同封しておりますのでご使用下さい。また、電子ファイルによる調査票の記入をご希望される場合には、当方までその旨メールにてご連絡下さい。

ご多用中おそれいりますが、ご協力よろしくお願いいたします。

ブリティッシュコロンビア大学森林学部
(Faculty of Forestry, University of British Columbia)
教授 Dr. David Cohen
修士学生 Jorge Duran

追伸：もし本件に関するご担当が他の方であれば、貴社の中でご担当される方に調査票をお渡し下さいますようお願いします。
APPENDIX V: ETHICS CERTIFICATE OF APPROVAL
The University of British Columbia  
Office of Research Services  
Behavioural Research Ethics Board  
Suite 102, 6190 Agronomy Road,  
Vancouver, B.C. V6T 1Z3  

CERTIFICATE OF APPROVAL - MINIMAL RISK

<table>
<thead>
<tr>
<th>PRINCIPAL INVESTIGATOR:</th>
<th>INSTITUTION / DEPARTMENT:</th>
<th>UBC BREB NUMBER:</th>
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<tbody>
<tr>
<td>David H. Cohen</td>
<td>UBC/Forestry/Wood Science</td>
<td>H07-00281</td>
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INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:

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Other locations where the research will be conducted:

Data Collection (Survey): From Japanese building firms along different locations in Japan. Data analysis and processing: In the marketing Laboratory of the Wood Science Department in Faculty of Forestry, UBC.

CO-INVESTIGATOR(S):

N/A

SPONSORING AGENCIES:

International Environmental Institute

PROJECT TITLE:

Japanese Market For Certified and/or Legal Wood Products

CERTIFICATE EXPIRY DATE: March 21, 2008

DOCUMENTS INCLUDED IN THIS APPROVAL:

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<thead>
<tr>
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The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.

Approval is issued on behalf of the Behavioural Research Ethics Board and signed electronically by one of the following:

Dr. Peter Suedfeld, Chair  
Dr. Jim Rupert, Associate Chair  
Dr. Arminee Kazanjian, Associate Chair  
Dr. M. Judith Lynam, Associate Chair  
Dr. Laurie Ford, Associate Chair