

AN OVERVIEW OF STAKEHOLDER AWARENESS ON FOREST AND WOOD PRODUCTS CERTIFICATION INITIATIVE: STUDENTS' PERSPECTIVE

Walter Lintangah
International Tropical Forestry Program,
Faculty of Sciences and Natural Resources,
88400 Universiti Malaysia Sabah
walterjl@ums.edu.my

Nur Athirah Omardin
International Tropical Forestry Program,
Faculty of Sciences and Natural Resources,
88400 Universiti Malaysia Sabah
omardin_nurathirah@yahoo.com

ABSTRACT

A study on the awareness of forest and wood products certification initiatives and its development was conducted among students taking courses related to forestry, environment and conservation biology in the Faculty of Sciences and Natural Resources at Universiti Malaysia Sabah. Questionnaires were distributed to a total of 437 respondents from first to third-year students. The results indicated that many students were more aware of the forest certification than wood products certification program. There were significant differences in the level of awareness of the students from different programs and their number of years of study. The first year students mainly knew the subject from the websites whereas second and third year students obtained the information from their lecturers. Most of the respondents agreed the importance of forest and wood products certification towards the achievement of sustainable forest management and biodiversity conservation, sustaining forest ecosystem services, and mitigating illegal logging activities. Nevertheless, many of those involved in the purchasing of paper did not know or consider forest and wood product certification logo as the factor that influenced them to buy the product. They agreed that there was a need to enhance campaigns pertaining to certification initiatives. The findings have implications for the government, NGOs, educational institutions, mass media and the parties directly responsible for forest management such as the Forestry Department and private sectors, suggesting that the development of forest certification initiatives can be strengthened through education, awareness programs, training courses, and the provision of funding.

Key words: Forest Certification, Wood Products Certification, Sustainable Forest Management, Biodiversity Conservation, Forest Ecosystem Services

Introduction

The Forest Certification program has been mainly introduced to forest managers, forest owners and the players in the forest-based industries. There has been limited study being conducted on the awareness towards the certification initiative among students as the potential consumers and possible experts in the field of environment, biodiversity or forest management in the future. The aim of this study was to determine students' awareness towards forest and wood products certification initiatives and its development.

An Overview on Forest Certification Initiatives

Forest certification movement was introduced in the early 1990s. It was a market-based strategy to address concerns of deforestation and forest degradation in the Tropic (Rametsteiner & Simula, 2003). Forest certification has been evolved as a governance instrument to support and promote sustainable forest management practices and the maintenance of biological diversity (Dare & Eversole, 2012; Rametsteiner & Simula, 2003). The certification schemes have become apparent since then, particularly in the environmental domain of which it has turned out to be an important and innovative venue for standard setting and governance (Auld, Gulbrandsen, & McDermott, 2008). It has also developed as a part to define and monitor standards for environmental and social improvements in natural resource management (Bass, 1998). Certification is a voluntary market instrument process whereby an independent third party evaluates the quality of forest management processes against a predetermined standard (Elliot, 2000; Rametsteiner & Simula, 2003). Certification of sustainable forest management has to deal with the diverging values of various stakeholders and the importance of biodiversity conservation. Only about 10 percent of the world's forests, mostly located in industrialized countries that imposed stringent laws were certified in 2014 (Georgia-Pacific, 2014).

Two approaches to forest certification are management system based standards and performance standards (Elliot, 2000; Nussbaum & Simula, 2005). Management system (or process standards) is a system within an organization to ensure quality management, consistent environment and social performance without specifying any minimum level of performance that must be accomplished (Nussbaum & Simula, 2005). Performance standard, on the other hand, stipulates levels of performance to be achieved by forest operation (Elliot, 2000; Nussbaum & Simula, 2005). The benefits of certification comprised market and non-

market benefits (Elliot, 2000). Market benefits include higher prices, easier market access, and branding, while non-market benefits include improved staff morale, evidence of legality, multistakeholder participation, increased operational efficiency, minimized risks of being criticized by NGO and organizational image. Furthermore, the certification program can advance the identity in terms of good forest management, conservation of biodiversity, identify operational improvements in forest management practices such as reduced-impact logging techniques, and assist in organizational learning (Elliot, 2000; Lagan, Mannan, & Matsubayashi, 2007). Forest certification has contributed improvements in internal auditing and monitoring in forest organizations thereby proliferates the level of management quality towards enhanced conservation of the forest ecosystem in the long run (Rametsteiner & Simula, 2003). Some barriers identified under the certification program are the costs of certification, the uncertainty of forest certification advantages, and control over forest management activities (Dare & Eversole, 2012). Other barriers are difficulty in meeting the requirements of the standards and complexity of the certification process (Nussbaum & Simula, 2005). The lack of price premiums, restricted market potential, and the high cost were some of the primary causes deterring manufacturers from adopting chain of custody certification (Ratnasingam, Macpherson, & Ioras, 2008).

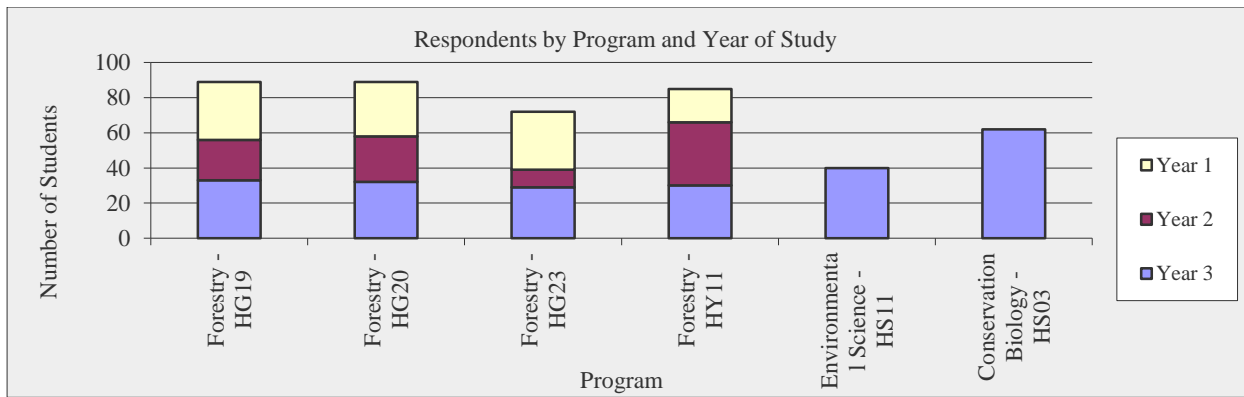
As indicated by Vogt et al., (2000), the factors and aims of certification, as tools for natural resources management, are include control resource management techniques, control resources economically, and alleviate poverty. The certification program creates a system to assures the public that the environmental concerns and values have been addressed. It also assist in managing the forest holistically, reduce the amount of regulation that is being imposed on a forestland owner, and balance the need to extract resources from the environment. More importantly, sustainable ecosystems and control the values of private forestland owners, or vice versa are maintained. The Sabah Forestry Department indicated that the political support and institutional commitment have been a contribution to the achievement of forest certification in Deramakot Forest Reserve (Lagan, Mannan, & Matsubayashi, 2007). Other crucial parts of implementing sustainable forest management and forest certification are capacity building which can be divided into the development of human resources, institutional and organizational framework and information system to provide data for planning, implementation and assessment (Nussbaum & Simula, 2005). Technical capacity needed to fulfill the full potential of certification includes awareness-rising, capacity for developing certification standards and procedures, capacity of producers to implement responsible management, capacity of certification and accreditations bodies to conduct external audits, capacity to access relevant market information, engagement or strengthening of existing systems such as government extension mechanism and rural development banks to address the needs of community forests and forest owners, and the need to build up auditing capacity and institutions worldwide in order to broaden the resource base for assessment work (Nussbaum & Simula, 2005).

The parties who are involved in the certification process may include certifiers, accreditors, forest managers, forest owners, wood buyers, stakeholders, and governments' agencies (Elliot, 2000). Students are considered as stakeholders because they are the potential consumers and possible experts in the field of environment, biodiversity or forest management in the future. The students' perception and attitude are therefore highly pertinent (Qu, Ahponen, Tahvanainen, Gritten, & Mola-Yudego, 2011). In Malaysia, the public awareness of forestry and environment, and the integration of social, environmental sciences in forestry curricula of institution of higher learning are among the actions envisaged to advance the sustainable forest management concept (Chiew, 2002). Previous studies concerning environmental labeling, certification of wood products and value-added or forest certification have been conducted among the manufacturers, community or the general public. The results indicated their perceptions or readiness to adopt chain of custody certification or forest certification program (e.g. Kozak, Cohen, Lerner, & Bull, 2004; Humphries & Kainer, 2006). The present study emphasized the students' knowledge, attitude and perceptions towards forest and wood certification in a higher learning institution in Sabah, Malaysia.

Method

The data gathering method of the present study was administering questionnaires to the students of Faculty of Science and Natural Resources, University Malaysia Sabah. The students were those in the fields related to forest resources, environmental and conservation of biology. The total respondents were 437 with the first year students (26.38%), second year students (21.79%), and third-year students (51.61%). The first and second year students comprised four forestry-related programs namely International Tropical Forestry (HG19), Nature Park and Recreation (HG20), Wood Technology and Industry (HY11) and Forest Plantation and Agroforestry (HG23). The third year students consist of the four forestry programs with the addition of two others programs of the faculty, namely Conservation Biology (HS03) and Environmental Science (HS11) (Figure 1).

Figure 1: Respondents by Programs and Years of Study



The study on the students' awareness was based on their understanding or knowledge of forest and wood certification program and their overall perceptions towards the initiative. The questionnaire was divided into three main parts comprised the respondent's background, the forest certification level of awareness, and the general perceptions of the forest certification initiatives. The questions on perceptions and level of knowledge and understanding were set in the form of ranking based on five-point Likert scale. Data analysis was done manually by means of online SurveyMonkey software, SPSS, and Microsoft Excel.

Results

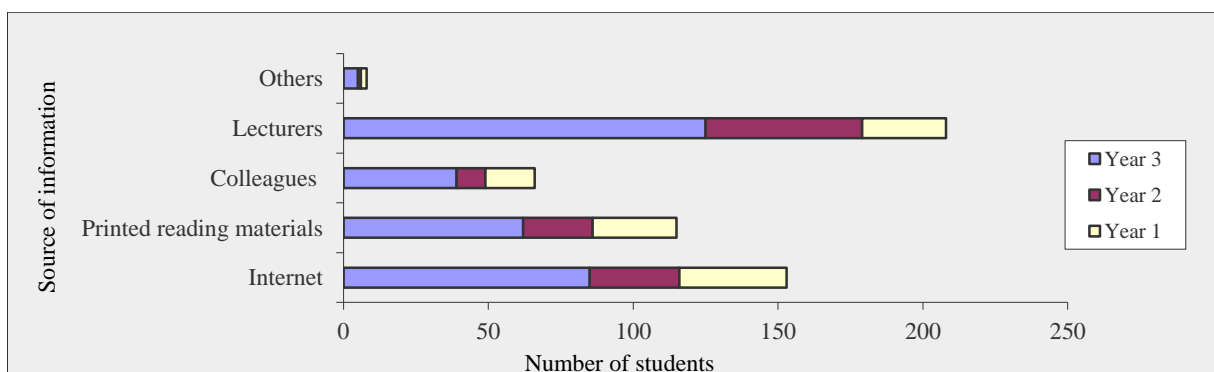
In this section, the results of the study are presented according to students' years of study, the programs of study, and the overall perceptions of the students towards the current Forest and Wood Products Certification initiatives.

Perceptions of Students from Different Years of Study

A total number of 335 students who are taking the forestry programs were involved in this assessment. Out of the total number, 62.09% indicated that they have heard about forest certification, and wood products certification program (52.10%). The third year students recorded the highest percentage of having heard about forest certification program (91.94%) followed by second-year students (60.00%) and the first year students (31.90%). There were 78.86% of the third year students have heard about wood products certification program while second-year students (44.21%) and first-year students (30.17%).

Most of the students obtained the information about forest and wood products certification from their lecturers (82.61%) (Figure 2). This is followed by those who found out from the Internet (56.52%), from printed reading material (books/magazines/journal and articles) (42.17%), and from their peers (24.78%). Most of the first year students knew about the program from the website (69.81%), followed by printed reading materials and from their lecturers (with both 54.72% respectively), and friends (32.08%). The second-year students, mainly came to know about forest certification programs from their lecturers (87.10%), followed by the Internet (50%), printed reading materials (38.13%) and friends (16.13%). The third year students indicated that they knew about the certification program mainly from their lecturers (93.04%), the Internet (53.91%) printed reading materials (38.26%) and colleagues (26.09%). The first year students' experience of knowing about forest and wood products certification program through their lecturers was significantly lower than the third year students at 95% confidence level ($p = .05$).

Figure 2: Sources of information on Forest Certification

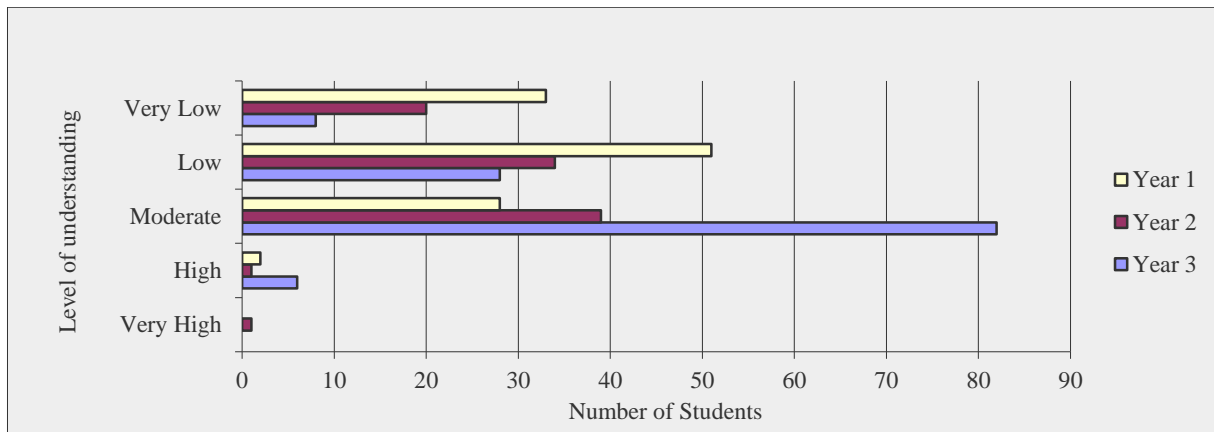


The students' perceptions of their level of knowledge and understanding of the forest and wood products certification program were mostly at moderate (41.24%) and low level (34.33%). However, there were differences between the students from different years of study. The first year students showed their knowledge and understanding of the programs mainly at the low level (44.75%), followed very low (28.95%) and moderate level (24.56%). The second year students mostly indicated that their knowledge and understanding at moderate level (41.05%), followed by low (35.79%) and very low (5.21%). The third year

students knew the subject moderately (49.78%), low (24.44%) and very low (19.11%). Less than 5% of the total students indicated that their knowledge and understanding about the certification programs was high (Figure 3).

A total number of 235 (73.23%) respondents were not aware of forest product (paper) certification. Paper purchasing was the highest among the first year students followed by the second and third year students. Nevertheless, only 17.24% of the first-year students indicated that they were aware of the certification of the product. This was lower if compared with the second (31.58%) and the third year students (40.32%). This figure was significantly different at 95% confidence level ($p = .05$). The first-year students indicated that their choice of purchasing were influenced¹ by the price of the product (3.93), product quality (3.91), branding (3.34), certified logo (3.14), advertisement (3.13) and other factors (3.11). The second year students stated the factors influencing their purchasing were the quality of the product (4:26), pricing (4.18), branding (3.91), advertisement (3.73), certified logo (3.68) and others (3:49). The third-year student, similarly, were affected by the pricing (4.19), product quality (4:17), branding (3.3), advertisement (3.17), logo (3:03) and other factors (2.91).

Figure 3: Level of knowledge and understanding of Forest Certification Programs



The third year students had the highest number of students who opined that certification program was essential, while the second year students recorded only 46.32%. The second year students also had the highest number students who disagreed Wood Products certification program was necessary (13.68%) compared to the rest. Some of the reasons given by the students on the importance of both certification programs were related to the protection of forest from destructions, the recognition of product quality assurance, the warranty for a wider market, management and preservation of forest resources in a sustainable manner, avoiding illegal forest exploitation, evading of resource leakages, and maintaining the balance of forest ecosystems and biodiversity. A majority of the students (97.60%) indicated their agreement on the need to intensify awareness campaigns on both forest certification programs. They also agreed that the direct involvement of the government to encourage forest certification programs could be implemented through education (54.92%), awareness campaign programs (48.51%), trainings and courses (46.10%) and finance (41.65%).

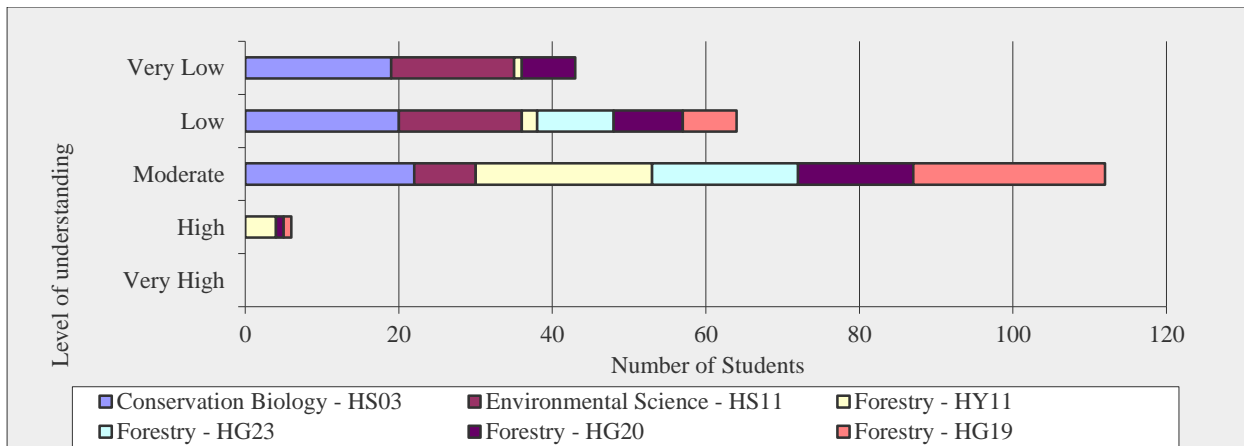
Students' Perceptions Based on Programs of Study

The comparisons of students' insights involved students from six programs: the third year students of HS03, HS11 and the four forestry programs of HG19, HG20, HY11, and HG23. Most students from the four forestry programs knew about forest and wood certification program with HY11 students (100%), followed by the HG19 (96.97%), HG23 (96.55%) and HG20 (75%). The respondents from HS03 and HS11 knew little or never heard about the forest certification program i.e. 41.94% and 30.00% respectively. The respondents who heard about the wood product certification program was also the highest among the students taking HY11 (96.67%) followed by the students taking HG23 (82.29%), HG19 (75.76%), HG20 (61.29%), HS03 (33.87%) and HS11 (17.50%). The students who were familiar with the certification program are lower in the programs of HS03 and HS11 as compared with the students of the four forestry programs. The results showed significantly different at 95% confidence level ($p = .05$).

Most of the respondents rated their level of knowledge and understanding of the forest certification program at moderate level (49.78%) followed by low (28.44%) and very low (19.11%) (Figure 4). The respondents of the forestry programs revealed that their acquaintance with the subject of forest certification programs was mainly from their lecturers of which all students taking both HG19 and HY11 charted a total of 100%. This was followed by the students of HG23 (96.55%) and HG20 (72.00%).

Figure 4: Level of knowledge and understanding of Forest Certification based on Programs of Study

¹ The factors influencing the choice of purchasing paper products among the students were compared based on the weighted average of (1 - strongly disagree, 2 - disagree, 3 - moderate, 4 - agree and 5 - strongly agree).



The respondents of HS03 indicated their knowledge of forest and wood products certification program came from the Internet and lecturers (both recorded 55.00%), followed by printed reading materials (41.38%). Likewise, students of HS11 knew the Forest certification from the Internet (58.33%), followed by printed reading materials (50%).

There were 73.23% of the total respondents purchased forest products (paper) without being aware whether the product has been certified or not. The respondents who indicated their awareness on the certified product were relatively low with HG23 recorded (58%), HY11 (50%), HG20 (31.25%), HG19 (24.24%), HS03 (17.74%) and HS11 (15.00%). The main factors affecting the choice of purchasing were pricing (4.19), followed by quality of product (4.17), branding (3.30), advertisement (3.17) and certified logo (3.03). The respondents of all programs agreed that the awareness campaign of forest certification should be intensified (96.46%). They concurred that the government should involve encouraging the certification programs through awareness campaigns, education, courses and training and finance. They also indicated that other parties could contribute to the forest certification initiative such as NGOs, institutions of higher learning and universities, Forestry Department, mass media, schools, students, private sector and the public.

Overall Students' Perceptions on Forest Certification Initiatives

The assessments of the students' overall understanding of the current progress and their general opinion towards the forest certification programs were based on their agreement² towards the statements that prescribe the initiative. The statements were categorized into four main areas that encompassed the general overview on forest certification, certification of forest products, self-assessment towards the certification initiative and participation of the general public.

Most of the respondents perceived that forest certification is imperative for sustainable forest management and biodiversity conservation (4.26). They also agreed that forest certification could help to mitigate forest degradation and resources leakages (4.11). They relatively agreed that forest certification program could limit the production of timber and, therefore, would affect the national income from the forest (3.41). Most of the respondents did not think that forest certification program is a waste (2.20). They agreed that the price of certified forest products was reasonable, which was aligned with the quality of the products (3.91). While, the statement on certified forest products have a high competition with the non-certified products is moderately agreed at (3.50). The self-assessment by the respondents showed that they were aware of the importance of certification on every forest products (3.64). They also agreed to support the certification by buying the certified forest products (4.01). They disagreed of having no concern at all with the existence of forest certification logo during the purchasing of forest products (2.79).

The respondents agreed that the public should be more aware of the environment, and also support the forest certification programs to overcome the leakages of forest resources in the country (4.18). They agreed that public participation can increase the effectiveness of certification program during its implementation (4.07). They also concurred that the public should participate in the discussions on the implementation of forest management and certification (3.91) and should contribute to the forest certification initiative by buying the certified timber products (4.03).

Discussion and Conclusions

Students' perceptions towards certification program in this study were measured based on the number of years of study and the programs taken by the students. There were significant differences between the level of understanding and their awareness. The third year students of the forestry programs had the highest level of knowledge. The students from forestry programs also exhibited the highest level of awareness compared with the students from other programs. This implies that courses offered by the forestry programs expose students to the subject of forest certification programs. As indicated by Kraxnera, Yang, and Yamagata, (2009), forest certification is imperative and essential for future integrated bottom-up policies to promote environmentally sound management of the forest. An early exposure to the certification program may help students to acquire aptitude necessary for their future career as a manager in the related fields.

² The assessment was based on the weighted average of the respond given by the students with (1- highly not agree, 2- not agree, 3 – moderate, 4 – agree and 5 - highly agree).

The overall finding in this study reveals that the level of awareness and knowledge on the certification programs among the students are still at the moderate level. This implies that there is a need for organizing more campaigns to highlight the importance of certification programs, to inform the consumers about the forest products they are purchasing are originated from sustainably managed forests (Rametsteiner and M. Simula, 2003). The efforts to conduct awareness program should involve many parties particularly the government as the central to the development of certification both on the supply and demand sides (Auld, Gulbrandsen, & McDermott, 2008). It also embraces forest owners and the industries, who will gain the potential to access environmentally sensitive markets through the certification initiatives. The forest certification programs should be also imparted to students as they are the managers of tomorrow to secure our forest resources and the environment in accordance with the Sustainable Development concept.

Acknowledgement

We wish to acknowledge all the students of Faculty of Science and Natural Resources, University Malaysia Sabah, who participated in this study. Our appreciation is also due to Dr. Jocelyn Lee for her comments on the manuscript.

References

- Auld, G., Gulbrandsen, L. H., & McDermott, C. L. (2008). Certification Schemes and the Impacts on Forests and Forestry. *Annual Review of Environment and Resources*, 187-212.
- Bass, S. (1998). *Forest Certification: The Debate about Standards*. Rural Development Forestry Network.
- Chiew, T. H. (2002). Towards Achieving SFM in Peninsular Malaysia. *Proceedings of the Seminar on Practising Sustainable Forest Management: Lessons Learned and Future Challenges* (pp. 3-20). Kota Kinabalu: Universiti Malaysia Sabah (UMS).
- Dare, D. M., & Eversole, D. R. (2012). *Forest certification of Tasmania's private forests: Exploring the understanding and intent of Tasmanian non-industrial private forest growers towards the adoption of forest certification*. Burnie: Institute for Regional Development, University of Tasmania.
- Elliot, C. (2000). *Forest Certification: A policy perspectives*. Jakarta, Indonesia: Center for International Forestry Research (CIFOR).
- Georgia-Pacific. (2014). *Forest Certification Around the World*. Retrieved from https://www.gp.com/~media/Corporate/GPCOM/Files/Sustainability/Sustainability-Documents/List/Forest_Certification_Around_the_World.ashx?
- Humphries, S. S., & Kainer, K. A. (2006). Local perceptions of forest certification for community-based enterprises. *Forest Ecology and Management*, 30-43.
- Kozak, R. A., Cohen, D. H., Lerner, J., & Bull, G. Q. (2004). Western Canadian consumer attitudes towards certified value-added wood products: An exploratory assessment. *Forest Products Journal*, 21-24.
- Kraxner, F., Yang, J., & Yamagata, Y. (2009). Attitudes towards forest, biomass and certification – A case study approach to integrate public opinion in Japan. *Bioresource Technology*, 4058-4061.
- Lagan, P., Mannan, S., & Matsubayashi, H. (2007). Sustainable use of tropical forests by reduced-impact logging in Deramakot Forest Reserve, Sabah, Malaysia. *The Ecological Society of Japan*, 414-421.
- Nussbaum, R., & Simula, M. (2005). *The Forest Certification Handbook*. UK and USA: Earthscan.
- Qu, M., Ahponen, P., Tahvanainen, L., Gritten, D., & Mola-Yudego, B. (2011). Chinese university students' knowledge and attitudes regarding forest bioenergy. *Renewable and Sustainable Energy Reviews*, 3649–3657.
- Rametsteiner, E., & Simula, M. (2003). Forest certification—an instrument to promote sustainable forest management? *Journal of Environmental Management*, 87–98.
- Ratnasingam, J., Macpherson, T., & Ioras, F. (2008). An assessment of Malaysian wooden furniture manufacturers' readiness to embrace chain of custody (COC) certification. *Holz als Roh- und Werkstoff*, 339-343.
- Vogt, K. A., Larson, B. C., Vogt, D. J., Gordon, J. C., Fanzeres, A., O'Hara, J. L., & Palmiotto, P. A. (2000). Forest Certification Roots, Issues, Challenges, and Benefits. In K. A. Vogt, B. C. Larson, J. C. Gordon, D. J. Vogt, & n. Fanzers, *Forest Certification Roots, Issues, Challenges, and Benefits* (p. 394). USA: CRC Press LLC.