

Article

Revisiting Forest Certification in Sri Lanka: The Forest Management and Export Wood-Based Manufacturing Sector Perspectives

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Abstract: There are discussions and debates surrounding forest certification in developing countries. In this study, we surveyed 50 forest-based companies in Sri Lanka (43 wood-based manufacturers and 7 plantation companies) to ascertain their participation in forest certification, current and future forest certification trends, as well as their satisfaction with the performance of Forest Stewardship Council (FSC) certification in its economic, environmental, and social aspects, using an importance–performance analysis (IPA). Study results indicate that certified companies typically focus on exports and supplying raw materials for value-added exporters. The customer demand/signaling mechanism appears to be the primary driver of FSC certification in Sri Lanka. Forest certification was found to be helpful for companies to access new markets, keep market share, and sell products in existing markets. Results further indicate that price premiums for FSC-certified products exist, though they may not always be significant. However, certification positively influences sales volume and reduces business risks via securing continuous orders from the buyers. The IPA results further indicate that FSC certification has substantially improved company images by positioning certified companies as socially responsible businesses, while helping to create better business stakeholder relationships. FSC certification was found to have weak links in improving on-the-ground environmental performances of certified companies. Study findings have implications for the FSC certification scheme and independent certifiers, enabling them to identify the areas of FSC certification with significant performance gaps.

Keywords: Forest Stewardship Council; importance–performance analysis; wood products manufacturers; economic benefits; environmental performance; social benefits; forest plantations; Sri Lanka



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1. Introduction

The complexity of environmental problems and the growing anthropogenic pressure on natural resources and the environment has driven the global community to explore market-driven voluntary systematic environmental governance mechanisms and reward sustainable practices in global economic and trade policies [1]. Among such mechanisms, the concept of “eco-labeling”, which promotes green consumerism and eco-friendly products, has gained popularity across supply chains in different sectors [2,3].

In response to growing concerns over tropical deforestation, forest certification emerged in the 1990s as a novel non-state market-driven governance model to encourage sustainable forest management [4–6]. Forest-based companies began to adopt sustainable forest management certification to address public concerns over perceived negative impacts created by this sector on the natural environment [7]. Forest certification systems are voluntary and transparent. A governance structure for each certification program develops and periodically reviews certification system principles, criteria, and indicators of sustainable forest management. Certification bodies act as independent third-party entities that verify a firm’s compliance with programmatic indicators through an auditing process [8–10].

A forest certification assessment/audit results in issuing a written certification report by the independent third-party certification body that may approve the company certification plan or identify issues that need to be addressed before approval is given [11]. Upon meeting the certification requirements, the certificate holders in turn, are entitled to use the “eco-label” of the certification program to differentiate and position their wood products in the market as originating from environmentally responsible managed forests [6]. For downstream members of the forest sector supply chain, such as wood products manufacturers, retail sellers, and end-users, forest certification and the allied eco-label provides a credible guarantee that the product comes from an environmentally responsible, socially beneficial, and economically viable sustainably managed forest [11]. In the present global market, forest certification is dominated by two competing schemes; the Forest Stewardship Council (FSC) and the Program for the Endorsement of Forest Certification Schemes (PEFC) [5,9].

This paper focusses on the FSC program. The FSC forest management standard has ten sustainable forestry principles and 70 criteria that apply to FSC-certified forests worldwide [12]. FSC certification is a two-pronged process that includes a forestry performance audit applicable for forest management units (FM certification) and a forest supply chain audit known as the “Chain-of-Custody” certification (CoC certification). The CoC certification ensures the traceability of wood products in the supply chain from the forest to the final consumer [12]. In addition, FSC Controlled Wood standard allows manufacturers to mitigate the risk of using materials from undesirable sources in FSC-labeled products. FSC certification has become a catalyst in improving sustainable forest management practices and transforming global forest products markets to recognize and reward products sourced from sustainably managed sources [6,9,13]. For instance, over the past 28 years, over 200 million hectares of forests in over 50 countries have been certified according to FSC standards, while more than 40,000 CoC certificates have been issued for forest products supply chain enterprises in more than 100 countries [12]. Adoption of FSC certification in Asia has increased significantly over time [14]. In this paper, we focus on Sri Lanka, a Southeast Asian country.

1.1. Forestry and Wood-Based Manufacturing Sector of Sri Lanka

Steady economic growth coupled with rising living standards in Sri Lanka has created substantial growth in demand for timber and forest products. Recent studies suggest that annual timber consumption in Sri Lanka is over 1.6 million m³ from which, over 10% are imports [15]. Unlike in the past, the timber supply from natural forests has become highly restricted with the aim of preserving the remaining natural forests [16,17]. As such, forest plantations have become an essential source of timber. Forest plantations managed by the Department of Forest Conservation, Sri Lanka comprise approximately 78,490 ha, with teak (*Tectona grandis*), eucalypts (*Eucalyptus* spp.), and mahogany (*Swietenia* spp.) being the dominant species [18].

There are a number of market dynamics taking place with regard to the plantation-based forest sector. For example, the current supply of logs from state forest plantations is inconsistent in terms of quality. Concurrently, raw material scarcity and increasing demand have overshadowed quality issues with rising prices [15]. In addition, private sector investments in plantation forestry have also grown during the last two decades. For instance, the extent of private forest plantations has significantly increased from 14,079 ha

in 2004 [16] to 44,570 ha in 2020 [18]. The commercial focus for many investors has shifted from timber production to non-timber forest products such as resins and essential oils [19]. The extent of rubber (*Hevea brasiliensis*) plantations in Sri Lanka is approximately 167,000 in 2020 [18]. Rubberwood is an essential raw material, particularly for export-oriented wood products manufacturers [16,20].

Sri Lanka's wood-based manufacturing sector is characterized by sawmill, furniture, construction, parquet flooring, wood-based panel products, and carving enterprises, with the majority of companies focusing on domestic markets [17,21,22]. These companies predominantly depend on the local wood supply for raw materials [15,21]. Sri Lanka's forest sector and wood-based manufacturing industry play an important role in the national economy, contributing over USD 176 million to the country's GDP and over 50,000 direct employees in 2019 [23].

Some wood product sector exports have shown growth over the past 6 years, while others have declined or remained flat (Table 1). For instance, export value of furniture in knockdown/ready-to-assemble form, which accounted for 50% of total export value in 2019, increased 48% between 2014 and 2019 while the second highest value export sector, handicrafts, declined 23% over the same period. Overall, solid wood product export value declined just over 12%.

Table 1. Wood products exports from Sri Lanka (2014–2019) (sorted by 2019 values, USD (\$) millions).

Products	2014	2015	2016	2017	2018	2019	% Change 2014–2019
Furniture (knockdown form)	18.85	18.15	26.83	24.19	26.49	27.94	48.22%
Handicrafts	11.24	9.47	10.31	11.57	10.57	8.71	−22.51%
Medium Density Fiberboard (MDF) and other Fiberboards	25.14	19.59	15.98	16.81	13.48	8.51	−66.15%
Other Wood Products	3.26	3.71	2.37	3.54	4.42	5.06	55.21%
Brooms and Brush Handles	4.56	4.02	4	4.07	4.25	3.6	−21.05%
Plywood and Particleboard	0.4	0.17	0.41	0.76	1.09	1.89	372.50%
Builders Joinery and Flooring panels	0.39	0.16	0.22	0.22	0.71	0.41	5.13%
Total	63.84	55.27	60.12	61.16	61.01	56.12	−12.09%

1.2. FSC Certification in Sri Lanka

FSC certification has been in practice in Sri Lanka since 1996 when only a handful of wood-based manufacturers were participating in export markets. According to the first published work by Perera et al. [16] on forest certification in Sri Lanka, most companies were curious or unclear about the benefits and opportunities they could potentially derive through FSC certification. Since then, FSC certification has increased as more companies entered export markets. For instance, the number of FSC certified firms (both FM and CoC certificate holders) has increased from 11 in 2006 to 62 in 2021 [12,16]. These include 55 CoC certificate holders and 7 FM certificate holders (Figure 1). In addition, there have been 33 certificates terminated and one suspended from 1996 to 2020 [12]. The increases in exported furniture, plywood/particleboard, building joinery/floor panels, and “other wood products” has resulted in growth in demand for FSC CoC certification, particularly after 2010, which coincides with the economic recovery of post-war Sri Lanka.

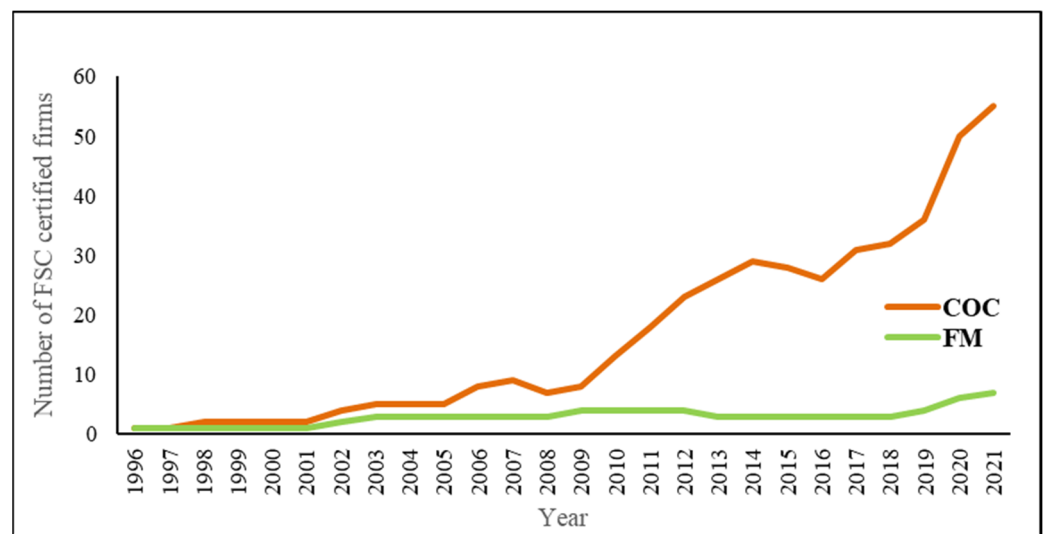


Figure 1. Growth of FSC certification in Sri Lanka (1996 to 2021). Source: [12].

According to the Food and Agriculture Organization of the United Nations (FAO) in 2019, Sri Lanka had 249,810 ha of plantation forests (including rubber plantations), which is accounted for 11.8% of the country's total forest area [18]. Most export wood product manufacturers rely on rubberwood for raw materials [15,20]. The increased demand for certified rubberwood has induced plantation companies to acquire FSC FM certification. The area of forest plantations, mainly rubberwood, has steadily increased from 6551 ha in 1996 to a pinnacle of 46,619 ha in 2011 (Figure 2). Due to the withdrawal of a few larger plantation companies from FSC FM certification coupled with the exclusion of some forest areas from the scope of certification, the current area of certified forest plantations was 19,492 ha in May 2021 [12] with 7.8% of total plantation forests are certified.

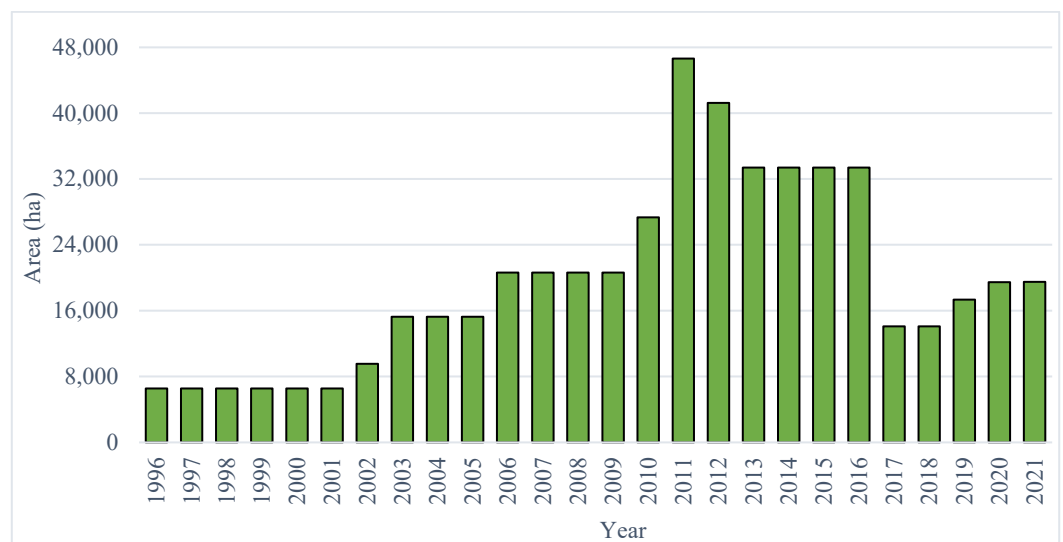


Figure 2. Change in area of FSC certified forest plantations in Sri Lanka (1996 to May 2021). Source: [12].

FSC certification, at least in theory, provides several environmental, social, and economic benefits. Sustainable forest management helps maintain and restore ecosystem services such as clean water, soil conservation, carbon sequestration, and biodiversity conservation [13]. FSC principles and criteria demand the well-being of local people, indigenous peoples' rights, and ensuring the worker's safety and rights. Given a choice, consumers prefer certified over non-certified wood products, but research has shown that they will not pay a substantial premium for FSC certified products [5,8,24]. However,

some studies provide evidence for the existence of price premiums for FSC certified products [25–27]. Numerous studies suggest that it is challenging to link FSC certification to improvements in environmental performance, ecosystem services, and biodiversity benefits [4,5,10,28]. Furthermore, some authors have contested the ability of FSC certification to achieve the intended economic benefits for certified firms while raising concerns over FSC certification becoming a trade barrier, especially for developing countries [6,9,14,21,29,30].

In the Sri Lankan context, Amarasekera et al. [31] and Perera et al. [16] evaluated the potential of FSC certification as a market tool to reward sustainable forestry, focusing on perceptions of certification from wood-based manufacturers and forest plantation managers. Adoption of certification was premised with the assumption that respondents from these two sectors would receive economic, social and environmental benefits through FSC certification by adopting FSC underlying principles and criteria. These studies reported significant respondent reluctance to engage in certification primarily due to uncertainty in the ability to receive price premiums for certified forest products. This lack of a price premium is a disincentive for forest plantation owners and manufacturing facilities to incur the cost of becoming certified. In addition, for respondents that were certified, results found gaps in adherence to FSC certification standards relative to actual environmental performance [16].

FSC certification in Sri Lanka has increased since its inception almost 25 years ago. In this study we revisit FSC certification adoption in the country. Specifically, we evaluate perceptions of FSC certificate holders and enterprises that had certification endorsement either terminated or suspended. Due to the low sample size of forest plantation companies, it was not feasible to analyze the perceptions of forest management perceptions on FSC certification separately. As such, we focused on a combined wood products manufacturing/forest plantation respondent dataset to gain a perspective of this connection in the forest sector supply chain as a whole.

2. Materials and Methods

2.1. FSC Certification in Sri Lanka

This study intended to ascertain the perceptions of forest sector enterprises regarding their experience with FSC certification. Specifically, we hoped to better understand their expectations of becoming certified and the current level of satisfaction or performance of FSC certification. Capturing the perceptions of both valid certificate holders and those who discontinued FSC certification was important in understanding the actual performance gap of FSC certification. Hence, in this study, we used the importance–performance analysis (IPA) developed by Martilla and James [32] as a gap analysis tool. IPA is a valuable tool in examining customer satisfaction and management strategies. Given that a corporate goal is to maximize satisfaction customer/user satisfaction, IPA can help companies to identify and correct service/product problems. [33,34]. IPA has been extensively used in hospitality and tourism research to understand visitor satisfaction and expectations [35–38]. However, the technique has broader applications in assessing customer satisfaction and expectations in various contexts, including the performance of eco-labeling/certification schemes [39–42].

2.2. Importance–Performance Analysis (IPA)

IPA is a situation analysis tool that plots and ranks means of “importance” and “performance/satisfaction” for a pre-defined set of attributes of a service or product (measured using matched Likert scales). The mean values for “Importance” and “performance” provide the coordinates for placing an individual attribute within a two-dimensional matrix with performance on the horizontal axis and Importance on the vertical axis [32]. The IPA matrix visualizes the final output by placing each attribute within four quadrants that have the cross-hairs either centered on the scale means or on the grand mean [32,35,37,43]. Martilla and James [32] interpreted the four quadrants as; Quadrant (I)—high importance and high performance (keep up the good work); Quadrant (II)—low importance and high

performance (possible overkill); Quadrant (III)—low importance and low performance (low priority); and Quadrant (IV)—high importance and low performance (concentrate here). The optimization matrix allows decision-makers to select the appropriate strategy to address the gap between importance and performance [34,35,44]. The matrix-based IPA further allows for quantitative assessment of the significance of the differences between importance and the performance of an attribute via a one-sample t-test [33,44]. This study utilized scale-centered, data-centered, and gap analysis approaches to quantify and visualize the IPA in the context of evaluating FSC certification potential benefits the wood-based manufacturing and forest plantation sectors.

2.3. Development of Research Instrument

A self-report structured questionnaire was used as the research instrument for this study. The questionnaire was designed to gather information on respondent company characteristics, reasons for becoming certified, their current level of satisfaction with performance attributes of FSC certification, and the expected benefits of certification. The questionnaire further collected industry opinions on the constraints of becoming and maintaining certification and the areas of improvement needed in FSC certification concerning local context.

The attribute sourcing for the IPA followed the guidelines in Simpson et al. [44]. Twenty-eight attributes were selected after a thorough review of the literature [13,14,29,30,45–48] and modified to suit the local context of the study. The 28 attributes were selected to explore the certificate holders' satisfaction with the economic, social, and environmental benefits that FSC certification could potentially provide. Validity of the selected set of attributes was established following review by a seven-member panel of experts consisting of academics in similar research fields, forest managers, export wood-based manufacturers, and certifiers. The questionnaire was pre-tested using a sample of 10 enterprises and further revised before it was administered to sample members.

Both open-ended and close-ended questions were employed in the questionnaire. Respondents were asked to rate the importance and performance of 28 attributes about their experience with FSC certification on matched 5-point Likert scale where 1 = "not at all important" and 5 = "extremely important" for the importance of an attribute and 1 = "highly dissatisfied" to 5 = "highly satisfied" for the performance of that attribute. In addition, open-ended questions were included to gain further insight into respondent perceptions and views on the FSC forest management (FM) and Chain-of-Custody (CoC) certification schemes as well as any major constraints they faced in implementing certification.

2.4. Sampling and Data Collection

The sample frame for this study consisted of all valid, terminated, and suspended FSC FM and CoC certificate holders in Sri Lanka as of May 2021 [12]. The sample was comprised of 96 companies, including 55 valid CoC certificate holders, 31 terminated/suspended CoC certificate holders, seven valid FM certificate holders, and three terminated/suspended FM certificate holders. An appropriate minimum sample size of 48 was determined, desiring a 95% confidence level and $\pm 10\%$ precision. Data collection was conducted from February to May 2021 using a questionnaire survey developed in Qualtrics Survey software [49]. The questionnaire was emailed to all 96 companies with a follow-up after two months from the first emailing. Questionnaires were addressed to the designated person of contact in the company for sustainability matters.

2.5. Data Analysis

Data were cleaned by performing a consistency check before proceeding to a detailed analysis. Incomplete questionnaires with many missing responses were discarded. Both descriptive and inferential statistical methods were used. An independent sample t-test was used to analyze the gap between the importance and performance of the selected set

of FSC certification attributes. Data were analyzed using IBM® SPSS® Statistics Version 20 software (IBM, Endicott, NY, USA) and Microsoft Excel (Microsoft, Redmond, WA, USA).

3. Results

Out of the initial 96 companies, 50 companies responded, which accounted for a response rate of 52%. A total of 28 companies responded in the first round of emails, and 22 companies responded after the reminder. Comparison of responses (for items measured in interval scale) from the two email rounds using t-tests revealed no statistically significant differences at 0.05 significance level; thus, it was assumed that there is no non-response bias.

3.1. Respondent Company Profile

A total of 43 respondents (86%) were in the wood-based manufacturing sector and 7 (14%) were in the forest plantation sector. CoC certificate holders were primarily manufacturers of furniture and wooden products, packaging, and printing paper. Some firms held more than one FSC certificate. A total of 36 respondent firms (72%) had valid/active FSC certificates, while 14 firms (28%) had either discontinued FSC certification or had their FSC certification terminated/suspended by their certifier (Table 2). Approximately 48% of respondent firms had third-party certification other than FSC. International Organization for Standardization (ISO) certification predominated by ISO 14000, ISO 9001/2015, and ISO 45000. These were followed by Roundtable on Sustainable Palm Oil (RSPO) and Rainforest Alliance (RA) certifications, particularly by plantation companies. Eleven wood-based manufacturing companies (11%) exclusively catered to export markets, while the rest of the respondents catered to both local and export markets (Table 2). Europe, the USA, UK, Germany, and Australia were among the major markets for FSC certified wood. To reiterate, we combined wood products manufacturing and forest plantation respondents to get a perspective of this connection in the forest sector supply chain as a whole.

Table 2. Respondent firm characteristics and their views on FSC certification.

Respondent Characteristic (n = 50)	Percentage	Respondent View on Certification (n = 50)	Percentage
Type of certificate		Relevance of certification in the sector	
Chain of Custody	86%	Becoming increasingly relevant	64%
Active	60%	No change in relevance	30%
Suspended/terminated	26%	Becoming less relevant	6%
Forest Management	14%	Company plans on remaining certified	
Active	12%	Renew it for the next term	70%
Suspended/terminated	2%	Undecided	28%
Industry type (more than one response possible)		Discontinue	2%
Forest plantation companies	14%	Company plans for sourcing certified products for the next two years	
Furniture and wooden products	16%	Increase the share	46%
Other wooden products	10%	No change in share	46%
Packaging	18%	Decrease the share	8%
Printing	12%	Whether the company sales have increased after becoming certified	
Other (Rubber-based products, Gloves, etc.)	30%	Increased	56%
No. of years certified		No change in share	44%
0–4	66%	The anticipated trend in demand for certified products for the next five years	
5–9	20%	Increase the share	56%
10–14	10%	No change in share	24%
15–19	2%	Decrease the share	6%
20 or more	2%	Actively promote the certification to clients	
Having certifications other than FSC		Yes	84%
Yes	48%	No	16%
No	52%		
Cater both local and export markets			
Yes	78%		
No	22%		

The majority (64%) of respondents believed FSC certification in their sector was becoming increasingly relevant. In comparison, 30% of respondents said the relevance

of FSC certification did not change in the past five years. Out of the 36 respondent firms with valid FSC certification, 35 had plans to renew it for the next year, while only one firm wanted to discontinue the FSC certification (Table 2). When asked about the company's plans for sourcing certified products for the next two years, 46% of respondents anticipated an increase in share, while another 23% predicted no change. Interestingly, 56% of the respondents reported that company sales have increased after becoming certified. The majority (56%) of respondents anticipated increasing demand for FSC certified products for the next five years, while only 6% of respondent firms anticipated no change in FSC certified products demand (Table 2). Most of the respondents (86%) actively promoted third-party certification to their clients/buyers.

Among the main reasons to become FSC certified, "Meeting client demands" was the most frequently cited reason, followed by "Receiving price premiums" and "Get access to new markets" (Figure 3). Interestingly, "Environmental concerns" were the least cited reason for becoming FSC certified.

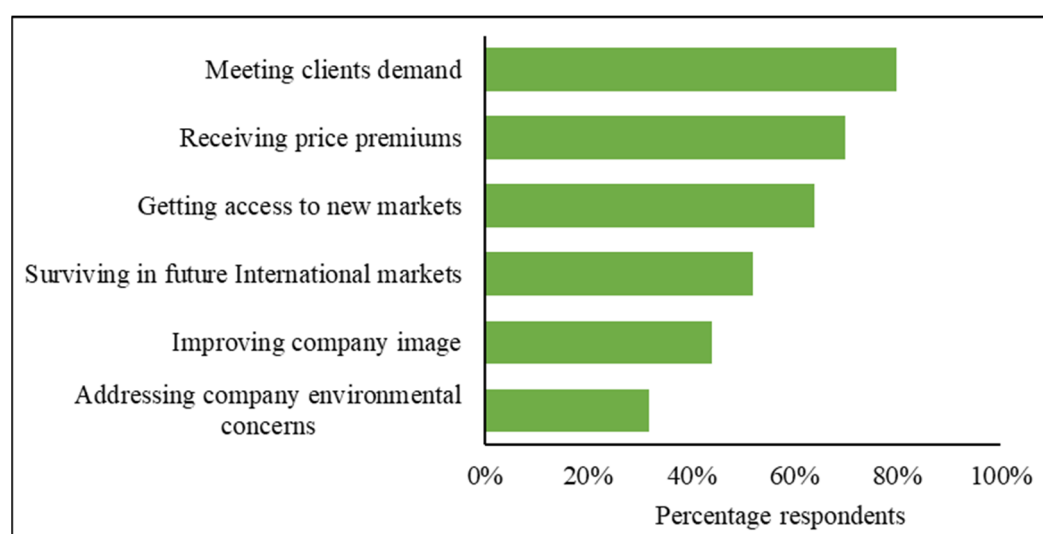


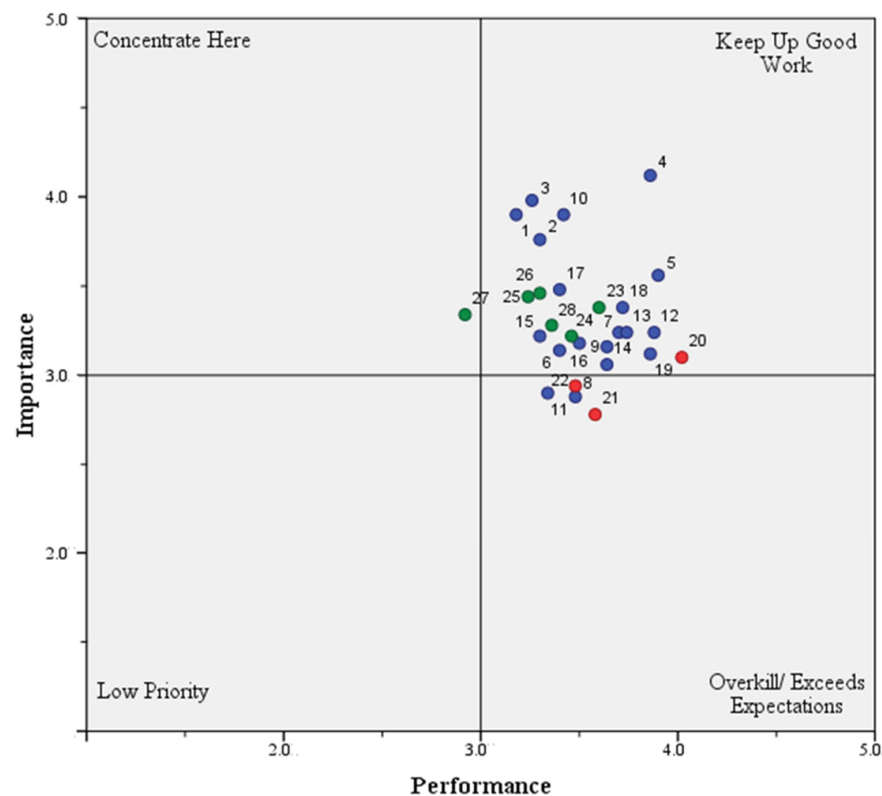
Figure 3. Reasons for respondent firms to become FSC certified (n = 50) (multiple responses possible).

3.2. Industry Expectations and Performance of FSC Certification

The results of the scale-centered IPA generally suggest that the FSC certification is meeting respondent expectations with 23 of the 28 attributes presented to respondents (attributes 1–28 in Table 3) being located in the "keep up good work" quadrant (Figure 4). This shows that respondents placed high Importance on these 23 attributes and concurrent with positive (above scale mid-point) Performance values. This is further reflected in 52% of respondents rating their overall satisfaction with FSC certification on the positive side of the Likert scale (mean score = 3.34). Respondents rated low priority for attributes 8—cost management, 11—product flexibility, 21—ensure worker people's rights and employment conditions, and 22—ensure better community relations and workers' rights. However, Figure 4 suggests that the FSC certification has delivered beyond the respondent expectations on those attributes by placing them in the "Exceeds expectation" quadrant. Interestingly, attribute 27—"Help controlling tropical deforestation" was placed in the "concentrate here" quadrant, suggesting that respondents do not believe that FSC certifications influence controlling tropical deforestation (Figure 4).

Table 3. Mean levels of importance (I) and performance (P) and the gap (P—I) with selected attributes of FSC certification.

FSC Attribute	I	P	P-I	t	p
Business/economic					
1. Meeting international client demands	3.90	3.18	−0.72	4.33	0.001 *
2. Gaining competitive advantage	3.76	3.30	−0.46	2.95	0.004 *
3. Increasing market access	3.98	3.26	−0.72	4.24	0.001 *
4. Maintain a positive corporate image	4.12	3.86	−0.26	1.67	0.098
5. Access to environment friendly materials	3.56	3.90	0.34	−1.77	0.081
6. Access to quality raw materials	3.14	3.40	0.26	−1.69	0.094
7. Reduce business risks	3.24	3.70	0.46	−2.65	0.009 *
8. Cost management	2.88	3.48	0.60	−3.07	0.003 *
9. Improve overall efficiency of operations	3.16	3.64	0.48	−2.92	0.004 *
10. Profit gaining (price premiums)	3.90	3.42	−0.48	2.58	0.011 *
11. Product flexibility	2.90	3.34	0.44	−2.77	0.007 *
12. Improve supply chain management	3.24	3.88	0.64	−3.26	0.002 *
13. Improved Business-to-Business Relationships	3.24	3.74	0.50	−2.66	0.009 *
14. Ensure the transparency in business activities	3.06	3.64	0.58	−2.99	0.004 *
15. Optimize product delivery process	3.22	3.30	0.08	−0.36	0.717
16. Facilitate Monitoring and assessment procedures of operations	3.18	3.50	0.32	−2.01	0.047 *
17. Planned and well managed production process	3.48	3.40	−0.08	0.41	0.685
18. Better documentation of forest/business operations	3.38	3.72	0.34	−2.04	0.044 *
19. Increase the traceability of wood/products	3.12	3.86	0.74	−4.17	0.001 *
Social responsibility					
20. Compliance with laws	3.10	4.02	0.92	−5.46	0.001 *
21. Ensure workers' rights and employment conditions	2.78	3.58	0.80	−5.00	0.001 *
22. maintain better community relations	2.94	3.48	0.54	−3.17	0.002 *
Environment					
23. Efficient use of the forest and wood-based resources	3.38	3.60	0.22	−0.97	0.334
24. Conserve biological diversity and its associated values	3.22	3.46	0.24	−1.34	0.184
25. Maintenance of high conservation value forests	3.44	3.24	−0.20	1.05	0.298
26. Ensure the continuity of ecosystem services	3.46	3.30	−0.16	0.82	0.413
27. It can help controlling tropical deforestation	3.34	2.92	−0.42	1.99	0.049 *
28. It ensures better management of forests and plantations	3.28	3.36	0.08	−0.44	0.658

* Statistical significance at $\alpha = 0.05$.**Figure 4.** Scale-centers for selected attributes of FSC certification (blue: business-related attributes; red: social attributes; green: environmental attributes).

3.3. The Gap Analysis IPA

The hybrid data-centered and gap analysis IPA matrix is shown in Figure 5.

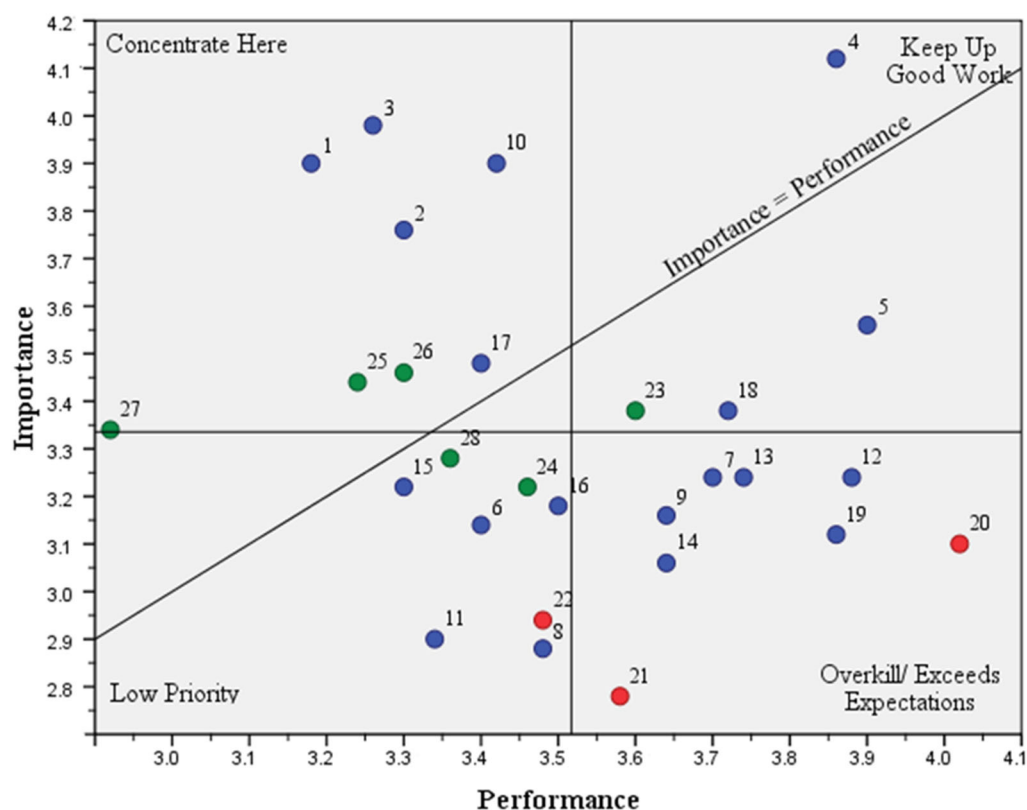


Figure 5. IPA matrix for FSC certification attributes reported in Table 3. (Indicated in blue: business-related attributes, red: social attributes, green: environmental attributes). Cross-hairs are placed at the mean values for the Importance and performance of the attributes. The diagonal line of parity highlights the attributes with no significant gap in performance (i.e., performance = importance).

3.3.1. Industry Satisfaction with FSC Certification Impact on Business

A cursory examination of the hybrid IPA matrix (Figure 5) suggests that 13 out of 19 business-related attributes of the FSC certification were performing relatively well (13 attributes placed below the parity line). Out of the 13 attributes with positive performance gaps, all except “5—Access to environment-friendly materials”, “6—Access to quality raw materials” and “15—Optimize product delivery process” had significantly positive performance gaps indicating that those attributes significantly exceed respondent expectations (Table 3).

As shown in Figure 5, attributes “4—Maintain a positive corporate image”, “5—Access to environment-friendly materials”, and “18—Better documentation of forest/business operations” are all located in Quadrant I (keep up good work). “1—Meeting International Client Demands”, “2—Gaining Competitive Advantage”, “3—Increasing Market Access”, “10—Profit gaining (price premiums)”, “17—Planned and well-managed production process” are in Quadrant IV (concentrate here), with all having significant negative service gaps (Table 3) and could therefore warrant some corrective management action. Attributes “7—Reduce business risks”, “9—Improve overall efficiency of operations”, “12—Improve supply chain management”, “13—improved business-to-business (B2B) relationships”, “14—Ensure the transparency in business activities”, and “19—Increase the traceability of wood/products” were the items not given high priority by the respondents, but FSC certification has delivered significantly beyond their expectations on these attributes (Table 3), thus placing them in Quadrant II “Exceed Expectations”. Attributes “8—Cost Management”, “11—Product flexibility”, and “16—Facilitate Monitoring and assessment

procedures of operations” are in Quadrant III “low priority” (Figure 5), but had significant positive performance gaps (Table 3), providing “unexpected” benefits of FSC certification.

3.3.2. Industry Satisfaction with FSC Certification Impact on Social and Environmental Performance

All social responsibility-related attributes of the FSC certification had significantly positive performance gaps, indicating the satisfactory performance of FSC on those attributes (Table 3). This is also shown in Figure 5, where attributes “21—Ensure workers’ rights and employment conditions” and “22—Maintain better community relations” are placed in Quadrant II and III, respectively.

The hybrid IPA matrix and Gap Analysis (Figure 5 and Table 3) suggest that respondent firms generally believed that FSC certification has no significant impact on the “ground level” environmental improvement. A significantly negative performance gap was observed with the attribute “27—It can help control tropical deforestation”. Although the remaining attributes’ performance gap was statistically insignificant, the attribute “23—Efficient use of the forest and wood-based resources” is placed on Quadrant I (Figure 5). The attributes “25—Maintenance of high conservation value forests”, “26—Ensure the continuity of ecosystem services”, and “27—It can help controlling tropical deforestation” are in Quadrant IV; thus, they are the attributes that need the attention of FSC to ensure better environmental performance.

3.3.3. Perceptions of Respondents That Are Either Currently FSC Certified or Those Who Have Discontinued Certification

To understand whether the active/valid FSC certificate holders and those who have discontinued FSC certification have different perceptions on certification, an independent sample t-test was performed on selected statements. The results are summarized in Table 4. Respondents that have discontinued FSC certification, in general, had lower mean ratings for all statements; however, mean ratings of only “Certification standards are consistent” and “The certification label adds value to our products” varied significantly at a 0.05 significance level.

Table 4. Perceptions of respondents that are either currently FSC certified or have discontinued certification.

	Active (n = 36)	Discontinued (n = 14)	t	p
Certificate provider (ex: FSC) is a credible and trustworthy organization	4.00	3.89	1.74	0.109
Certification helps to create a positive corporate image	3.94	3.86	0.65	0.522
The certification label adds value to our products	3.92	3.36	2.18	0.034
Certification helps us communicate our corporate social responsibility initiatives	3.89	3.64	0.98	0.334
Certification standards are consistent	3.89	3.00	3.19	0.003
Consumer awareness of the certification label is increasing	3.75	3.36	1.3	0.199
Certification helps in reducing legality risks	3.72	3.50	0.77	0.447
My clients regard certification as a proof of timber legality	3.64	3.21	1.34	0.187

3.4. The Challenges in Becoming and Remaining FSC Certified

When asked about the main challenges and constraints of becoming and remaining certified, the respondents cited the initial audit and recurring costs of certification as a major concern, given the lower or no return for the investment in certification. According to

wood-based manufacturer respondents, the same product made with non-certified timber fetches equally higher prices in specific markets. For wood-based export manufacturers, maintaining a continuous supply of FSC certified wood was another challenge as there is a shortage of FSC certified raw material in local markets, and some are resorting to importing FSC certified raw material for manufacturing. On the other hand, there is no local demand for FSC certified wood products, thus maintaining separate production lines or inventories for FSC certified and non-certified products is cumbersome and involves additional cost, time, and effort. The high-end buyers of FSC certified wood products typically demand strict quality control at the same time. This is an additional risk and a challenge for export wood-based manufacturers as a potential rejection of a shipment can result in substantial financial losses.

On the other hand, forest plantation companies cited that some criteria in the FSC FM standard are broad or generic and, as such, are hard to adhere to in the Sri Lankan context. Further, the demand for FSC certified wood predominantly comes from export wood-based manufacturers. Some local companies pay higher prices for rubberwood and other species depending on market conditions, making FSC certification irrelevant.

4. Discussion

In the Sri Lankan context, FSC certification has gained acceptance since its introduction to the country in 1996. Perera et al. [16] examined the perceptions of wood-based manufacturers and forest plantation companies on providing economic, social, and environmental benefits through FSC certification based on 11 certified companies. The results of this study examined perceptions and trends in FSC certification in Sri Lanka after 25 years since initial implementation. The global demand for FSC certified wood products has increased considerably over the last two decades, driven by green consumerism [48,50–52]. Reflecting these dynamics in global green markets, especially in Europe and the U.S., the number of FSC certified wood-based manufacturers in Sri Lanka's export trade has grown from 11 to 62 from 2006 to 2021 [12,16].

This study suggests that export-oriented wood-based manufacturers will continue to adopt FSC certification as a necessary requirement to participate in international markets. According to the results, the top three reasons for Sri Lankan wood-based exporters to become FSC certified have not changed from 2006 [16] are: (1) meeting client demands, (2) receiving price premiums, and (3). "gaining access to new markets"; however, "environmental concerns" are slowly becoming a reason to become certified. It is apparent that adopting FSC certification as a means of improving company image has declined in importance since 2006. Similar observations have been made by Klarić et al. [53] with small and medium scale enterprises in Croatia, where the FSC certification was largely driven by the buyer/clients demand.

The literature suggests that the firms who acquire voluntary certifications such as FSC alter their practices to align with the criteria of certification, not because they are altruistic, but because it benefits their bottom line [54]. For these FSC certification adopters, benefits are expected to be gained by enabling them to maintain existing markets, enter new markets, enhance their reputation and brand, and to receive price premiums [53,55,56]. On the other hand, "development of management systems" has been identified as a key factor that differentiates firms that find the certification beneficial and those who do not [54]. In this study, approximately 48% of respondent firms had third-party certification other than FSC, with many firms appear to have develop their FSC compliant management systems based on ISO 14000, ISO 9001/2015, and ISO 45000. As there are linkages between these ISO certifications and FSC certification, the knowledge and experience is transferable and adds to the development FSC compliant management system [54,57,58].

4.1. FSC Certification Impact on Business

Forest sector enterprises adopt certification for various business-related reasons [29,30,45]. In the Sri Lankan context in this study, the main reasons for wood-based manufacturers to

acquire certification were pressure from export buyers, higher prices for certified products, increased sales volume, and improved company image [30]. Although the number of FSC certificate holders has increased from 11 in 2006 to 62 in 2021, results suggest that the top three reasons for becoming certified have not changed. Respondents indicated “to survive in the future markets” as an additional reason to become and remain FSC certified. They believe FSC will be an important requirement to enter specific E.U. and U.S green markets [59,60]. This was further evident by most respondents in this study expressing that FSC certification in the sector is becoming increasingly relevant paralleling an anticipated increase in the demand for FSC certified products. As such, the demand for FSC certification in Sri Lanka is likely to maintain steady growth in the future.

The mean-centered IPA provided insights into business performance influences from FSC certification. According to respondents, FSC certification has helped their firms to reduce business risks, improve the overall efficiency of operations, improve supply chain management, improve business to business (B2B) relationships, ensure transparency in business activities, and increase the traceability of wood/products. All of these attributes had significant positive performance gaps and were identified as attributes that “Exceed Expectations” in the IPA. On the other hand, maintaining a positive corporate image, access to environment-friendly materials and better documentation of forest/business operations were identified as satisfactorily performing attributes of FSC certification. These could be regarded as secondary or non-market benefits of FSC certification, given the reasons for respondents to acquire certification. Numerous studies in the literature have reported similar observations where forest-based sectors have experienced non-market benefits of FSC certification [14,45,46,61–63].

The mean-centered IPA and the gap analysis identified market benefits of FSC certification i.e., “Meeting international client demands”, “Gaining competitive advantage”, “Increasing market access”, and “Profit gaining (price premiums)” as aspects that need strategic managerial attention in order to encourage and implement FSC certification. As reported in many studies [14,30,53,61,62], the signaling mechanism appears to drive companies to adopt FSC certification in Sri Lanka. Results suggest that the price premiums for certified products appear to be insignificant or not to exist as anticipated. The existence of price premiums for FSC certified wood has been an ongoing point of discussion and debate. For instance, Hoang et al. [64] argued that relying on the price premium of FSC certified timber is risky for a business because the significant fluctuations of sales volume and price premiums in the global certified wood marketplace. Several studies have also indicated that, price premiums are low for certified timber [65,66], another disincentive to get certified.

Despite the less-than-desirable market benefits, most respondents with FSC certification indicated their intentions to continue certification through renewal and update. A substantial proportion of respondents have further experienced an increase in sales volume and plans to expand the certified product lines. Although the price premiums are not substantial, the increased sales volumes and reduced business risks (secured buyers) may be driving the Sri Lankan export wood-based manufacturers to remain certified. As Chen et al. [9] reported, the competitive export effect of forest certification in developing countries is greater than that in developed countries. However, numerous studies have also highlighted that FSC certification is increasingly becoming a trade barrier [51,62]. According to Chen et al. [9], forest certification has a trade barrier effect on wood products, especially in developing countries where costs are more difficult to absorb. These global dynamics in certified wood products markets are likely to influence businesses to acquire and remain certified.

4.2. Environment Impact of the FSC Certification

The FSC certification’s main objective is to promote sustainable forest management. The scale-centered IPA used in this study assessed respondent satisfaction with the performance of six environment-related attributes of FSC certification compared to the importance

they placed on those attributes. All attributes, except “27—Help controlling tropical deforestation”, were performing satisfactorily, suggesting that respondents do not see an influence of FSC certification on controlling tropical deforestation. The mean-centered IPA provided further insights into the weak link between FSC certification and environmental conservation by placing the attributes “Maintenance of high conservation value forests” and “Ensure the continuity of ecosystem services” in the Quadrant IV, which warrant further improvements. This may be due to the unique industry environment in Sri Lanka, where rubberwood is the major raw material for most export manufacturers [21,22]. The existing stringent legislation and regulations in the country also discourage the exploitation of natural forests for timber; the majority of timber in the local markets are sourced from forest plantations and home gardens [15,17,67]. Thus, no clear link can be established between FSC certification and controlling deforestation/forest conservation in the Sri Lankan context.

In forest plantations, the reasons for obtaining FSC certification can vary from purely economic to environmental reasons [14]. A cursory examination of the responses of forest plantation company respondents largely confirmed that FSC certification has not led to vast improvements in on-the-ground-level environmental performance of plantations. These observations are comparable with the findings in the literature [68,69], where little or no improvements in ground-level environmental performance in forest management activities have been observed after becoming certified. However, it should be acknowledged that clear identification of the positive environmental impacts of certification remains elusive due to data challenges and methodological issues [5].

However, as reflected in the hybrid IPA matrix and gap analysis results, the respondents generally agreed that FSC certification has contributed to the efficient use of the forest and wood-based resources in their firms, hinting at the positive influence of FSC certification on their firms the environmental performance of the firm. Similar observations have been made by previous studies, where becoming certified had a positive influence on the company’s environmental performance [10,53,54]. Nonetheless, from a strategic point of view, the findings of the study, in general, suggest the need to adhere to ground-level environmental FSC certification criteria in order to become certified.

4.3. Societal Impacts of the FSC Certification

According to both scale-centered and mean-centered IPA, all social-related attributes of the FSC certification performed significantly beyond the expectations of the respondent firms. Though respondents placed less Importance on these attributes, it appears that the FSC certification has brought unexpected benefits to certified firms by positioning them as socially responsible businesses. This was particularly true for export wood-based manufacturers. Such benefits of forest certification have been well-documented in the literature [48,70]. The social benefits of certification may be more apparent in the plantation forestry sector [63]. However, the smaller sample size of plantation forestry companies in this study did not warrant detailed investigations into the societal benefits of FSC certification.

The comparison of perceptions between the firms that are currently FSC certified and those who have discontinued certification revealed further insights to the aspects of FSC certification that maybe helpful for the FSC scheme and certification bodies. Specifically, the firms that have discontinued FSC certification citing “FSC certification standards are inconsistent” may be linked to the ambiguities in interpretation of the FSC standards by the auditors and certification bodies. For instance, Piketty and Drigo [71] reported similar scenarios in Brazil where firms are certified and re-certified with a significant number of minor non-conformances, with social, legal, and environmental indicators. The general dissatisfaction on FSC attributes of firms in the study sample that have discontinued FSC certification can further affect the overall IPA outcomes.

5. Conclusions

This study examined, as a combined dataset, wood-based manufacturer and forest plantation company perceptions on FSC certification and their evaluation of the performance of FSC certification, with respect to key program attributes. The key findings derived from this study are as follows:

- The adoption of FSC chain-of-custody certification has been limited to companies that export products. Forest plantation companies have mainly obtained FM certification for rubber plantations to meet the demand of export wood-based manufacturers. Hence, the customer demand/signaling mechanism appears to be the primary driver of FSC certification in Sri Lanka.
- The Sri Lankan wood-based manufacturers prioritized price premium as one of the main motives for adopting certification. Though price premiums are not typically significant, export manufacturer respondents enjoy higher sales volumes of certified products and secured/continuous orders from their buyers; these are the main market benefits for export manufacturers to become and remain certified.
- The FSC certification program performs beyond industry expectations in terms of bringing in indirect benefits, such as reducing business risks, improving the overall efficiency of operations, improving supply chain management, improving B2B relationships, ensuring transparency in business activities, and increasing traceability of wood/products.
- The ability of FSC certification to improve the environmental performance is unclear as FSC certificate holders in general cited weak links between adaptation of FSC certification and improvement in environmental performance.
- Despite being less prioritized by respondents, the adoption of FSC certification has substantially improved the company image by positioning them as socially responsible businesses while building better relationships with businesses and other stakeholders.

The results of this study provide insight into FSC certification and other third-party certifiers by enabling them to identify the aspects of FSC certification that are satisfactorily performing and the significant performance gaps that need attention. Accordingly, results may aid certifiers in developing strategies to create and communicate market benefits and environmental benefits of certification in order to expand or penetrate markets in developing countries. The non-market benefits and indirect long-term economic benefits of FSC certification due to management system improvements are the areas to be highlighted, while certification cost reduction and ensuring the consistency in implementing and interpreting FSC standards under local business environments are some of the key areas to focus on. In addition, potential participants in FSC or other certification programs can look to study results to gain a “lessons-learned” perspective from peer companies in developing countries.

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