Formulating policy recommendations for potential rubber plantation owners and rubber wood consumers in Thailand to obtain international forest management certification

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Abstract. The severity of environmental problems affecting air, soil, water, biodiversity, and forests, prompted relevant organizations to create mechanisms to prevent and manage these problems. One of these key mechanisms is Forest Certification, which is classified into two types, namely, Forest Management Certification (FM) and Chain of Custody Certification (CoC). The FM and CoC are certified by the relevant organization such as the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC). These mechanisms will have an impact on the industry and commerce that use wood and tree products as a production base because of wood product importers may only import the certified products. This research project was designed to formulate policy recommendations for the potential development of rubber plantation owners and rubber wood consumers in Thailand to obtain international forest management certification. This was done using research data from two subprojects, namely, subproject 1: The analysis of rubber plantations on forest management certification status in Thailand, and subproject 2: Analysis of the factors affecting forest management certification of rubber plantations in Thailand. This resulted into four main policy recommendations in four broad areas: 1) Formulation of national policies and strategies to promote and access the forest certification systems for rubber plantation owners and rubber wood consumers; 2) Development of relevant organizations to promote and support forest certification in Thailand by determination and development of governmental organizations with the mission and potential in problem solving/negotiation and the potential developments of rubber plantation owners and rubber wood consumers for the whole system; 3) Development and availability of rubber plantation owners and rubber wood consumers in Thailand to obtain international certification; and 4) Research support in response to the development of forest certification in Thailand.

1. Introduction
Due to the world’s environmental problems including air, soil, water, and biodiversity, and the reduction of forest area problems, relevant organizations have created mechanisms to prevent and manage these problems. One of the key mechanisms is the Forest Certification, which is classified into two types, namely, Forest Management Certification (FM) and Chain of Custody Certification (CoC).
They are is certified by the relevant organization such as the Forest Stewardship Council [1] and the Programme for the Endorsement of Forest Certification [2]. These mechanisms will have an impact on the industry and commerce that use wood and tree products as a production base because of wood product importers may only import the certified products. The rubber tree (*Havea braziliensis*) is one of the most important economic plants in Thailand. Currently, Thailand is the world’s largest producer and exporter of rubber products, and is the country’s first revenue earner. Over the past decade, while rubber prices have declined, rubber plantations have continuously increased every year. In addition, rubber wood is currently exported to several countries, with most of the exports going to China. Thailand must solve the rubber price decline problem in both of wood and latex products. One important way is to increase the value of rubber wood products and open up marketing channels for exporting these products to other countries beyond China. Thailand is still unable to export rubber wood products to more foreign countries, such as Europe, USA and Japan, because most of the rubber plantations in Thailand are not certified for international forest management. Currently, there are only eight rubber plantations in Thailand, covering only 0.4% of the total plantation area, that have obtained Forest Management Certifications. This is very small when compared to other developed countries. This situation may affect the export rubber wood products because Thailand has less export channels and less power to negotiate which will increase the long-term risk of price and market competitions. In the U.S. Pacific Northwest, Tikina *et al.* [3] found three factors, namely, market pressure, land ownership pattern and water-body abundance, that influence the decision to obtain forest certification. While signalling and learning mechanisms lead to better and more transparent forest management and explain the movement towards certification, market incentives do not play an important role in the adoption of forest certification in Brazil [4]. It was differed from the study of Carlsen *et al.* [5] in Ghana who stated that customer demands, prospects of consolidating or increasing market shares, and a perceived need to invest in resource productivity were the main stated reasons for initiated certification uptake. In case of Thailand, it must accelerate to develop and promote the forest certification mechanism as a guideline to increase or expand the market for rubber wood product export and increase the bargaining power of products. However, one of the most important problems with the forest management certification in Thailand is that most of the rubber plantation owners and rubber wood consumers do not understand the FM principles, criteria and indicators enough until the FM auditor has made Corrective Action Requests (CARs) status or suspend a FM certification. Therefore, this research objective was designed to formulate policy recommendations for the potential development of rubber plantation owners and rubber wood consumers in Thailand to obtain international forest management certification using the information of forest management certification status and the factors affecting forest management certification of rubber plantations in Thailand.

2. Methods and Data Collection

The formulation of policy recommendations for the potential development of rubber plantation owners and rubber wood consumers in Thailand for obtaining international forest management certification was generated using the knowledge derived from 2 subprojects, namely, subproject 1: The analysis of rubber plantations on forest management certification status in Thailand, and subproject 2: Analysis of the factors affecting forest management certification of rubber plantations in Thailand. The subproject 1 revealed the analysis of the status of rubber plantations for forest management certification in Thailand. The primary and secondary data of rubber plantations in Thailand that included physical, biological, social, economic, and management issues were collected and were comparatively analysed along with the number and certified status with the classification of the Corrective Action Requests (CARs) in both of the major and minor CARs. Stakeholder analysis with their understanding and opinions on rubber forest management certification in Thailand was also investigated. The subproject 2, analysis of factors affecting forest management certification of rubber plantations in Thailand, consisted of stakeholder interviews and brainstorming in order to derive useful information on the
factors influencing forest management certification analysis. All information from these subprojects formed an important database to formulate policy recommendations for the potential development of rubber plantation owners and rubber wood consumers in Thailand for obtaining international forest management certification. Before the final report was generated, the draft policy recommendations were subjected to public hearing meetings and this improved some contents following the comments of experts in related fields.

3. Results and Discussion

3.1 Status of rubber plantations for forest management certification in Thailand

From the data of forest management certification in Thailand (FSC, 2015; 2016; 2017; 2018), the number of rubber plantations that received the FSC-FM certification increased from 5 organizations in 2015 to 12 organizations in 2018, while the certified area of rubber plantations was only 0.396% (98,219 Rai) of the total area (24,824,746 Rai) (FSC, 2017). In 2017, the smallholders of rubber plantations (< 625 Rai) were grouped and passed the group certification for 2009 cases (0.155%) from the total of 1,294,995 cases, while the large holders of 86 cases participated and passed the certification for 8 cases. The causes of Corrective Action Requests (CARs) of rubber plantation for forest management certification in Thailand during 2011-2016 (FSC, 2016) were mostly found in Criteria 4.2, 6.4 and 6.7 for Major CARs and Criteria 1.1, 4.2, 8.3 and 8.5 for Minor CARs.

The Rubber Authority of Thailand (2016) divided stakeholders of rubber plantations for forest management certification in Thailand into six groups: 1) national, 2) socio-community, 3) farmers, 4) rubber entrepreneur, 5) trade partner and 6) staff. The analysis using the technique of stakeholder analysis divided stakeholders into four groups: 1) Government agencies, 2) NGOs, 3) farmers, and 4) rubber entrepreneur. The analysis of stakeholder interaction revealing the benefit or impact on forest management certification largely divided stakeholders into two groups: 1) government and state enterprise agencies, and 2) people and private agencies. It was found that both of these two groups could receive benefits from forest management certification in rubber plantations. In case of the influence of several organizations on forest management certification of rubber plantation, the first group of government and state enterprise agencies influencing forest management certification included the Ministry of Natural Resources and Environment (MNRE), the Ministry of Agriculture and Cooperatives (MOAC), the Thai Industrial Standards Institute (TISI), the Royal Forest Department (RFD), the Rubber Authority of Thailand (RAOT), universities, and the Department of Agricultural Extension (DOAE). A second group of organizations influencing the forest management certification of rubber plantations of people and private agencies included the Forest Stewardship Council (FSC), the rubber business operator, certified organization, the Thai Hevea Wood Association, the Thai Rubber Association, the Thailand Forest Certification Council (TFCC), the Federation of Thai Industries (FTI), the Thai Furniture Association (TFA), the Rubber Network Council and Rubber Farmers Institute of Thailand (RNRF) and the Thai-Forest Certification Network (TCERN). Opinions and understanding of 734 rubber farmers and seven rubber business operators on forest management certification were divided to four groups. The first group of 322 rubber farmers who joined the forest management certification was not ready to achieve certified activities was 62.1%, while the management of the rotation period and re-planting is the common activity which they are ready to perform. The most problematic activities are the zoning of the conservation area, the understanding of the forest management practice based on the principle of forest certification and planning for wildlife resource survey in rubber plantations. The rubber farmers understood that the participation in the forest management certification shall be voluntary, area map shall be clear and long-term management plan shall be suitable and sustainable. They also believed that the forest certification did not increase operating costs and were delighted to join the forest certification if they have more rubber plantations in the future. The main problems of rubber farmers who joined the forest certification were plant diseases, prices, and numbers of certified holders. They need help from
certified holders to distribute knowledge, give suggestions, increase the price and support rubber tree fertilizers.

The second group was rubber farmers who did not participate in the forest management certification. Those not ready to achieve certified activities was 98%, due to lack of forest certification knowledge, the complexity and condition of forest certification. However, they still have a good attitude towards forest management certification because the positive image of the certified plantations and products are more acceptable to both domestic and aboard customers. Although rubber farmers in this group understood less of the forest certification process, they knew the basic requirements of the forest certification such as the voluntary participation, sustainable forest management plan, and legal rights to operate the management unit with a clear map.

The third and the fourth groups were the rubber business operators with and without participation in forest management certification, respectively. The 4 rubber business operators were licensed the group certification of the FSC-FM with the operating cost of 300,000–400,000 Baht a year. The customers of these business operators were aboard buyers who demanded rubber wood products such as lumber, medium density fiberboards (MDF) and wood logs. Those business operators who had a positive attitude to the forest management certification was 75%, due to their acceptance from both domestic and international customers, the better forest management system and the image of the organization. Although some rubber business operators did not participate the forest management certification, they also clearly understood forest management certification and believed in the international certifications such as FSC and PEFC to increase incomes and welfare of employees. The main reason that the business operators in this group did not go into the system of the forest management certification was that customers did not request it.

3.2 Factors affecting forest management certification of rubber plantations in Thailand
Following the four groups of rubber farmers and business operators, the first group of rubber farmers participating in forest management certification was induced by the readiness in forest certification including the understanding the principle and benefit of forest certification (factor 1) and the increase in quality of life due to the increases of product sales and incomes (factor 2), although the forest certification was the cause of increasing unnecessary production costs (factor 3). The second group of rubber farmers who did not participated forest management certification believed that forest certification system was not suitable (factor 1) but the forest management certification could enhance the image of the rubber forest management (factor 2). The main factors inducing the participation in forest management certification of rubber business operators were the corporate image promotion (factor 1), increased work effectiveness (factor 2) and increased income and product value (factor 3), respectively. In case of rubber business operators who did not participate the forest management certification, they believed that their organizations were not ready to participate the certification (factor 1), although they knew that forest management certification allowed products to be accepted by their customers (factor 2) and increase the corporate image as similar as the forest management system (factor 3).

3.3 Policy recommendations for the potential development of rubber plantation owners and rubber wood consumers in Thailand
Based on the information on section 3.1 and 3.2, the policy recommendations for the potential development of rubber plantation owners and rubber wood consumers to receive international forest management certification were developed as follows:

3.3.1 The formulation of national policies and strategies to promote and access to the forest certification system for rubber plantation owners and rubber wood consumers. The forest management standard for Thailand shall be developed and approved by the international organizations
such as the Forest Stewardship Council (FSC). However, the adoption of FSC standard version 4 (Ver. 4) to version 5 (Ver. 5) without the formulation of the national standard will significantly affect the forest management certification in Thailand if there is no negotiation and preparation for change such as the acceptance for rubber planting together with other plants.

- The government shall promote access to the forest certification of rubber plantation owners and rubber wood consumers into the national strategies and reform plans. It shall be linked to the economic, social and forest resource development strategies.
- The government shall provide the appropriate policy revealing financial support and other manufacturing for the rubber plantation owners who entered the forest management certification system in cooperation with the private sectors operating rubber wood business.
- Local personnel shall be encouraged and developed to be the lead auditor of the international forest certification. It shall also be assigned an educational institution or other independent agency to act.

3.3.2 The development of the relevant organizations to promote and support forest certification in Thailand.

- Government organizations shall be defined and developed to facilitate problem solving/negotiation and develop the potential of rubber owners and rubber wood consumers. The problem solving and negotiation tasks shall be carried out by the Thailand Rubber Authority as the main organization and integrated with the Ministry of Foreign Affairs, Ministry of Commerce and other related agencies. Mission to develop the capacity and availability of rubber plantation owners and rubber wood consumers in Thailand shall be conducted by the Thailand Rubber and other educational institutes.
- Certify Body (CB) in Thailand shall be developed since only two are currently available. This will have impact on the cost of certification and restrictions on the choice of rubber plantation owners and rubber wood consumers in Thailand to select.

3.3.3 The potential development and availability of rubber plantation owners and rubber wood consumers in Thailand to obtain the international certification.

- Provide appropriate guidance for the awareness and preparedness of rubber plantation owners and rubber wood consumers in Thailand to reach the international forest management certification association with the appropriate internal audit development. This task shall be conducted by the Thailand Rubber and other educational institutes.
- Established awareness and readiness to enter the forest management certification system of rubber plantation owners and rubber wood consumers in various levels. This task shall be implemented by the Thailand Rubber and other educational institutes.
- Publicize forest certification including certified holders to the public. This task shall also be implemented by the Thailand Rubber and other educational institutes.
- Promote the development of some specific equipment or tools in the country that are relevant to the rubber plantation management and meet requirements of the international forest certification. This task shall be conducted by the Thailand Rubber and other educational institutes.

3.3.4 The research support in response to the development of forest certification in Thailand

- The research shall develop the forest management certification standard for Thailand with the acceptance by the international organizations such as the Forest Stewardship Council (FSC).
- The research shall be consistent with and appropriate to the context of Thailand and the international certification system in both of principles, criteria and indicators.
- The research shall be focused on impacts of forest management in term of economic, social and environmental dimensions.
• The research shall be focused on impacts of rubber planting together with other crops and land use model of agroforestry systems in term of economic, social, and environmental dimensions.
• The research shall be related to the development of some specific equipment or tools in the country that are relevant to rubber plantation management and meet requirements of the international forest certification.

4. Conclusions and Recommendations
This research was designed to formulate policy recommendations for the potential development of rubber plantation owners and rubber wood consumers in Thailand obtaining international forest management certification using research data of the analysis of rubber plantations on forest management certification status in Thailand and the analysis of the factors affecting forest management certification of rubber plantations in Thailand. Four main policy recommendations were made. The first policy recommendation was the formulation of national policies and strategies to promote and access forest certification system for rubber plantation owners and rubber wood consumers (consisted of four approaches). The second policy recommendation was the development of relevant organizations to promote and support forest certification in Thailand through determination and development of governmental organizations for the mission and potential in problem solving/negotiation and the potential developments of rubber plantation owners and rubber wood consumers for the whole system (consisted of two approaches). The third policy recommendation was the potential development and availability of rubber plantation owners and rubber wood consumers in Thailand to obtain international certification (consisted of four approaches). The last policy recommendation was research support in response to the development of forest certification in Thailand (consisted of five research approaches).

5. References
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