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1. Research background and objective

From January 4th through to March 1st, 2016, I visited Kyoto to learn about the role of the Kyoto Model Forest Association (KMFA) in the governance for the sustainable management of small-scale forests. The KMFA is one of the two cases I selected for my PhD research which focused on ‘assessing the *effectiveness of intermediary organizations in convening social-private partnerships to support sustainable forest management of small-scale forests*’. The second case, the Eastern Ontario Model Forest (EOMF), is in Canada.

Both the KMFA and EOMF have adopted innovative collaborative partnership arrangements to improve the sustainable management of small-scale forests. Thus, the selection of both cases provided me with the opportunity to examine how Model Forests (MFs) operating in different institutional, legal and regulatory contexts work to improve governance for the sustainable management of small-scale forests.

In Kyoto, my purpose was to examine how the KMFA facilitate collaboration among different stakeholders including local governments, forest volunteer groups and non-forest private and public corporations to support the effective and sustainable management of forests in rural areas. In addition, I was interested in learning about the motivations for the stakeholders involved in local forest management, their relationship with the KMFA and their experiences, both positive and negative, in local forest management.

To achieve the above objectives, I received support from the secretariat of the KMFA to visit Kyoto and participate in different activities of the model forest and talk to the different stakeholders.

In the next sections of this report, I describe the activities I undertook to collect data for my research. Following this, I present the findings of the research and then conclude with some recommendations for improving the effectiveness of the KMFA’s collaborative forest management program.

2. Field visit and data collection activities

I undertook four main activities to collect data. These include document analysis, semi-structured and group interviews, questionnaire survey, and participant observation. These are described below.

2.1 Individual and group Interviews

I conducted semi-structured interviews with four main categories of participants. These are managers of the KMFA, leaders of forest volunteer groups, representatives of private corporations and representatives from government. In total, 14 interviews were conducted, involving 2 staff of the KMFA (the general manager and administrator), 5 representatives of private corporations, 5 local volunteer group leaders, and 2 prefectural forestry officials from the city of Kyoto. In the interviews, I discussed with my participants their roles and responsibilities, relationships with the KMFA and others, and their motivations, experiences and challenges.

In addition to the individual interviews, I conducted two group interviews with forest volunteer groups. The first meeting was organized with 12 male participants from Nagaoka city. The meeting took place on a forest site and during the group's regular forest management activity. In the second meeting, 5 male participants from the Nishiyama area attended. Participants in the group interviews had between 5 and more than 10 years of forest volunteer experience. Discussions in the group interviews focused on the activities of the group, their motivation, and relationship with the KMFA and other stakeholders.

2.2 Questionnaire survey

A questionnaire was developed and administered to elicit information from all stakeholders of the KMFA. The questionnaire included both closed and open-ended questions and explored the perceptions of respondents, particularly their satisfaction in the governance process and instruments used by the KMFA. In total, the survey was sent to 148 respondents – including private corporations (41), local forest activity groups (80), and local governments (27). At the end of the survey period, 41 completed questionnaires were received for a response rate of 28 per cent. Table 1 shows a summary of the socio-demographic background of the survey respondents.

Almost half of the survey respondents were from private corporations, while 18% belonged to local forest activity groups (Table 1). Also, more than two-thirds of the participants were above 65 years old while more than 95% were males.

Table 1. Socio-demographic characteristics of survey respondents

Socio-demographic background	Percentage
Type of forest stakeholder	
<i>Forest owners</i>	19.5
<i>Forest volunteers</i>	43.9
<i>Private corporations</i>	24.4
<i>Others</i>	22.0
Gender	
<i>Male</i>	95.1
<i>Female</i>	4.1
Age of respondents	
<i>18-24</i>	2.4
<i>25-34</i>	2.4
<i>35-44</i>	24.4
<i>45-54</i>	19.5
<i>55-64</i>	19.5
<i>65+</i>	31.7
Size of forest owned	
<i>up to 10 ha</i>	14.6
<i>11-20 ha</i>	4.9
<i>31-40 ha</i>	2.4
<i>Above 50</i>	9.8
<i>Not Application</i>	68.3

Source: Survey, 2016.

2.3 Field and participant observations

I participated in several activities of the KMFA and visited some forest sites. Table 2 provides more details on the activities and field visits. Most notable, I attended the Annual Model Forest Symposium where I met several of the KMFA forestry stakeholders and learned about the broader context within which collaborative forest management is conducted in Kyoto. Also, in two of the field events, I participated in a forest management activity involving thinning, firewood harvesting, and mushroom collection. In another event, I joined a local forest volunteer group to visit three different forest sites in Kyoto. On this field trip, I observed how local forestry

groups utilize forest products, particularly for charcoal and firewood. I also observed a training session on bamboo management, natural forest regeneration practices and protection methods for plantation forests against deer.

The field activities enabled me to have a first-hand appreciation of local forest landscapes in Kyoto, the contributions of volunteers in forest management and the challenges encountered.

Table 2. Main activities and events attended in Kyoto

Field and participant observations	Date and location	Details of the events
Forestry Conference and Model Forest Symposium	February 5 th , 2016 Kyoto	Model Forest Symposium took place as part of the annual forestry conference. Activities undertaken during the symposium are presentations by private companies and volunteer groups on their activities, challenges and successes and an open forum on opportunities and challenges in MF activity. Awards were also presented to some participants.
Forest utilization and management experiential Field Trip	February 19, Hyogo City	Field trip sponsored by Kyoto City for forest volunteers to learn about forms of wood utilization and management of plantation forests. About 20 people participated.
Bamboo thinning Training session for new forest volunteers	February 20 th , 2016, Nagaoka City	Experienced forest volunteers provided training and shared experiences to new and potential volunteers. The event was coordinated by KMFA and local government. About 25 people participated.
Forest management activity by citizens groups	March 6 th , 2016 Uji city	Bi-weekly forest management activity by a volunteer group. Activity mainly involved in the wood-chopping experience. Participants were 18.
Private company forest management activity	March 12 th , 2016 Nantan City	Management and employees of a private company joined local volunteers to monitor, thin, and harvest firewood and mushroom. Participants numbered more than 30
Forest management seminar	March 14 th , 2016, Osaka-city	A forestry specialist with a private company provided a seminar on environmental functions of forest and mountain forest management for all interested members of KMFA.

Also, at the end of my stay in Kyoto, the KMFA gave me the opportunity to share my observations and preliminary findings to a cross-section of participants. In addition, I had the opportunity to visit Kyoto for a second time where I joined Prof. Shibata Shingo, Chair, Global Environmental Studies Program, Sophia University and graduate students enrolled in the same program on a forest field trip. I used the

opportunity to also share the findings from my research with the students and to solicit some feedback.

Below, I provide pictorial evidence of some of the activities and field trips I joined.

Plate 1. Participation in the Annual Model Forest Symposium



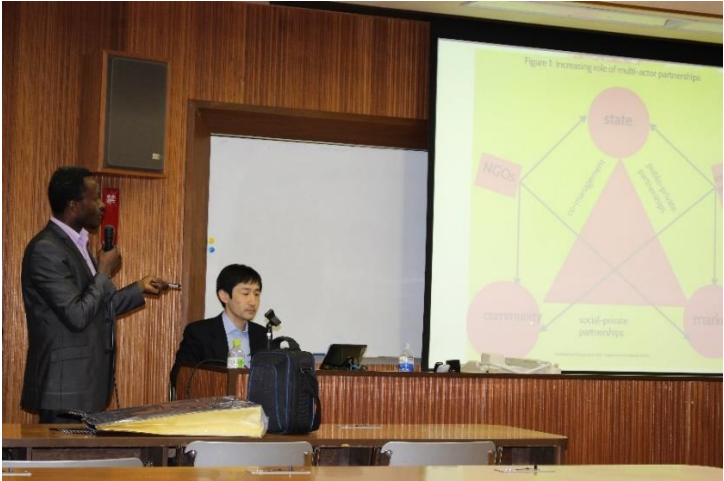
Plate 2. Participation in forest and non-forest related activities



Plate 3. Individual and Group Interviews sessions with representatives' private corporations



Plate 4. Presentation of preliminary research findings and meeting with KMFA staff



John with the staff of the KMFA



2.4 Document review

Two main types of secondary data were analyzed. These include data on forest management activities of the private corporations spanning over 10 years and operational and historical information on the KMFA (Table 3). The data on forest management activities of private corporations provides information on management activities undertaken by participants, their motivation for participating, reported outcomes, challenges encountered, and future perspectives.

*Table 3. Source and types of document analyzed**

Type of document	Key information analyzed	Source
Forest management reports of 34 private corporations spanning a period of 5 - 10 years	The forest management goals of private corporations; types of activities undertaken, and challenges and outcomes reported.	KMFA website: http://www.kyoto-modelforest.jp/works/works-266/
Organizational, operational and historical profile of the KMFA	History of the formation, membership categories, and projects and activities are undertaken.	KMFA website: http://www.kyoto-modelforest.jp/

*These materials were accessed between February 2017 and June 2017.

3. Main research findings

The findings are presented in three main parts. In the first part, the relationship between the KMFA and participants are discussed. The second part focuses on examining stakeholder motivations for participation and challenges to participation in the governance process. Finally, the third part focuses on an assessment of the KMFA's role in forestry governance.

3.1 Relationship and communication between forest actors and the KMFA

In the survey, participants were asked how they communicate with the KMFA. The findings showed that participants use multiple mediums to communicate with the KMFA (Figure 1). The vast majority of participants mentioned that they communicate with the KMFA through emails (63.4%), followed by participation in conferences (51.2%), access to brochures (36.6%) and newsletters (22%) and through local forestry association (14.6%). Communication through phone (12.2%) social media (7.3%) and forestry consultants (4.9%) were the least mentioned.

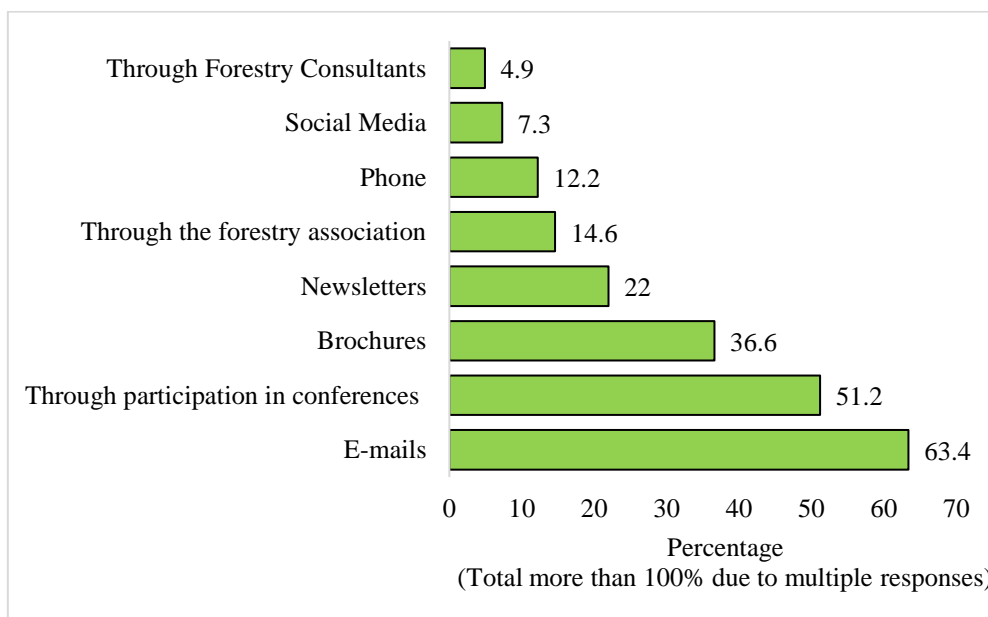


Figure 1. Media of communication with the KMFA. Source:

3.2 Knowledge on forest governance and the KMFA's role in forest governance

3.2.1 Familiarity and awareness of KMFA's role in forest governance

In the survey, participants were asked about their familiarity with the KMFA's role and importance in forest governance. In first, in terms of familiarity with the KMFA's governance process, the findings showed that the majority of participants were familiar with the KMFA's role in forest governance (Figure 3). Approximately 49% said they are moderately familiar with the KMFA's role while 41.5% said they are very familiar. However, 9.8% of participants said they are not familiar with the KMFA's role in forest governance.

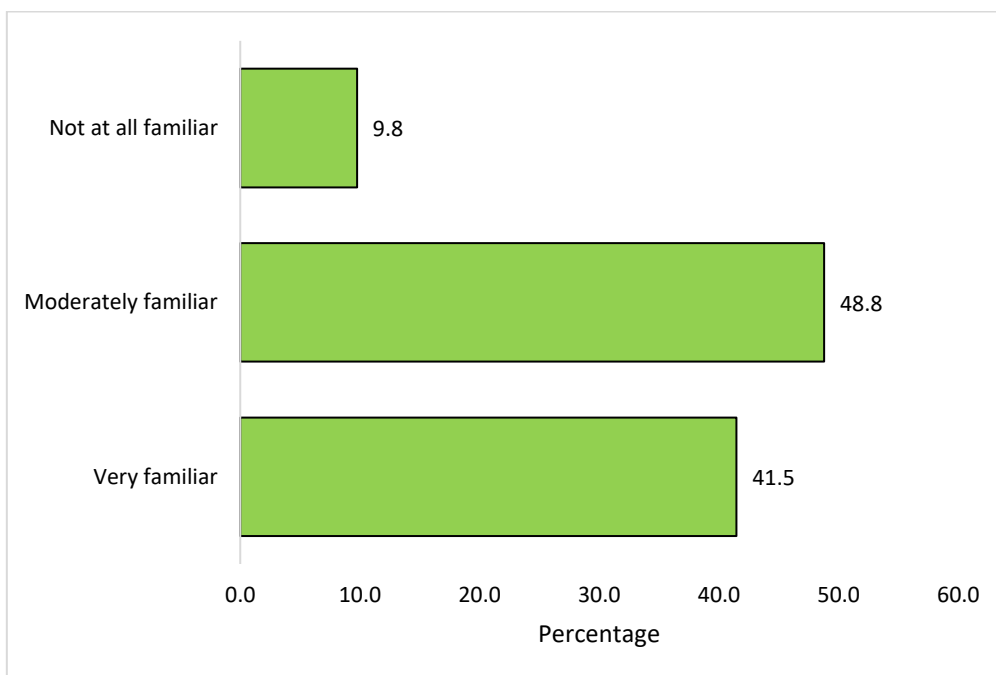


Figure 2. Familiarity with the KMFA's role in forestry governance

Second, regarding the importance of the KMFA's role in forestry governance, 73.2% of respondents agreed that the KMFA plays a very important (very important and important) role in the governance of forest (Figure 4). Also, 24.4% of participants said the KMFA was somewhat important, while 2.4% said the KMFA was not important.

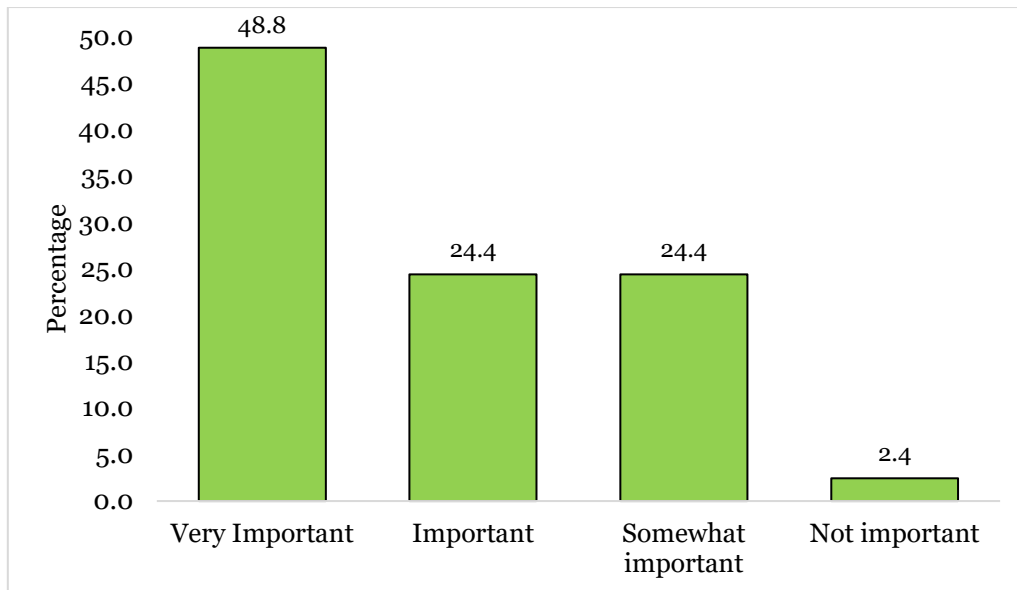


Figure 3. Importance of the KMFA's role in forestry governance

3.2.2 Participants understanding of sustainable forest management

In the interviews, participants were asked to how explain what sustainable forest management (SFM) mean to them. Table 4 shows a summary of the diversity of ways SFM meant to participants. The responses from the participants were diverse ranging for social (e.g., conserving the intergeneration use and knowledge on forests), economic (e.g., profitability and cost reduction in forest management), cultural (e.g., reconnecting people to forest for cultural preservation) and ecological (e.g., forests and biodiversity conservation) considerations. However, it is important to emphasize that different stakeholders emphasized specific aspects of SFM. For instance, while government representatives and model forest staff emphasized the governance aspect of SFM (e.g., collaborative relationships), private corporations most often emphasised the ecological aspect (e.g., forest and biodiversity conservation) and to a limited extent the social (relationship building). However, local forest volunteer groups understandings of SFM were more diverse, encompassing social, cultural and economic considerations.

Table 4. Summary of interview participants understandings of SFM

Sustainable forest management themes	Representative quotes and sources
Keeping forest for the next generation	<i>We are not forest specialists and do not know how to manage the forest sustainably. However, for us, we cut down trees and plant new ones, and we repeat the same things. So, I think sustainability is all about handing down the work to the next generation and doing all the other work the forest needs, but this is too much for us to think and do alone (Representative of Forest volunteer group).</i>
Preservation knowledge on forest management for the next generation	<i>I am not a forestry professional, but I think sustainable forest management is about the results that I can share and preserve to the next generation because the forest is degraded to a certain extent and maybe our grandchildren cannot utilize it well as our older generation...we are losing the knowledge to sustain forest and our older generation, including hunters and forestry workers, are getting older and older (Representative of Model Forest Management)</i>
Continuity of forest management activities	<i>It is a waste of time if volunteer activities are conducted a year or two years and we discontinue. Sustainability should be that we can continue maintenance. For instance, we manage bamboo trees. If we cut down the devastated bamboo forest and leave it, it would go back to the original devastating bamboo forest in three years. There is no meaning unless we continuously act and through that, we will achieve sustainability (Representative of Forest volunteer group).</i>
Profitability and cost reduction	<i>We cut down and thin the forest without money but carrying them to other places costs money. However, economically we received nothing, and this means our activities are not sustainable.... This is not sustainable because there is no profitability of even using the wood. We require a good cycle of management that is also economically feasible (Representative of Forest volunteer group).</i>
Collaborative arrangements for forest management	<i>Sustainable forest management is about the appropriate system for forest management with Model Forest Association, administrative office, private corporations and volunteers (Representative of government forestry official)</i>
Reconnecting people to forest/nature	<i>Japanese used to co-exist with forests. However, we started to import lumber from other countries, and our forests were left neglected, and the industry ceased. Now we realize that we need to shift our attention and find ways to let people see the benefits of forests (Representative of Private corporation).</i>
Relationship building	<i>For me, sustainable forest management is the connection brought to us, such as with the Model Forest Association, Bukkyo University, and you. We have been hiring disabled people at our company. And those disabled also come to the forest. For me, those are all connected, and this connection is the base for the sustainable forest (Representative of Private corporation).</i>
Conservation and protection of forests	<i>The forests we have in Japan right now are not sustainable. I think we need to change our awareness radically, or we will not be able to have sustainable forests.... I grew up hearing that we should not cut down trees, we had cut down too many of them and had ruined our forests, now we should leave the</i>

	<i>forests alone, and cutting trees would lead to deforestation (Representative of Private corporation).</i>
Maintaining biodiversity	<i>It is a forest that is rich in biodiversity and has soft soil that water infiltrates into the ground. Having soft soil prevents disasters like flooding and landslides. To create soft soil, preserving biodiversity/maintaining healthy Ecosystem Pyramid is necessary. Typically, it is a forest with few deer. Damage by deer is a major problem. They eat plants and low trees. Having an overpopulation of deer destroys the biodiversity and causes the soil to be unhealthy. When soil gets unhealthy, it gets washed away easily (Representative of Private corporation).</i>

Source: Summary of interviews

3.3 Participation and challenges to participation in forest management activities

3.3.1 Participant's motivation for joining the KMFA

In the survey, participants were asked about their motivation for joining the KMFA using pre-designed survey questions. Figure 1 shows the responses of participants in the order of importance the reasons for collaborating with the KMFA. In terms of the first order of importance, four main motivations were highlighted. These were: contribute to the community, concern about the impact of forest utilization on the environment and to protect the intrinsic values of forests. For the second-order importance, concern over forest utilization on the environment, achieving sustainable forest management and contributing to community were the most dominant motivations. Finally, in terms of the third order of importance, many participants emphasized the impact of forest utilization on the environment, achieving sustainable forest management and protection of the intrinsic values of the forest.

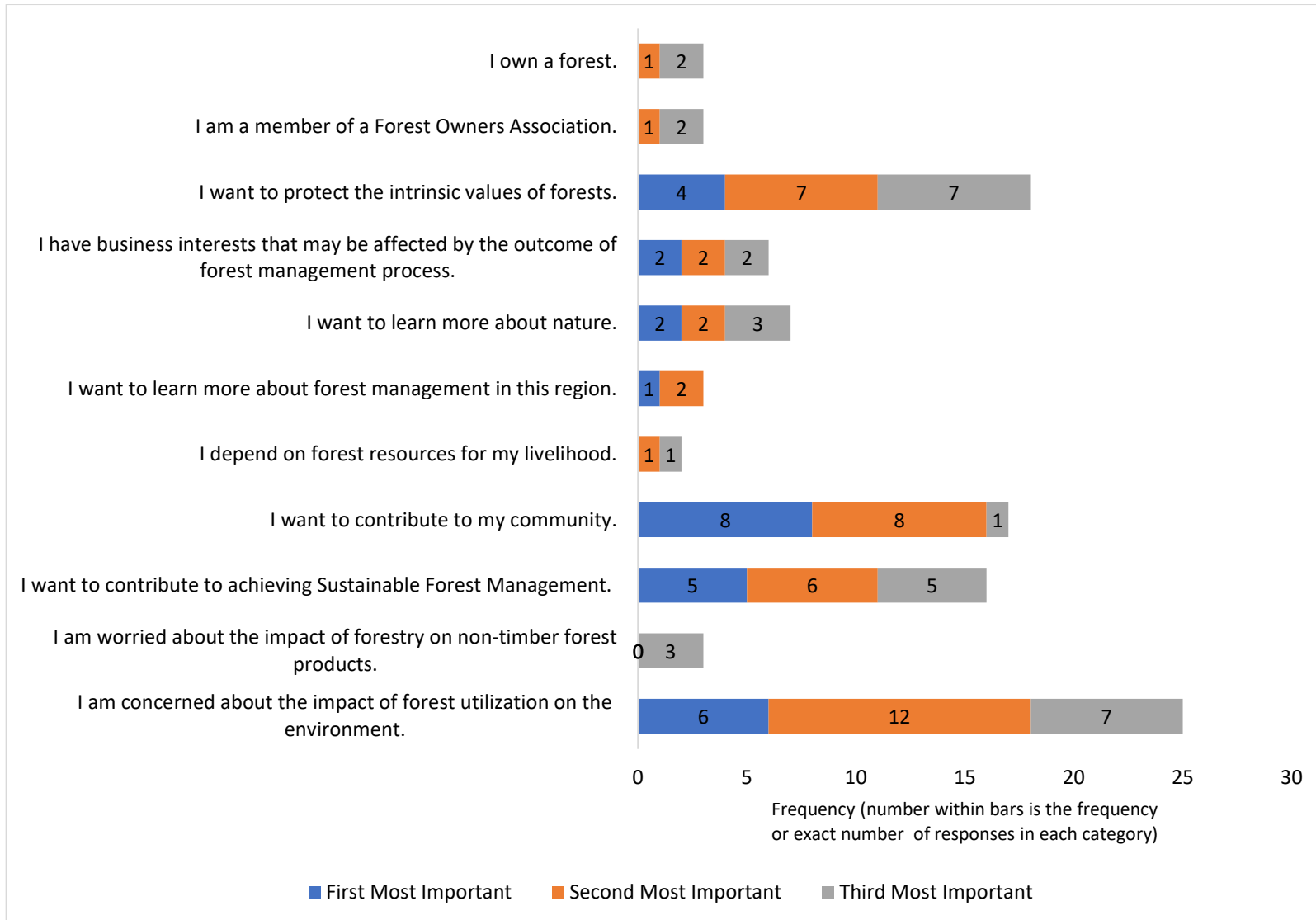


Figure 4. Participants ranking of motivations for collaborating with the KMFA

3.3.2 What role do participants play in collaborative forest management?

Figure 5 shows survey results on the regularity of roles performed by participants. The most regular roles performed by participants were participation in silvicultural activities, forestry conferences, forest management activities, forest recreational activities and planting of mushrooms.

Also, almost half of participants said they sometimes participate in conferences and events organized by the KMFA while more than two thirds also said they sometimes participate in forest recreational activities. In addition, more than 20% of participants each said they sometimes help transmit forest-related information, participate in silvicultural activities, forest harvesting, maintenance of forestry road, forest monitoring and forest research.

Finally, lobbying governments to protect water sources and forest harvesting came top in terms of least form of activities, accounting for approximately 63% and 60% of responses respectively. Also, more than half of the participants indicated they never participate in fundraising activities to support forest management.

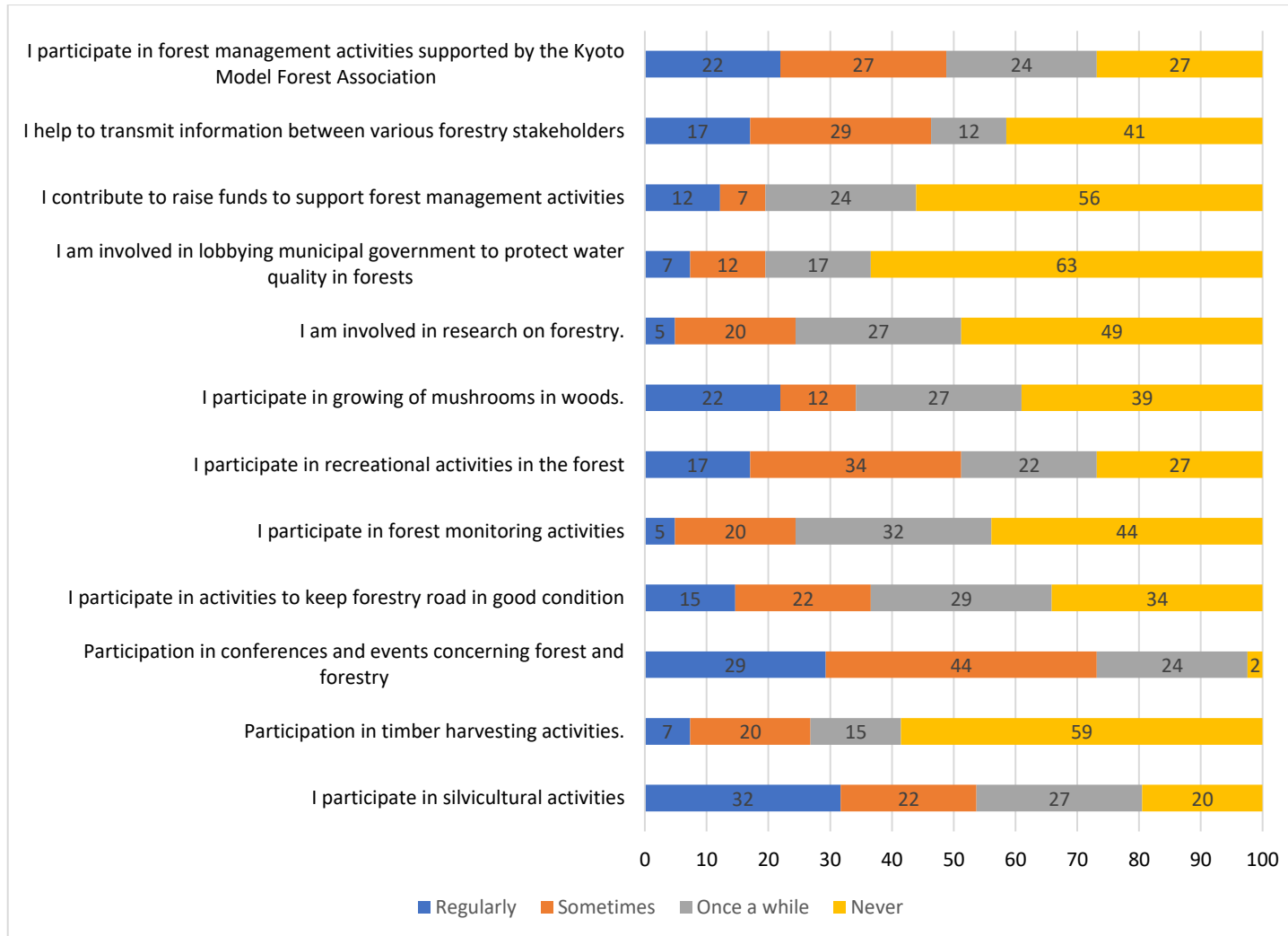


Figure 5. Forms of participation in the activities of the Kyoto Model Forest Association

3.3.3 Perceived challenges to participation in forest management activities

In both the survey and interviews, participants were asked about the challenges to their effective participation in collaborative forest management activities. Tables 5 and 6 show the survey results and summary of the interview responses respectively.

As shown in Table 5, the most regular challenges identified by participants were lack of information on how to participate in forest management activities, low level of training for forest volunteers and low level of training for forestry workers.

Table 5. Constraints to public participation in forest governance and management

Participation challenges	Regularly a challenge	Sometimes a challenge	Never a challenge	No opinion
Lack of effective leadership to coordinate forest planning activities	14.6	46.3	12.2	26.8
Lack of information on how to participate in forest management activities	24.4	36.8	29.3	19.5
Unsafe working conditions for forest workers e.g., forest volunteers, corporation employees	17.1	39.0	34.1	9.8
Low level of training for forestry workers e.g. general	24.4	43.9	22.0	9.8
Low level of training for forestry workers e.g. forest volunteers	29.3	24.4	14.6	31.7

Source: Survey, 2016

Table 6 shows a summary of the challenges to participation in forest management activities categorized by stakeholder groups. The main challenges identified by private corporations were lack of adequate information on opportunities to participate, the safety of employees, difficulty managing and storing thinned and harvested wood, and time and cost involved in organizing forest management activities.

For local forestry groups, including volunteers and citizens groups, the main challenges mentioned were lack of information on opportunities for participation and decision making on forestry, the safety of volunteers in forest work and difficulty in recruiting volunteers, particularly young people. Also, uncertainty about the long-term commitment of private corporations supporting local forest management activities was a concern expressed by some local groups.

Table 6. Challenges to participation in collaborative forest management activities.

Stakeholder group	Challenges mentioned	Source
Private corporations	<ul style="list-style-type: none"> • Lack of information on opportunities for participation and decision making on forestry • Time and organizational costs of building partnerships • Cost of managing forestry operations • Safety of staff involved in forest operations • Difficulty managing and storing thinned and harvested wood 	Review of forest management reports; interviews with private corporations; observations at conference and participation in forest management activities
Local forestry groups (volunteers and citizens groups)	<ul style="list-style-type: none"> • Lack of information on opportunities for participation and decision making on forestry • Safety of volunteers in forest work • Low participation of young people in volunteer work • Difficulty in recruiting volunteers • Uncertainty about the long-term commitments of private corporations to forest management agreements 	Individual and group interviews; observations at the conference; and participation in forest management activities

Source: Forest management reports and interviews

3.4 Perceived roles of KMFA in forest governance

This final section of the results assesses the role of the KMFA in collaborative forest management activities. First, in the survey, participants were asked to indicate what comes to their mind when they think about the KMFA. The results are displayed in a word cloud shown in Figure 6. In the word cloud, words with higher frequency appear bigger while words with lower frequency appear relatively small. As shown in Figure 6, the majority of participants associated the KMFA with forest conservation, forest volunteer work, and green activities.



Figure 6. Word cloud results on what participants think of KMFA

Second, survey participants were also asked to evaluate their level of satisfaction with the roles of the KMFA in a range of governance and management issues. The results are shown in Table 7. The majority of participants expressed satisfaction in the roles of the KMFA in promoting the participation of residents in forest management decisions (86.8%), providing training and technical guidance on forest management activities (93.1%), provision of knowledge and information on forest management (89.5) and strengthening relationships between diverse forest groups. On the other hand, most participants were not satisfied with the role of the KMFA in promoting the participation of wood processing firms in their activities.

Table 7. Satisfaction with KMFA’s governance instruments and processes (%)

	Completely dissatisfied	Somewhat dissatisfied	No opinion	Somewhat satisfied	Completely satisfied
Promotes the participation of residents in decisions on forest management	-	9.8	2.4	46.3	41.5
Offer training and technical guidance on forest management activities	4.9	-	-	43.9	51.2
Provides knowledge and information on forest management	-	2.4	-	39.0	58.5
Strengthen relationships between forest owners and Prefectural government on forest management	-	2.4	-	46.3	51.2
Strengthen relationships between forest owners and non-forestry private companies on forest management	4.9	9.8	-	68.3	17.1
Provide funding for forest management	2.4	9.8	46.3	22.0	19.5
Support diversification of products and services (e.g., tourism etc.)	17.1	-	17.1	53.7	12.2
Promotes the participation of wood processing firms	41.5	9.8	46.3	2.4	-
Promote participation of women	7.3	26.8	19.5	34.1	12.2
Ensures mutual respect and equality at forestry meetings	-	12.2	17.1	28.9	41.5
Promotes fairness between local foresters and private corporations	-	12.2	17.1	53.7	17.1

Source: Survey, 2016

4. Summary, recommendations and conclusion

4.1 Summary

This report presents findings on the role of the KMFA in the governance of small-scale forests in Kyoto, Japan. Specifically, the report examined the experiences of multiple stakeholders – including forest volunteers, citizens groups, non-forest private corporations, and local and municipal governments – who have had a history of working with the KMFA.

A summary of the findings shows that there are multiple motivations for participants involved in collaborative forest management activities with the KMFA. Some of the

most common motivations were to contribute to community development and revitalization, concern about the impact of forest use on the environment, protect the intrinsic values of forests, and achieve SFM. Like the diversity of motivations for participation in the activities of the KMFA, participants also had a different understanding of what SFM mean. Understandings of SFM ranged from social (e.g., conservation of the intergeneration use and knowledge on forests), economic (e.g., profitability and cost reduction in forest management), cultural (e.g., reconnecting people to the forest for cultural preservation) and ecological (e.g., biodiversity conservation) considerations. However, while government representatives and model forest staff were more likely to emphasize the governance aspect of SFM (e.g., collaborative relationships), private corporations prioritized forest and biodiversity conservation, while local forestry groups emphasized diverse understandings of SFM encompassing social, cultural and economic considerations.

In terms of general governance and management challenges, the majority of KMFA's stakeholders were concerned with limited information on how to participate in forest management activities, low level of training for forestry workers, especially forest volunteers, lack of effective leadership to coordinate forest planning activities, and unsafe working conditions for forest workers. However, while private corporations were more concerned with lack of storage and management of thinned wood and time and cost involved in organizing forest management activities, local forestry groups (volunteers and citizens groups) were more concerned about the safety of volunteers in forest work and difficulty in recruiting volunteers, particularly young people.

Despite the challenges, most participants recognized the KMFA as an important organization for promoting the effective management and governance of forests. According to the majority of participants, KMFA offered opportunities for volunteers and non-private forest companies with limited knowledge and information on forest management to contribute to the conservation and management of forests in local villages at a relatively lower cost. Some of the common roles participants performed were participation in silvicultural activities, attending forestry conferences, planting of mushrooms, maintenance of forestry road, forest monitoring and participation in forest recreational activities.

Many participants were satisfied with the governance and management roles of the KMFA. Specifically, most participants were satisfied that the KMFA had promoted the participation of residents in forest management decisions, provided training and technical guidance on forest management activities, improved access to knowledge and information on forest management, and strengthened relationships between diverse forest groups. However, a major concern expressed by participants was the lack of engagement with wood processing firms in the governance process.

4.2 Recommendations

Following from the discussions above, three main recommendations are offered.

First, due to the limited participation of wood processing firms in the work of the KMFA, managers of the KMFA need to provide opportunities for them (wood processing firms) to link up with other stakeholders. More opportunities for the participation of wood processing firms could be very important especially for non-forest private corporations who undertake forest management activities but often have challenges processing or managing thinned forest materials.

Second, in the medium to long-term, the KMFA needs to address the concerns of some local volunteers and citizens groups who expressed worry over the uncertainty of the future participation of private corporations who provide support to local forest management activities. This is because perceived uncertainty about future collaborations can affect the commitment of local stakeholders if not addressed timely.

Third and finally, managers of KMFA need to recognize and promote the diverse range of understandings of SFM as well as motivations for participation. For instance, knowledge of the diverse motivations of participants can serve as a basis to establish new programs that align with the needs and expectations of specific stakeholder groups. Similarly, the KMFA can facilitate a forum to bring all stakeholders together towards developing a comprehensive policy document on what SFM entails in the context of Kyoto. Recognition of the diversity of motivations for participation and what SFM means can provide an opportunity to improve program fit, enhance management effectiveness and promote inclusivity in the governance process.

4.3 Conclusion

A comprehensive assessment on the role of KMFA in the governance for the sustainable management of small-scale forests in Kyoto can be derived from two published materials listed below (also attached).

- Boakye-Danquah, J., Reed, M. G., Robson, J. P., & Sato, T. (2018). A problem of social fit? Assessing the role of bridging organizations in the recoupling of socio-ecological systems. *Journal of environmental management*, 223, 338-347. Link: <https://www.sciencedirect.com/science/article/pii/S0301479718306844>
- Boakye-Danquah, J. (2018). *The Contributions of Model Forest Organizations towards Governance for Sustainable Forest Management of Small-scale Forests: Lessons from Eastern Ontario and Kyoto Model Forests* (Doctoral dissertation, University of Saskatchewan). Link: <https://harvest.usask.ca/handle/10388/11665>

Also, for those interested in the Canadian case study, this paper (see below and attached) describes the role and effectiveness of Eastern Ontario Model Forest in the design and implementation of a group forest certification program for promoting sustainable forest management of private non-industrial forests in eastern Ontario.

- Boakye-Danquah, J., & Reed, M. G. (2019). The participation of non-industrial private forest owners in forest certification programs: The role and effectiveness of intermediary organisations. *Forest Policy and Economics*, 100, 154-163.

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