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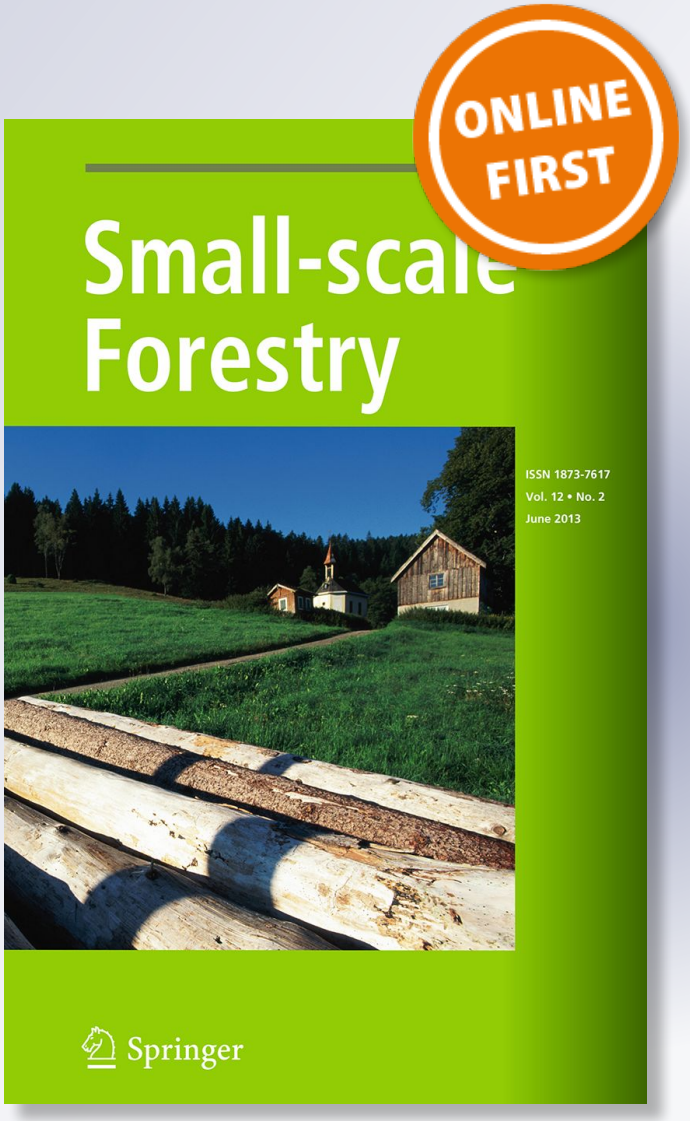

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RESEARCH PAPER

The Importance of Social Learning for the Development of Community Based Forest Management in Indonesia: The Case of Community Forestry in Lampung Province

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Abstract Community-based forest management is unlikely to be sustainable without a process of social learning between the internal and external actors. This situation is evident in West Lampung District in Lampung Province, Indonesia. This research assessed the processes and outcomes of social learning within three villages (i.e. Villages A, B and C) in West Lampung District that were engaged in a community forestry (CF) program. The data was gathered through questionnaire and interview which then analyzed with Likert Scale. The CF program outcomes were different in each village. Village A had the highest scores for facilitation, egalitarian atmosphere, repeated meetings, and diverse participation. This has resulted in a high level of community involvement in the CF program. In particular, the high level of facilitation by external actors such as training programs, and marketing information and funding has resulted in the community having a good knowledge of CF and the associated socioeconomic development programs available to them. Village B has highest score for multiple sources of knowledge variable. Due to the existing egalitarian atmosphere, each stakeholder in Village A can openly express their opinion without any hesitation, particularly between men and women. Meanwhile, the other sub variables of existing egalitarian atmosphere were scored the same for Village A, B, and C, such as the balances between old and young people as well as rich and poor people. In general, the implemented social learning has a greater positive effect on the livelihoods of CF group members in Village A compared to Villages B and C.

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Keywords Egalitarian atmosphere · Facilitation · Group meetings · Member participation · Multiple sources of knowledge

Introduction

There is substantial deforestation of primary and secondary forest ecosystems throughout Indonesia. The causes of this deforestation are still widely debated, but it is recognized that two major causes are industrial forestry operations and encroachment by community (Suderlin and Resosudarmo 1996). The issue of deforestation in Indonesia needs to be addressed and this will require new evidence-based policies that can help to maintain the functions of forests in a sustainable manner while simultaneously improving the welfare of communities whose lives depend on the forests (Suderlin and Resosudarmo 1996). In order to improve the welfare of these forest-dependent communities, it must be recognized that forests and human beings are united in life and are linked components of the ecosystem. Therefore, forestry development should be a holistic endeavor.

In a recent cabinet meeting, the President of the Indonesian Republic stated there are 25,863 villages located in and around Indonesia's forested areas and that 71% of the population of these villages depends on forest resources for their livelihood (Sekretariat Kabinet Republik Indonesia 2016). In addition, there are 10.2 million poor people living in and around the country's forests who do not have rights to access forest resources. The carrying capacity of forests is strongly dependent on the level of human consciousness towards the importance of forests and the need to use and manage them in a sustainable manner. The Indonesian government has taken many stepsto maintain the sustainable functioning of the country's forests. The pattern of forest management developments in Indonesia, from timber extraction to ecosystem management and the concept of social forestry, is underpinned by a sustainable forest management (SFM) strategy being implemented by the government (Simon 1999).

Cary (1970) has stated that to ensure sustainable development, community participation is essential. Sustainable forest development should aim to achieve the following two objectives: community socioeconomic development and sustainability of the forest ecosystem. Because forestry developments impact local communities, the development activity should reflect the desires of the community (Conyers and Hills 1991). Achieving this requires a process of social learning in the community, so that it will have a comprehensive understanding of the changes the development will bring, and an increased level of resilience towards both the changed socioeconomic conditions and the external actors who sometimes have an adverse impact on the sustainability of forest development (CIFOR 2003).

According to Pahl-Wostl and Hare (2004), social learning is an iterative and ongoing process that can increase the flexibility of a socioecological system to respond to change. Also, social learning is interpreted by Pahl-Wostl et al. (2008) as an essential element of policy development and implementation. Pinkerton (1994) found that for a community development program to be successful, it requires a process of social learning among the different stakeholders. The participation of various stakeholders is essential to encourage social learning, and it is expected the

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process play an important role in generating social capital and developing new social practices (Tippet et al. 2005). In addition, social learning is an important process associated with addressing the complexity and uncertainty inherent in natural resource management (Lee 1993; Dryzek 1997; Rolling and Wagemakers 1998). In this context, social learning can play an important role in the development and implementation of sustainable community-based forest management (CBFM) in Indonesia.

Indonesia's CBFM program was developed as a conflict resolution, especially for resolving conflicts communities, the government and the private sector. Such conflict resolution is expected to occur because of the process of social learning between the actors. In Indonesia, there have been many studies investigating social capital in CBFM projects, but few studies have analyzed the social learning that occurs in CBFM implementation. This study analyzes social learning in the implementation of the *Hutan Kemasyarakatan* (HKm) program (hereafter referred to as the community forestry [CF] program) in West Lampung District of Lampung Province. CF program was chosen for analysis because it was the first social forestry program implemented in Indonesia.

This study shows to some of the weaknesses in social learning theory identified by Hart and Kristonis (2006). They stated that the existing studies about social learning have not been conducted based on what happened in the field or in grass root level, for example: about the social-economy condition or community's culture. Further, they said that the studies about social learning have not been related to sustainable natural resource development yet. This CF research it will be explained how important the role, functions and contribution of social learning as an adaptation approach for communities. The research specifically addresses the following question—has social learning contributed to the livelihoods of the CF group members?

Evidence of the Function of Social Learning

According to Muro and Jeffrey (2008), there has been a lack of research into social cultures at the grass roots level, the social learning process associated with sustainable natural resource management, and the benefits of social learning for the implementation of natural resource management programs. Furthermore, they stated that there remains a lack of empirical research into the role of social learning and its effectiveness for participatory planning and decision-making. This research will highlight the role, functions and contribution of social learning for the grass roots level adaptation of forest-dependent communities to a forestry development program including in its planning and management decision-making.

Evidence of the function of social learning in Indonesia and other countries can be found in the literature. As part of the social learning process, Nawir (2011) found that regular meetings were needed to discuss the equitable benefit sharing among stakeholders in a natural resource's partnership program in Sanggau, West Kalimantan. Mårald et al. (2015) also found that repeated meetings and exchanges between researchers and stakeholders were needed for SFM policy development in

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southern Sweden. The social learning, managed over a 10-year period by the extension agents, contributed to a reduction in the frequency of slashing the forests for cultivation, to the farmers taking advantage of idle land for production purposes, and to the community more actively participating in forest fire management (Nawir 2011). In Wada Tahsil in the Thane District in India, social learning facilitated by a company over a 9-year period was able to help a community develop and intensively manage its 260 ha of land to meet the needs of community members, including by significantly increasing their income (Dongre 2011).

Based on the research by Mårald et al. (2015) in southern Sweden, it is known that an egalitarian atmosphere is necessary to develop connections and advantageous stakeholders cooperation including politicians, private sector businesses, non-government organizations and researchers. This egalitarian atmosphere was found to be particularly important for policy development. From the social learning developed through partnerships in Sanggau, West Kalimantan Province, the community gained the necessary cultivation, processing and marketing knowledge to develop acacia plantations (Nawir 2011). In North Bandung in West Java, the social learning achieved in a CBFM program organized by a state forestry company helped the local community to gain the necessary knowledge to access export markets for their coffee (FKKM 2014). Massawe (2001) investigated and proved that there were benefits of social learning in strengthening community organizations in Tanzania so that they would be able to effectively manage forests even after donors ceased their support.

Conceptual Framework

This paper adds to the knowledge base on the benefits of social learning for the functioning of community forestry institutions, with a specific focus on one social forestry scheme in Indonesia. According to Muro and Jeffrey (2008), the following nine processes encourage social learning: facilitation, small group work, an egalitarian atmosphere, repeated meetings, opportunities to influence the process, open communication, diverse participation, unrestrained thinking, and multiple sources of knowledge. In West Lampung District in Indonesia's Lampung Province, its only five variables influence the social learning process, namely facilitation, an egalitarian atmosphere, repeated meetings, diverse participation, and multiple sources of knowledge (Wulandari 2012; Wulandari and Cahyaningsih 2010). It is expected that all of these variables will support community participation in CBFM, as illustrated in the conceptual framework in Fig. 1.

The level of social learning among the CF group members be affected by five variables. The expected results of the social learning will be a change in knowledge, an increase in skills and positive attitudes, and improved trust and relationships between external actors and the CF group members. This can then lead to a common understanding and collective action between external actors and CF groups. The level of common understanding and collective action from both parties influence the forest management activities and these activities will determine the sustainability of the CF program.

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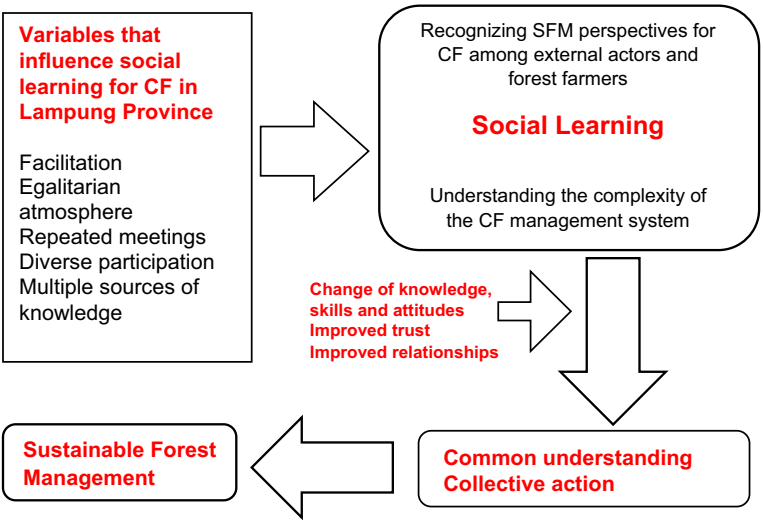

Fig. 1 Conceptual framework of social learning in community forestry development in West Lampung District, Lampung Province

The egalitarian atmosphere variable determines how a stakeholder speaks out or makes decisions according to their own conscience or opinion. This would involve a series of meetings and the opportunity for internal actors to participate in the CF program's decision-making process. According to Rolling and Maarleveld (1999), participatory processes are considered to be a device for fostering social learning. Based on this description, it can be seen that participation in a program facilitation and work program run by institution, whether it is a government or another party.

Why does multiple sources of knowledge need to be included as a variable? Schusler et al. (2003) and Rist et al. (2006) have noted that participation in meetings or work programs attended by key CF facilitators will help to increase their sources of knowledge. Schusler et al. (2003) and Rist et al. (2006) have noted that community'participation in meetings or work program attended by key facilitators will help to increase their knowledge. Through this social learning, the members of a CF program would ideally recognize the perspectives of different stakeholders and thereby understand the complexity of achieving SFM. The contribution of social learning to a CF program is a common understanding among stakeholders and collective action to achieve SFM.

Research Method

Study Site

The research was conducted in the West Lampung District of Lampung Province, Indonesia. Three local villages whose community members have joined a CF program were selected as the study sites. According to Prokopy (2008), to protect

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the identity of respondents it is important to maintain source and location confidentiality when publishing social research findings. Hence, the three villages are referred to as 'Village A', 'Village B' and 'Village C'. These villages were chosen because their CF groups were the first such groups in Lampung Province to receive a Work Area Designation (WAD) permit from the Indonesian Ministry of Forestry. The three villages are under the jurisdiction of the Forest Management Unit of Liwa and the District Forest Office of Lampung Barat.

Data Collection and Analysis

The sampling unit used in the data collection was the household (HH). Community Forestry regulations in Indonesia require that membership of a CF program is at the household level. The data collection process was undertaken between August and October 2015.

Before commencing data collection, a validity test and a reliability test of the questionnaire should be undertaken (Sugiyono 2012). The validity testing was conducted using SPSS version 16 while the reliability test used Cronbanch's Alpha formula. After 4 times field-tested, finally validity testing revealed that all questions in the questionnaire had a greater value than the r table value, meaning all questions were valid. The Cronbach's Alpha value (correlation index = r) was 0.735, meaning the 5 social learning variable's questions had a high reliability.

Data obtained from the Forestry Office of Lampung Province (2015) showed that in the three villages, there were 987 HHs that were members of CF groups. To better understand a population's behavior, researchers can use the Slovin formula to determine an appropriate sample size (Ryan 2013). The number obtained from the sample in this research was 285 HH. This is computed as: $n = N/(1 + Ne2)$, where: n = no. of samples, N = total population and e = error tolerance. Based on proportional sampling of the total number of CF members in each village, Village A had 143 HH samples, Village B had 64 HH samples, and Village C had 78 HH samples.

Questions were based on topics associated with each of the five social learning variables and responses were recorded, where 5 = strongly agree through 1 = disagree. The Likert Scale scores from the questionnaire were used to calculate average score for each. There were 10 questions associated with each social learning variable, i.e.:

1. Facilitation: the number of external actors (e.g. government, universities, NGOs, other donors), the number and type of programs facilitated by these actors, and the perception of CF group members about the facilitation by external actors;
2. Egalitarian atmosphere: balance between men and women, old and young people, rich and poor people;
3. Repeated meetings: frequency of meeting attendance and the level of active participation in meetings;

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4. Diverse participation: roles and the level of villager participation in the CF program, the decision-making process, and the development of group reports (i.e. program planning and monitoring of program results); and
5. Multiple sources of knowledge: knowledge of SFM and of innovations regarding forest management programs such as species combinations and enrichment, and the modification of forest-post harvests

Data of 285 respondents gathered by 10 enumerators and took about 1 h for each respondent. Respondents were asked to answer each question in the questionnaire and analyzed with Likert Score, ranges from 1 to 5. At the end of the data collection process, it had been conducted Focus Group Discussion (FGD) at every village as a way of discussing/verifying findings based on questionnaires results. A total of 33 HHs who has roles as community leaders were interviewed, including 20 sub-group leaders, 3 group leaders, 3 village heads, 3 women group leaders, 3 religious figures and 1 youth figure. Only 1 youth figure was interviewed because only Village A had a youth group. Most interviews took 1–1.5 h for each respondent. Several respondents with unusually diverse community forest based management backgrounds. The data were analyzed using excel sheet, then the scores from all respondents were calculated to get its total and average value. The average score for each was analyzed descriptively.

Results and Discussion

Community forest management worldwide has involved diverse types and various levels of success in social learning (Wollenberg et al. 2001). Further, Wollenberg et al. (2001) said that the analysis of current approaches to CF program's facilitation and other variables of social learning indicate the need for more attention to the different learning styles and methods. In order to prove benefits of social learning, a good response from grass roots or fields level which is suitable with their social-culture condition is required.

Facilitation

The analysis found that the three villages had almost the same score for the quality of facilitation by external actors. Those external actors share their responsibility in facilitating the CF program in the field. This situation also occurred in 200 villages in Bolivia (Cronkleton et al. 2013). For example, the responsibility sharing can be done by having the local government facilitating the attempts of organization improvement and policy development, while NGO and other institutions facilitating conservation of soil and water program, forest products harvesting and marketing management.

However, Village A had the highest number of external actors, as well as the highest number and type of facilitation programs (Fig. 2). The CF group leader in Village A was evidently more innovative but struggled to provide good facilitation for the group members. This was proven by there being more livelihood

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development programs developed for the CF group in Village A compared to Villages B and C.

Inoue et al. (2015) and Wulandari and Budiono (2016) stated that a collaborative program requires participation by external stakeholders. Further, Wulandari (2009) stated that the facilitation gap between the government and other relevant stakeholders before and after the CF groups received the Work Area Designation (WAD) impacted the optimization of CF program implementation in Lampung.

The CF group in Village A received assistance from the government, universities, NGOs and other donors that had successively supported its CBFM programs until 2015. This group had been a national CBFM champion for forest management. Based on average Likert score and interview it is not surprising that Village A received the highest score for facilitation. The CBFM programs undertaken by the external actors are diverse, and have included coffee processing aid, training on land–water conservation and strengthening of the women farmers group, and the establishment of a CF center. In Village B, there is an external actor (i.e.an NGO) that has implemented agroforestry programs and institutional strengthening of the CF group. In Village C, there is a limited number of external actors providing facilitation. In this village, the government has conducted measures to socialize new policies and evaluate the CF program.

Egalitarian Atmosphere

In recent years, many gender issues have been discussed in relation to the roles, positions and responsibilities of women and men in community (William and Best 1990). An egalitarian atmosphere is needed in the management of forest resources so that both men and women can play equal roles (Mulyani 2012). Men and women have different experiences in addressing a problem as a result of their differing levels of knowledge and decision-making processes. One example is men determine the type of seeds to be used and the management to be carried out on their land, while women make the decisions regarding the marketing of agroforestry products from their gardens and how the money from the sale of these products will be used.

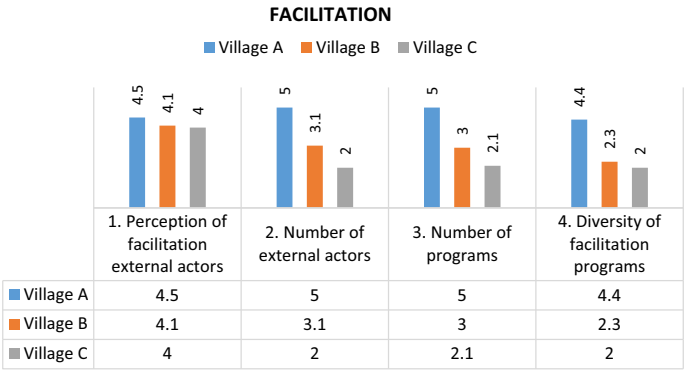

Fig. 2 Facilitation scores for each village

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Regarding the 3 sub-variables of an egalitarian atmosphere that were examined in the 3 villages, the only difference found was in balance between men and women (Fig. 3). This result may be due to the fact that social learning occurs simultaneously in relationships, and all parties develop mutual views on the condition of forests and SFM objectives (Figueroa et al. 2002). In Village A, the role of the women farmers group was well advanced compared to similar groups in other forest villages in Lampung Province. The women's group in Village A is fortunate to have a very innovative group leader so that the group actively organizes meetings and training in business development for their CF products. Thus, the women in this group have become more confident and independent compared to the women in Villages B and C. Equality between men and women in CF management roles is highly visible in Village A and has a higher score than Villages B and C. Meetings and training are not intensively conducted by the women's groups in Villages B and C, and so the members of these groups are not as actively involved in the CF group compared to those in Village A.

There was no evidence of CF group membership distinguishing between young and old, and rich or poor. Hence, all members of the community in the 3 villages have equal rights to become CF group members.

Repeated Meetings

Village A received the best score for repeated meetings because it has regular meetings with many people present. The CF group members are very active, asking questions and giving their opinions (Fig. 4). The group in Village A has regular meetings to discuss the resolution of various problems as well as the production and market development of forest products. According to Ministry of Agriculture (2007) and Wulandari and Budiono (2016), one characteristic of a good CF group is a regular meeting agenda. Because the CF group in Village A has many subgroups, it could potentially result in problems for group management or forest management. However, the positive aspect of having many subgroups is that it will generate a lot of opinions that can provide useful input for solving problems and more individuals

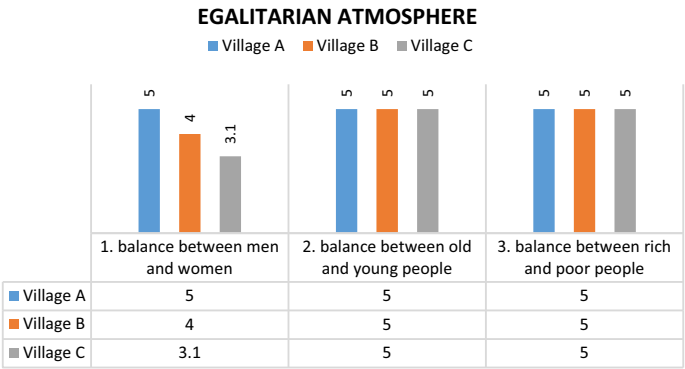

Fig. 3 Egalitarian atmosphere scores for each village

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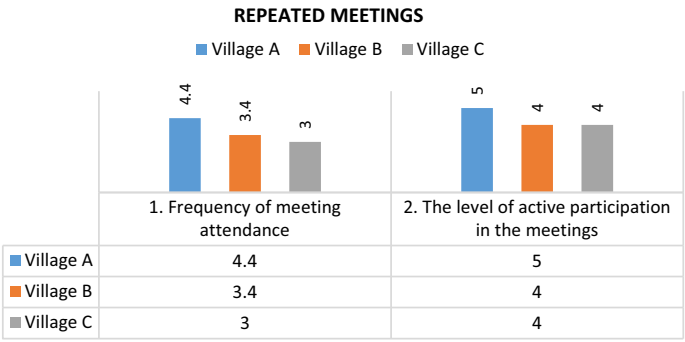

Fig. 4 Repeated meetings scores for each village

can have active roles. In addition, the CF group in Village A has several business, so it is necessary to have regular meetings to maintain the stability of the business operations.

Villages B and C have the same score for the level of active participation in meetings. These two villages also have group meetings, but they only hold the meetings as necessary. Because they no longer hold regular group meetings, it is possible that a meeting will be held and some members unable to attend. One of the subgroup heads in Village C stated that:

> "in the beginning, we had regular meetings every month but at the fourth meeting, the attendance rate decreased to only about 20% of the total number of members, moreover the people who present always diverse. I asked to the members why they rarely attended the group meeting, they said that the meeting did not give any benefit for the family and instead wasted time when it should be for working in the forest. Based on these conditions, then since about one and a half years ago we decided to remove regular meetings and meeting will be done if necessary."

Diverse Participation

For the diverse participation variable, the CF group in Village A stood out from Villages B and C across all of the sub-variables, and Village B consistently achieved higher scores than Village C (Fig. 5).

In Village A, all members of the CF group committed to participate in the implementation of all agreed-upon programs without being asked or reminded. In contrast, in Villages B and C it was generally only the board members who were participating in program implementation. When the research team asked members of the CF group in Village A why they participated in the CF programs, it was commonly stated that they do so because they receive many benefits from the programs. For participation in decision-making processes, Villages B and C had moderate scores (i.e. 3.3 and 3, respectively), while Village A had the highest score (i.e. 4). Participation in the CF group's decision-making processes by group members in Village A involved their input into the development of rules for the

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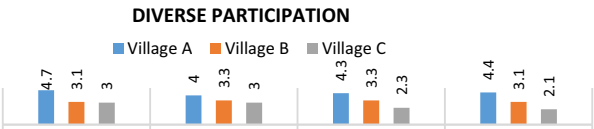

	1. Level of participation in the CF program	2. Level of participation in decision-making processes	3. Level of participation in the development of general and yearly planning	4. Level of participation in the development of yearly group report
Village A	4.7	4	4.3	4.4
Village B	3.1	3.3	3.3	3.1
Village C	3	3	2.3	2.1

Fig. 5 Diverse participation scores for each village

distribution of money from the sale of community-raised goats and for profit sharing among the women farmers group. Consensus agreement on these rules was achieved through regular group meetings. The types of rules or other topics being discussed at the meetings was found to affect both the level of attendance of group members and their participation during the meetings. The participation rates in Villages B and C were only moderate because the CF group members believed there would be little benefit from the CF program.

For the preparation of planning and reporting documents, CF group members in Village C had the lowest participation rate. When the community was asked about this low rate, they commonly stated that the planning and monitoring program reports did not have any impact on their income from the amount of forest products harvested or sold. The planning and monitoring reports related to issues or programs that do not provide benefits to group members, such as newly issued government regulations and dealing with members who violate regulations. In contrast, the CF group members in Village A fully participated in the preparation of monitoring reports because they considered the reports to be important internal group planning and monitoring activities that related to their economic development. Generally, the results of the meetings for developing the planning and monitoring reports are recommendations for improving forest product marketing opportunities and increasing group members' income. Villages B and C have not yet developed any programs or regulations relating to the development of community economic enterprises. Many CF group members in these two villages are inactive or much less involved in the groups compared to members in Village A because they are not receiving any benefits from the group's activities. One of the community leaders of Village C stated that:

> "it is not that they do not want to be actively participated in the group activities, but the participation of group activities does not provide any benefit for their families and takes time when it should be for working in the forests or fields."

In fact, to achieve the integration of multipurpose forest, there has to be a condition that enables the stakeholders to be integrated, trust building and cooperation between and

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within local community (Bizikova et al. 2012). Hence, the preferred action for participation in achieving sustainable forest management can be occurred. The findings show that the higher participation in CF group activities by members in Village A is related to the positive impact on their livelihood following implementation of the CF program, particularly on their annual average income. Wulandari (2012) has previously found that the average monthly increase in income for CF group members was 35% in Village A, 24% in Village B and 18% in Village C.

Multiple Sources of Knowledge

Based on field conditions in Indonesia, especially at a district level, the multiple sources of knowledge variable is a combination of unrestrained thinking and open communication sub-variables. If CF group members have no restraints on their thinking, they will always seek out various sources of knowledge to help solve their problems. Group members who have open communication will also have many sources of knowledge because they do not hesitate to ask their fellow group members, family members, officials or institutions (such NGOs and universities) when experiencing forest management problems. In the USA, Mutandwa et al. (2016) found that forestry and agriculture organization can help people in villages to improve their knowledge about conservation. This was evident among CF group members at all three villages (Fig. 6). This may be because the community in the sub-district of Sumber Jaya has a high commitment to SFM, making its community willing to acquire new forest management knowledge. Village B had highest score due to it being located nearby the Province's main road, and so the community in this village has better access to various sources of knowledge than the other two villages.

Social Learning and Community Forestry in the Three Research Locations

The average score for the social learning variables namely facilitation, egalitarian atmosphere, repeated meetings, and diverse participation was highest in Village A (Fig. 7). Evidence that the social learning process in the development of the CF

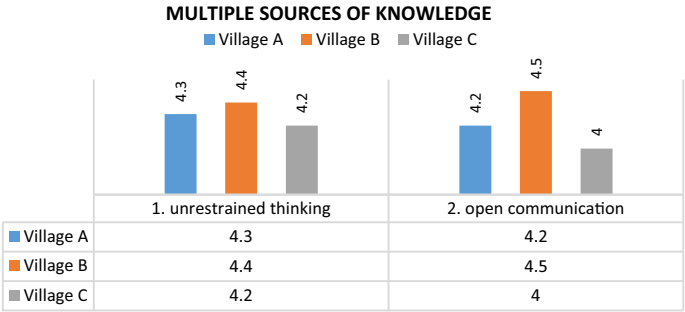

Fig. 6 Multiple sources of knowledge scores for each village

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program in Village A is proceeding well and achieving its objectives can be seen from the following conditions that exist in this village:

1. When the government devised a land rehabilitation program that involved planting a million trees, the community in Village A devised their own way to implement the program. They chose not to plant the seedlings provided by the government because these were considered to be low quality seedlings that would produce poor long-term growth and production outcomes. Instead, members of the CF group voluntarily contributed to the purchase of higher quality seedlings. By planting these higher quality seedlings, it is expected that the long-term growth and production outcomes will be improved.
2. Members of the women farmers group in Village A already had a good understanding of the benefits of their economic activities (e.g. the drying, milling, packaging and selling of regular coffee and civet coffee). At the end of each year, this group distributes the appropriate share of their profits to all members, other groups in the village, and the village's government treasury. This group has also often attended CF training programs, including training about the principles of benefit sharing that will support the sustainability of their economic activities. As a result, the group has proven that benefit sharing can help the whole community and the village government develop a sense of belonging in the business so that their business remains a viable undertaking.
3. The relationships between Village A's CF group members and facilitators or other external actors have been very good. The group's relationship with the facilitator is well-entrenched, so that even though the project has now ceased there remains good communication between the two parties. This positive relationship is lasting because trust among the two parties is high. According to Wagner and Fernandez-Gimenez (2008), trust will help a program run more effectively, thereby enabling the program to achieve its objectives.

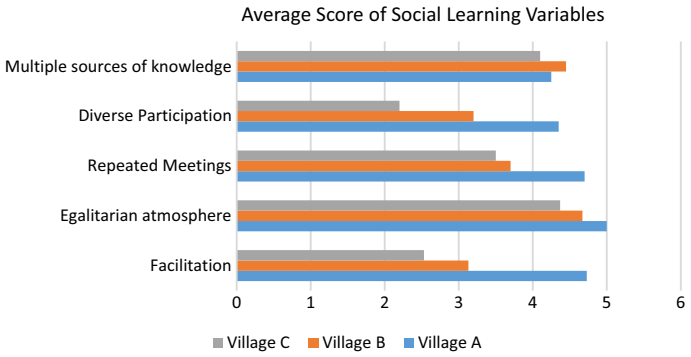

Fig. 7 Average scores for each social learning variable at each village

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Conclusions

Among the three villages where the four social learning variables were assessed (i.e. facilitation, egalitarian atmosphere, repeated meetings, and diverse participation), the CF group in Village A had the highest average scores. Village B had the highest score for multiple sources of knowledge. In Village A, results for the facilitation by external actors, the participation of group members in implementing the CF program, and the active involvement of its group members in every meeting were better than Villages B and C. The CF group members actively participated in group activities because they had already experienced the benefits of being a member of the CF group, especially in terms of increased income to support their livelihood. These benefits made them also actively seek information on their own from various parties such as extension agents, forestry services, NGOs and universities to improve their production of forest products. In addition, the community in Village A had a good understanding of gender, age and socioeconomic status equality in CF management. Hence, the egalitarian atmosphere among the CF group in this village allowed members to express their opinions without hesitation, regardless of whether they were male or female, young or old, and rich or poor. These results have proven the importance of social learning for the development and implementation of CF programs.

The differences in the importance of the social learning variables between the three studied villages were based on the differences between the CF groups and their locations. It is therefore evident that different CF groups in different locations will require differing forms of support to help them achieve SFM. Further research into the processes and outcomes of social learning within different CF groups could assist external actors and government at local, national and global level in developing such site-specific CF support programs. A proper understanding of CF groups' social characteristics can make SF program more efficient in terms of funding and more effective in achieving its goals. It is proven by situation in China where its natural resources are managed traditionally-based on its local value, resulting solved collective action problems and efficient usage of its natural resources (Luo et al. 2015). While in Nepal, Adhikari et al. (2016) stated that a weak social culture in a community may cause a minimum achievement of CF's program goals.

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