Promoting Collaboration in Supporting the Sustainable Governance of Educational Forest Areas

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ABSTRACT

Agroforestry is designed to offer benefits to communities and improve community welfare. This research focuses on collaborative governance theory that intends to understand the history and management of agroforestry systems in UB Forest and related issues during the transition from Perhutani management to Universitas Brawijaya. The purpose is to understand issues related to agroforestry policies and regulations from the central/local government. This research adopts and confirms the theory developed by Ansell and Gash regarding collaborative governance. Case studies, including interviews, observations, and documentation were used in this research. The Mcnabb model technique was used in data analysis. The results show that the natural conversion of forests into agricultural land causes many problems, such as decreased soil fertility, erosion, extinction of flora and fauna, floods, droughts, and even changes in the global environment. It can be concluded that there are still some issues related to communication and commitment to the process. UB Forest adheres to the ministerial decree and the three pillars of higher education, but other actors have not committed because there is no written regulation.

Keywords: Agroforestry, Continuous development, Collaborative governance, UB Forest

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INTRODUCTION

Developing agroforestry provides people benefits to improve their community welfare, primarily for farming communities in rural areas. Agroforestry can help people to optimize the sustainable result use of land to guarantee and improve the needs of people and increase the capacity of human ecology, social benefit, and profitability (Paudel et al. 2022; Castle et al. 2022). For some developing countries, the mandate of implementing an agroforestry system is to guarantee and improve food needs on an ongoing basis (Maydell 1986). Widayati (2013) states that there is a tendency for the use of conservation lands to become agricultural, plantation, and industrial land, including property, which naturally impacts sustainable land use. Agroforestry can be the most appropriate strategy to increase the productivity of forest land because it provides a connecting function to meet the needs of agricultural land while conserving forest resources (Rohadi and Herawati 2014; Surya et al. 2020).

One of the educational forests in East Java is the UB Forest, which is an educational forest. UB Forest is an education and training forest located in Malang City. It is precisely on the slopes of Mount Arjuno, in Tawangargo Village, Karangploso District. The declaration of the UB Forest is a form of community service for the academic community. With the existence of UB Forest, it is hoped that it can become a research area (field laboratory) that produces competitive products at the national and international levels. The development of the UB Forest area is to increase the productivity and income of the local community. Before becoming an education and training forest managed by UB, the forest was an area of approximately 554 ha managed by Perhutani. In 2016 the management rights of the forest was transferred to UB and it was made as an education and training forest. The inauguration was approved by the Minister of Environment by issuing Decree Number: 676/MenLHK-Setjen-2015 on December 31, 2015. There are many educational forests whose managements are officially/legally carried out by universities or colleges and spread in all regions in Indonesia. A problem that often arises is that there is no specific legal policy regulating educational forests and used in their management. In some cases, there are overlapping policies so that the implementation is not appropriate or not capable to achieve the set goals. Therefore, a collaboration between actors are needed in realizing the Sustainable Education Forest Goals. One of the conditions is that UB Forest has the desire to facilitate coffee farmers in the forest area, but they do have limited mechanisms (Fiulaizi, Sujarwoto, and Sentanu 2021). The purpose of this study is to understand issues related to agroforestry policies and regulations from the central/local government and their consequences for the management of UB Forest; to identify the main stakeholders and actors in the management of UB Forest; and to investigate their perceptions that have the potential to influence involvement in the agroforestry system.

Collaboration is a form of process in which entities share information, resources, and responsibilities to jointly plan, implement and evaluate a program of activities to achieve common goals (Camarinha-Matos & Afsarmanesh, 2008). According to Ansell & Gash (2007), the collaborative governance model consists of four primary variables: initial condition, institutional design, leadership, and collaborative processes.

Research on collaborative approaches explains that collaboration includes mutual involvement of participants to solve common problems, needs mutual trust, and requires time, effort and dedication. In collaboration process there is a sharing of risks, resources, responsibilities, and rewards (Castañer and Oliveira 2020; Gazley 2016). The collaborative governance theory approach from Ansell & Gash (2007) aims to develop a collaborative governance model to support UB Forest's sustainable agroforestry. The aim of the research to understand issues related to agroforestry policies and regulations from the central/local government.
RESEARCH METHODS

Qualitative methods are research procedures that produce descriptive data in the form of written and oral words from people and observable behaviour (Mohajan 2018). In line with this definition, Tenny et al., (2023) state that it is a type of research that explores and provides deeper insights into real-world problems. The analysis was conducted by structuring analysis based on the stages in soft systems methodology (SSM). SSM supports exploration of problem situations by evaluating challenges beyond predetermined characteristics (Grösser 2017). This collaborative and problem-solving approach can improve the decision-making process (Pasape, Anderson, and Lindi 2013; Yusal et al. 2021; Yadin 2013)

The research was conducted in the 2019-2020 period. Data collection was carried out through primary and secondary data obtained from interviews, observation, and documentation. The interview was conducted openly, involving several parties from UB Forest management, farmers as land processors, and the community who knew the conditions of the UB Forest area. During the interview, the researchers asked questions directly to the informants based on the list of questions which were prepared beforehand. The entire interviews were recorded with a recorder smartphone application and presented on interview transcript form. The observation was conducted through a direct role/non-participant observation. In the documentation phase, the researchers obtained a document in the form of a 2015 UB Forest master plan which included concepts for managing UB Forest in the next few years. Internal documents and photos were obtained directly with a cellphone camera and several documents were obtained by the researchers by accessing websites, laws, regulations, journals, and news articles that were relevant to research on the implementation of educational forest policies.

RESULTS AND DISCUSSION

Agroforestry of UB forest

Before UB forest obtained its management rights from the Minister of Environment and Forestry in 2016, the farmers on site had already implemented an agroforestry system, which was growing coffee as a crop.

"This agroforestry system has already existed since it was held by Perhutani (minister of environmental forestry) until now. Since that time, we have planted coffee."

That statement is also supported by an interview with the field coordinator of Sumbersari and also the management of UB Forest, in this case, the Research manager and Development Manager who explained that,

"Yes, Perhutani's agroforestry existed earlier. Agroforestry employed forest area between major trees."

Additionally, another UB forest management informant also contributed to the discussion.

"I think the initial history is only related to the coffee community; this location has characteristics. I suppose it is based on studies from previous land majors. In that case, it is related to forest management and the community, where the Perhutani location can be cultivated or managed by the community. However, this community can plant anything under the stand, where they must maintain it, and this stand depends on the arrangement by Perhutani".

Thus, based on statements from the three informants mentioned, it can be concluded that the agroforestry system has existed since Perhutani until now, where it is related to community forest management for the local community welfare. However, one of the UB forest management explained there were problems based on the local community's management related to what plants found in the agroforestry system.

"Well, apparently, some are mainly underneath pines from this characteristic. If it is pine, the sunshine can still pass for a few percent, but if it is under the mahogany tree, it is almost shaded. Therefore, the pattern of management also follows it. The only problem
is that the farmers there are already familiar with the pattern of vegetable management. It is a big issue because if the vegetable pattern is from the side of the vegetable growth, the sunshine must be abundant. In some areas of Malang, people are already accustomed to vegetable patterns. When they bring vegetables into the forest, yes, vegetable cultivation, and if the land is closed, they automatically cut it like that."

Apart from the statements that support each other between the statements of the three informants, there are issues related to crops planted by farmers to prosper the community. Based on the statements from each informant, it can be said that the data are consistent and complementary and support each other's statements.

**Sustainable Agroforestry Management of UB Forest**

Information related to sustainable agroforestry management of UB forest was obtained by researchers based on primary data. The interview was conducted with informant 1 of UB forest management, informant 2 of the UB forest Field Coordinator, and informant 3 of the farmer. A member of farmer group of the 81st plot explained that:

"Yes, we as a farmer want to do better, Sir. If they can facilitate (us), such as seeds, since seeds and others will cost money."

The statement above was reinforced by field coordinator’s statement:

"Yes, in this case, for sustainability, we (farmers) want assistance or facilitation such as seeds, loans for maintenance, accordingly."

Based on the statements of the two informants, they indicate that farmers and local communities hope to have a better chance when UB Forest was taken over. Nevertheless, it still cannot be done by UB forest management. According to UB forest management, it was stated that:

"When we went there, at first, there were many times when we interviewed the farmers, and they were optimistic with the assumption that everyone was helped, such as with financial assistance and seed assistance, accordingly. We had a mechanism, but we had limitations in that mechanism at that time; if we did not want to establish a cooperative and so on. It turned out that cooperatives were not possible under UB forest BUA. So, finally, it was stuck, while farmers indeed need the financing in the field."

Regarding assistance related to the management of coffee plants, UB forest still does not find the right solutions. Regarding the conservation of natural resources, UB forest management added,

"For sustainability, it maintains the composition of wood and plants underneath and manages the wood sustainably. Therefore, the natural environment is maintained first, and the community's economic principle is guaranteed sustainable."

According to the statements from the previous interview that different informants highlight that sustainable agroforestry has not been adequately implemented. Apart from the statements that support each other, there are issues related to crops planted by farmers to prosper the community. Their statements can be said to be consistent and complementary and support each other's statements.

**Form of Collaborative Governance for Sustainable Agroforestry of UB Forest**

In terms of starting conditions, it can be seen that four actors are from UB Forest, farmers, students, and the village government. Therefore, the researchers interviewed the 'main actors' in forest management. The interview was conducted with the R&D of UB Forest. The following is the result of the interview:

"After the forest was given to the UB Forest by the Ministry of Environment in 2016, everything was transferred to UB, and the UB Forest team manages it. Thus, the UB Forest team fully manages it with its vision and mission following the Letter of the decree from the minister, which is a forest area with a specific purpose of education and training.
and adapted to the three pillars of higher education."

Then the researchers also interviewed a farmer, a person living around UB Forest. The result of the interview is as follows:

"So, when the forest was managed by Perhutani, there was a form of cooperation with legal parties, namely LMDH, by forming farmer groups with a division of 70% and 30% to Perhutani, and it was subdivided 5% to villages and 5% to Mustika and the rest only to Perhutani. When it was switched to UB Forest, everything is managed by UB forest itself, so the actors involved here are UB Forest itself and farmers with 70% and 30% shares to UB forest."

Furthermore, the researchers interviewed UB students, science and social students. They had different opinions. The following is the result of the interview with them:

"as a science student at the beginning of my study. I did not know about UB Forest, but when there was a practicum, I just knew the name UB Forest because of my practicum and research. I did not know what UB Forest was, and I did not know its function. I just found out about it. My knowledge about the forest is very poor. Is it possible because I am a social student, so I have never had anything to do with UB forest."

In addition, the researchers also interviewed the village government, represented by his village secretary.

"From the beginning, it was managed by Perhutani, and we did not participate in the management of sustainable agroforestry as well as when UB Forest took it over. We serve just when we request permission, but for the rest, there is none."

It can be concluded that the form of collaborative governance for subsistence agroforestry in the UB forest has not been fulfilled or does not occur because from the beginning, since the forest was taken over by UB Forest, everything is managed by the UB Forest team. Farmers can no longer play some roles as before.

Facilitative Leadership

The researcher then interviewed the UB forest related to facilitative leadership. The interview was conducted with the R&D of UB Forest, and the following is the result of the interview:

"The UB Forest staff maintains the woodland before it is relocated to UB Forest. There is an annual labor gathering, and this year's is on December 14. Thus, we shall analyze what has and has not been done in the future."

Then, we checked that information by interviewing the community who also worked and needed the existence of the UB forest to live. We interviewed a member of farmer group regarding facilitative leadership:

"UB forest has never facilitated the development of commodities, for example, coffee, and there is no such thing as a significant seed which was not facilitated by the UB forest."

According to the previous argument, helpful leadership in the form of collaborative governance for agroforestry sustainability in the UB forest has not been accomplished. It is supported by field interviews with UB forest managers and farmers.

Institutional Design

Institutional design is one crucial point that must be explored to find the form of Collaborative governance for sustainable agroforestry of the UB forest. Then the researchers interviewed the UB forest management:

"UB forest does not have a mechanism that is accepted either by pesanggem farmers (UB forest landowners living outside the UB forest area) or magersarens (land managers living in forest areas / UB forest)."

The researchers also conducted interviews with farmers to learn more about institutional design.

"UB forest regulation is insufficient, and unregulated laws associated to its management have not been applied yet. Thus we do not know what to do if we want anything."
Based on the interview data with UB forest management, it can be concluded that it has not had a mechanism that farmers can accept well. In addition, there is no transparency between UB forest and farmers.

**Collaborative Process**

**Face To Face Dialogue**

Face-to-face dialogue is essential to the collaboration process because it is expected to minimize unwanted problems. The researchers interviewed UB Forest management. The following is the result of the interview:

"UB Forest is still new, so it is still figuring and adjusting itself. In addition, it needs a leader who can indeed lead, so in every problem, we come down directly, so this manager and the deputy director come down to finish it, yes finally finished it."

Then, the researchers interviewed the community to know whether the community such as farmers are ignored as stakeholders.

"UB has never consulted with farmers; I do not know what to do; I mean, UB also manages a state forest. Well, we also manage state forests, so I mean UB is not UB forest should it be interfering. For example, UB management can go here; at least there is a representative from UB, or the other way around, we, farmers, are invited there."

The statement demonstrates that UB forest's collaborative governance for sustainable agroforestry is inadequate. Data showed farmers did not make any decisions.

**Trust Building**

The researcher interviewed the UB forest to find out the trust building carried out in the management of the UB forest. The following is the result of the researchers' interview with the UB forest:

"For example, for the electrical issue, we offer Sumberwangi since it is in the center, so it spreads effectively. The residents of Sumbersari have submitted the request without our knowledge. Again, it turns out that we already have inquired with a report by calling Mr. G if he wants to install electricity. He said it is easy to deal with Brawijaya, so he does not permit us; again, there is a communication problem. Well, this is our meeting in the last village meeting in the rectorate; it has been decided to be OK; we know that the poles are already stuck all in Sumbersari; it turns out the village has approved them. Well, the village may have thought to have received permission from the village chief to approve the UB forest from the village chief to PLN. Well, this PLN knows that the village chief had already agreed, so the power poles are installed."

Furthermore, from the farmers’ side, as a community that lives so close to the researchers’ location, the researchers conducted an interview related to trust building.

"There used to be a problem related to electricity development. In his opinion, electricity is not only for the people but also for students who come to visit here. UB pledged to build it for many years, but there was no movement. Finally, I submitted the proposal to the government. However, the UB forest was stopped. Finally, I sent a letter to the UB Forest to make an appointment to meet, but they did not attend. Then, I sent an invitation to the rector. Then, there was a meeting with all the forest employees, the community, and the village chief. Finally, the rector gave 100% smoothness of the free electrical installation due to the budget availability. Other than that, yes, maybe in terms of coffee that stands out, the management and the approach are absent, even with the coffee farmers and the direct ubiquitous parties. We are not well connected yet."

Based on the interview with the management of UB forest, there is a communication problem between field supervisors, in this case, supporting farmers with UB forest. There are also differences between the versions of both UB forests and farmers. In addition, UB Forest and farmers have differences in vision and mission. Therefore, it can be concluded that there is no trust between them.
Commitment To Process

Related to commitment to the process, which refers to consistency and compliance with implementing the collaboration process. The researchers interviewed the UB forest, and the following is the result of the interview with the UB forest:

"Yes, it is following our vision and mission, so we are committed to following them; we can stay on track."

Furthermore, the researchers also interviewed the farmers concerning about the commitment to the process carried out in the collaborative process. It determines how the form of collaborative governance for sustainable agroforestry of UB forest is carried out.

"There is no commitment that occurs because there is no clear mechanism that can be accepted by themselves. Yes, at this time, we share the results."

According to the statement above, collaborative governance for sustainable agroforestry in the UB forest has not been implemented yet as illustrated by the interview.

Shared Understanding

Shared understanding must be done in the collaboration process. In this case, various understandings must be discussed to be used as a reference by each relevant stakeholder or actor. The following is the result of the researchers’ interviews with UB Forest:

"This vision and goal are in contrast with Perhutani and may affect the community. What has changed? Even if the state of the original production forest is permitted, UB is not authorized to harvest the wood, which occasionally generates issues in the community. After handed over to UB, it has become a forest area with special purposes under government regulation no. 15 of 2018, including Kawasan Hutan dengan Tujuan Khusus/KHDTK (Forest Areas with special purposes) for research and development, religious and socio-cultural purposes, and education and training, possibly adjusting to the three pillars of higher education."

Furthermore, the researchers also interviewed farmers to find out how shared understanding was carried out.

"So, as farmers, they also know why UB manages this forest, but the understanding is different. There are those whose understanding is right on target, and some others’ understanding has different interpretations. There is an impression that wants to save the forest from individual behavior."

DISCUSSION

![Causal Loop Diagram Existing Model of Collaborative Governance](source: Processed data, 2019)

Figure 1. Causal Loop Diagram Existing Model of Collaborative Governance

**Ideal Model**

Based on the widely used ideal model, which is collaborative governance model from Ansell and Gash that the researchers have described in the research results, there are six criteria (Ansell & Gash, 2007). First, a forum is
initiated by a public institution. Second, participants in the forum must include non-governmental actors. Third, participants must be directly involved in policy making, not just in consultation with the government. Fourth, it criteria that must be formally organized. First, the forum is initiated by a public institution. Second, participants in the forum must include non-governmental actors. Third, participants must be directly involved in policy making, not just in consultation with the government. Fourth, it must be formally organized, and regular meetings must be held. Fifth, policies are taken based on consensus. Sixth, the collaboration focuses on public policy or public management (Ansell and Gash 2007).

**Existing Model**

The existing model is a collaborative governance model that the relevant stakeholders have implemented in carrying out daily tasks. The researchers interviewed R&D manager of UB Forest; she stated that

"The collaboration carried out to manage UB Forest is based on the decision of the Decree of the Minister of Environment, which was announced officially in 2016 as an educational forest managed by UB".

Therefore, all management is carried out by UB Forest, and there is no collaboration with the village government and the surrounding community. UB Forest only gives responsibility to the community by distributing electricity to the communities around UB Forest. The researchers also conducted interviews with the community/farmers around UB Forest.

"UB Forest fully manages the forest without involving the community and village government."

Before UB Forest managed it, this forest area was managed by Perhutani. In the past, Perhutani still freed farmers in agroforestry and involved the community and village government in forest management. However, now after becoming an education forest, the forest is entirely used as an educational forest to support students' research only.

In the collaborative model causal loop diagrams (CLD) above, the researchers form an arrow line as a causal relationship between variables after determining the variables. After that, it can be seen on every arrow that there is a positive sign (+), meaning an increase in the cause variable will increase the effect variable and the causal relationship in the same direction. While the negative sign (-) means an enhancement in the cause variable decrease the effect variable and has a causal relationship that is in the opposite direction.

**Recommendation Model**

The model recommended by the researchers refers to the collaborative governance theory of Ansell & Gash (2007), namely the collaboration process, which consists of face-to-face dialogue, trust building, and commitment to the process. Also, shared understanding, intermediate outcomes (joint fact-finding and strategic plans), and the main targets of agroforestry include: increasing land productivity, increasing the social economy (income and welfare of the community), and ensuring the preservation of quality natural resources and the environment. The researchers recommends the following collaborative governance model at implementing sustainable agroforestry of UB Forest.

![Figure 2. Causal Loop Diagram Recommendation Model Collaborative Governance](Source: Processed Data, 2019)
In addition to the elements above, there are several actors that the researchers recommend as a part of a collaboration model to support sustainable agroforestry in the UB forest, namely UB forest management, marketing, farmers, and village government. As is the case with the existing model of the Causal Loop Diagram (CLD) collaborative model above, the researcher forms an arrow line as a causal relationship between variables after determining the variables. After that, it can be seen on every arrow that there is a positive sign (+), meaning an increase in the cause variable will increase the effect variable and the causal relationship in the same direction. While the negative sign (-) means an increase in the cause variable will make a decrease in the effect variable and have a causal relationship that is in the opposite direction or is not good.

CONCLUSION

The form of collaborative governance to support sustainable agroforestry in UB Forest is related to the collaborative governance to support sustainable agroforestry in UB Forest. According to Ansell & Gash, which includes face-to-face dialogues in its implementation, none of which is exposed in the presentation of the result of interview data with several informants.

There are still several issues related to communication problems and others. In terms of the commitment to process, UB Forest adheres to the ministerial decree and the three pillars of higher education, but other actors have not committed yet due to the absence of written regulations. There is no shared understanding in the implementation, and it is because some farmers still need to understand the vision and mission of UB Forest itself. Researchers suggest a form of collaboration to support sustainable agroforestry by including the roles of local communities or farmers and other actors in it. There is a need for regulation between UB forest management and the local community so that they can co-exist without benefiting one party only.

Activity related to trust building has not been implemented yet. Communication between the two sides is the key to implementing sustainable governance. UB as manager must formulate a form of collaborative management while still referring to the applicable rules.

REFERENCES


