The Role Of Inter-Sectors In Agroforestry Development In The Community Forest Environment, Pacitan District

Anang Susanto[1*], Marti Winarni Susanto[2]

[1,2]Departemen of Agricultural Science, of Merdeka Madiun University,Madiun East Java, Indonesia
*Coresponding Author:
Email:Asmadiun@yahoo.com

Abstract.
Communities around the forest need to be encouraged in the development of forestry plants by the community either independently or with the assistance—of the government so that environmental sustainability can be adequately controlled. The development system carried out by the community, in general, is a hybrid system or better known as the agroforestry system. This study aims to identify sectors related to efforts to develop forestry plants.airly well-established economic condition. Development of forestry plants with this system . However, few people also develop a monoculture system, especially those with large enough land and who do not depend on the ground. Building role synergy between sectors supporting the development of forestry plantations is urgently needed to increase the quantity and quality of raw materials to meet the needs of the timber industry, both locally and nationally. Three critical sectors that must synergize in supporting the development of forestry plantations by the community are research and educational institutions, the government, and the market (industry). These three sectors are expected to be able to build attractive incentives for the community so that the community continues to preserve timber plants. Research and educational institutions can provide information and technology related to efforts to increase forestry plant production. Both information and technology from social, economic, and silvicultural or cultivation aspects. Information and technology produced by these research and educational institutions can be used as input and consideration for the government in formulating programs and policies related to developing timber plantations on private land. Through the formulation of its policies and work programs, the government is expected to initiate, facilitate and assist the community in developing forestry plants. Furthermore, the market sector, especially the timber industry, must be encouraged to create a conducive post-harvest climate so that the community continues to be motivated to increase the production of raw wood materials.

Keywords: *Community, agroforestry, economy and silviculture.*

I. INTRODUCTION

The development of agroforestry systems to date has been quite successful by involving several sectors, both from the community and the government. The community mainly chooses support from all sectors in developing agroforestry systems. The implementation of their activities mixes forestry plants with plantation types or agriculture. It is hoped that in addition to obtaining the final product in the form of wood, they can also earn income from short-cycle plants to meet their daily needs. To improve people's welfare [1], the agroforestry system is not the only system used by the community, and some communities develop monoculture systems. Communities that choose this system own large tracts of land and do not depend on the ground for their subsistence needs. Communities that build forestry plants of the local species Albizzia with a monoculture system are those who own more than one plot of land and have an f agroforestry. Monoculture is expected to play a role in meeting the national demand for carpentry timber. This is caused by the decreasing ability of natural and plantation forests to supply raw wood materials for industry. Community forests have an essential role in meeting the demand for wood for the timber industry[3].

The increasing demand for meeting economic needs has influenced some people to change the composition of the plants on their land. It is common for people to sell their land to newcomers so that the land originally planted with an agroforestry system and planted monoculture forestry is converted into housing. If this continues to occur, the sustainability of forestry plants will be threatened, and as a consequence, the availability of raw wood materials will also continue to decrease. Furthermore, the quality of the environment will also decrease because forestry plants that function to absorb carbon and increase the ability of soil to store water will no longer exist. So it is necessary to establish partnerships to carry out various research [4]. The area of forest plantations on private land should be a concern for various related sectors. The synergy between these supporting sectors must be built so that in the next stage, it can carry out

its functions to support the development of forestry plantations on community-owned land. This study aims to identify sectors related to efforts to develop forestry plants.airly well-established economic condition. Development of forestry plants with this system.

II. DEVELOPMENT OF FORESTRY PLANTS ON LAND OWNED BY LOCAL COMMUNITIES

The needs of the community around the community forest, with their local wisdom, initially planted wood to prepare to repair houses whose wood had rotted or to prepare to build homes for their children and grandchildren [2].. The austere conditions that the community lives in develop timber plants only through natural seedlings that grow on their land. Gradually, the goal of increasing wood for the community began to shift to economic goals. The increasingly high price of wood motivates people to plant more timber on their land. Cultivation methods by the community have also begun to change, and the community has already started to grow wood deliberately, where the seeds come from natural saplings or nurseries. The farming community's planting process activities have full rights to choose the types to be planted on their land.

Their preferences for planting the species generally depend on the family's subsistence needs and environmental factors (e.g., the types produced by their predecessors, neighbors, and also types that have high economic value) to solve various problems [5]. Be the best choice for farming communities with limited land ownership and high dependence on land to fulfill their subsistence needs. Meanwhile, planting wood in a monoculture system is the right choice for people who have large enough land and do not depend on the ground to meet their needs. Because the maintenance of woody plants is relatively easy and does not require intensive care, for people who have jobs other than farming and have limited time to manage their land, this will be profitable for them

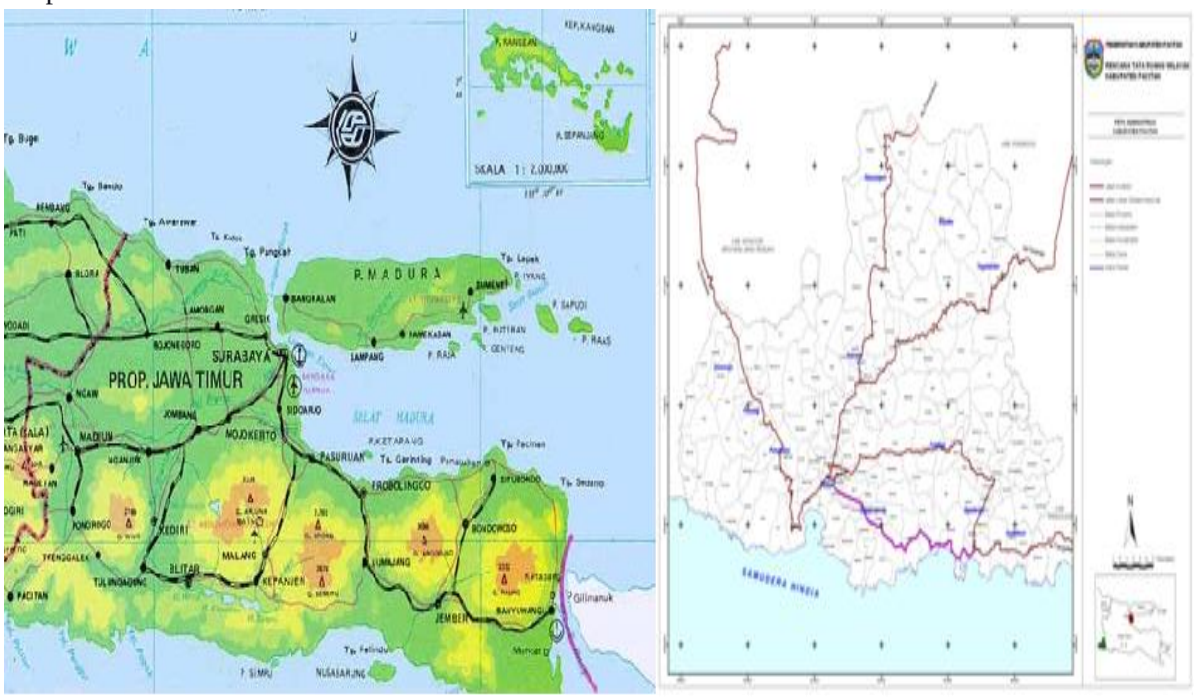

Fig 1. Map Development of Forestry Plants on Land Owned by Local Communities In Pacitan

The types of timber plants developed by the community in each region are generally different. The reasons for farmers growing timber plantations include obtaining additional income, soil conservation, house construction materials, and maximizing the use of their land [6]. Meanwhile, another motivation is economic motivation, in which the community believes that planting timber will provide benefits [7]. Examples of success in the development of forestry plants by some community members have also become the primary motivation for other community members to participate in developing these types of plants specific forestry.

III. DESCRIPTION OF THE SUPPORTING SECTOR OF FORESTRY PLANT DEVELOPMENT ON COMMUNITY OWNED LAND

The quantity and quality of forestry plant development on private land, apart from depending on the land owner, is also influenced by several related sectors which act as incentives for the sustainability of forestry plant development. These sectors include research institutions and education, government, and market (industry).

1. Research and Education Institute

Mastery of science and technology owned by research institutions and education, whether owned by the government or private, can be a driving factor for the development of forestry plants. Through their research results, research and educational institutions play a role in increasing the effectiveness and productivity of forestry plant products on private land. Among other things, effective silvicultural techniques are to be applied by timber farming communities so that farmers can increase the productivity of their land. The community urgently needs silvicultural procedures regarding nurseries, planting, determining plant spacing, fertilizer doses, maintenance techniques, and harvesting. Because so far, the district has only learned from their ancestors and neighbors to plant wood trees. They often pay less attention to the silvicultural techniques that should be applied. Planting spacing that is too fast results in less growth of woody plants (the diameter of the wood remains small and needs to balance with the increase in the height of the wood). This happened because the community thought that the more trees planted, the greater the wood yield. Even though the spacing is too tight will hinder the development of plants and ultimately reduce the wood's economic value. Apart from planting spacing, several other silvicultural techniques also need to be socialized to the community so that efforts to develop timber plants are carried out to obtain optimal results. So that the level of wood productivity developed by the community is higher, it is still necessary to introduce technology from research and educational communities [8].

Efforts to increase the productivity of economic activities in the community require technological advances, which can be fulfilled by existing research institutions [9]. Disseminating the results of research on silvicultural techniques involves the role of extension workers in the field. Because extension workers in the area are generally well known by the community, it is hoped that what is conveyed by the extension worker will be readily accepted by the farming community and then implemented. This is where the importance of cooperation between the government, in this case, the extension workers, and research and educational institutions is. So it is hoped that the results of existing research will be more effective and practical for the development of forestry plants and for improving people's welfare[10] Apart from the silvicultural field, the results of research on the social economy of the community are also very much needed. For example, knowledge of the community's local wisdom for planting, the socio-economic conditions of the community, the level of community adoption, the community's preferences for certain types of forestry plants, as well as knowledge of the culture of the local community also need to be known. This is necessary for the government to formulate policies and strategies to develop forestry plants. So that policies and procedures are drawn up can be more applicable, effective, efficient, and on target and can subsequently provide positive results and satisfy various parties. Therefore, any information and technology produced by research and development institutions must be well-socialized to related parties, especially the government and the user community.

2. Government

Government support in developing forestry plants on private land is quite large and significant; this is due to the government's ability to influence the community and the authority to implement policies in the community. The scope of this government sector is comprehensive, starting from the central government (national) to the regional (local) government. The central and provincial governments, through various programs that have been set, can increase people's preferences for planting Trees. For example, the People's Nursery Program (KBR), community forestry, and community forest programs. Table 1 is an example of the increasing number of government programs in the form of People's Nurseries (KBR) developed in East Java.

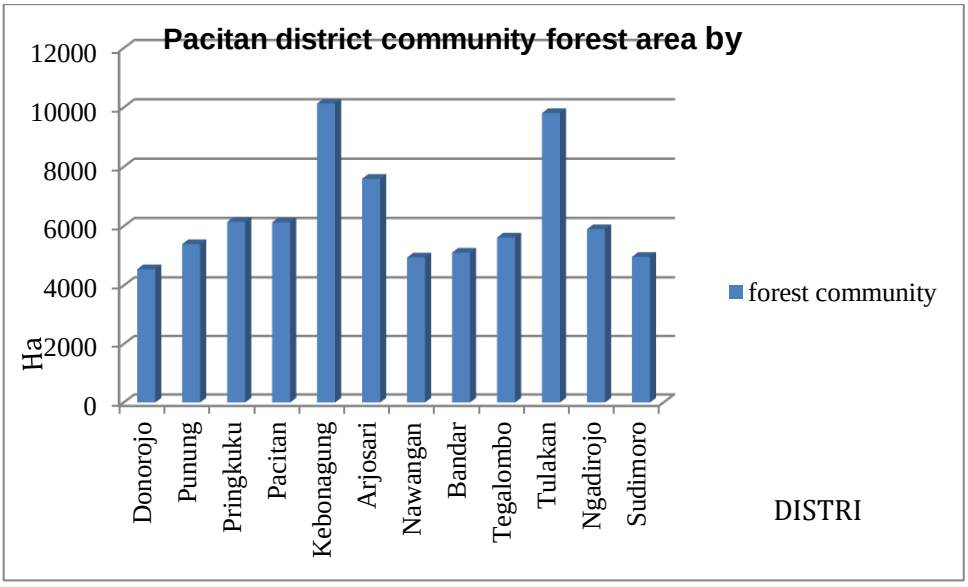

Fig 2. Pacitan district community forest area by 2022

Assistance in the form of seeds handed over free to the community is expected to increase public interest in planting trees, moreover, with the existence of extension programs that are increasingly being carried out in various regions. Knowledge and information about the importance of planting trees and the benefits obtained are the primary motivation for the community to develop forestry plants on their land[15]. This is due to the socio-economic conditions of the local community as landowners, most of whom are farming communities and depend on the ground for their livelihoods. Therefore, it is hoped that the management of private land with an agroforestry system and the application of an intensive silvicultural system can be carried out by the community because agroforestry provides higher land productivity, more economic benefits, as well as more significant and more sustainable social benefits [11]

The government at the regional level also encourages people to plant forestry plants through several local policies. With the existence of price guarantees as well as ease in wood administration, it is hoped that it will increase public interest in developing forestry plants. The government can facilitate this by implementing a forestry market development strategy to support producers with low-income levels. So that in the end, the goals of all parties can be realized, namely timber preservation and community welfare.The role of the government in developing forestry plants is significant because, besides authority (power), the government also has control over funds which can then be allocated through its programs to encourage people to plant wood[12]. Furthermore, in its implementation, the government can promote the industry (market) and research institutions to work together and create incentive mechanisms that suit the needs of timber farmers. So timber farming communities are encouraged to preserve forestry plants on their land.

3. Industrial Raw Materials

The high demand for forest wood is one of the motivating factors for the community to develop forest plantations' market availability of industrial raw materials. High demand for wood that is not matched by the availability of raw materials can further increase the price of timber in the market. Ho[16]wever, in some cases, this is different from the point that applies at the farm level. Larger margins are enjoyed by more timber traders, ranging from wood collectors to owners of long timber or furniture industry owners. This condition occurs due to limited market information owned by farmers. This is coupled with economic limitations so that if there is an urgent need, such as for education, marriage, or health expenses, farmers will be willing to sell their wood even at meager prices [13]. The low price received by timber producers and the non-transparent timber market are problems that often arise in timber marketing in the field. Timber traders often use farmers' limited information and economy to gain the maximum profit[14].

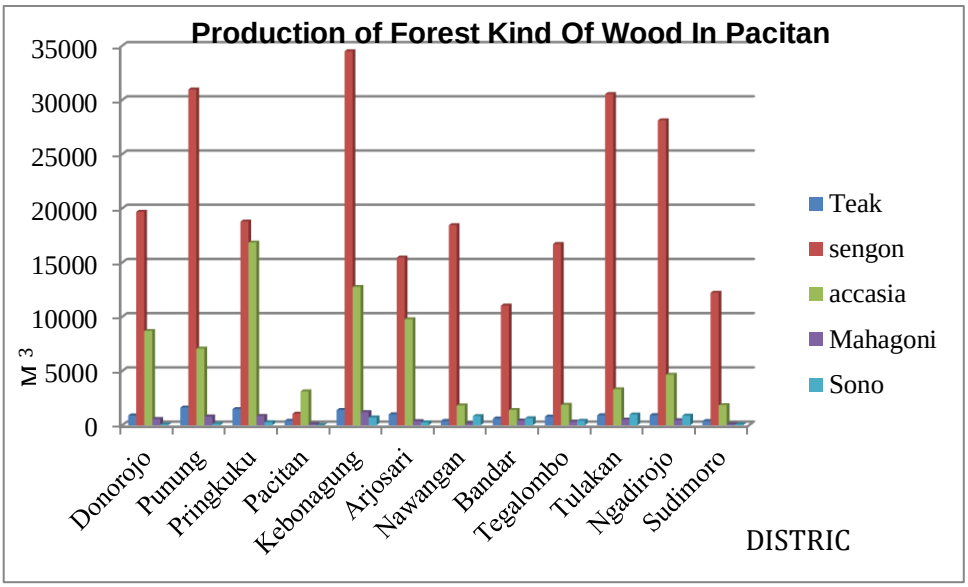

Fig 3. Production of Forest Product by Subdistrict and Kind of Wood in Pacitan Regency, 2022

This becomes a disincentive for the development of forestry plantations because, in the end, the community will realize that the sacrifice they have made so far is not worth the value of the benefits they get at the end of the timber harvest. The government's role is needed to avoid and minimize disincentives that occur in the field through existing policies and programs. Providing free forestry plant seeds, determining the introductory price of wood at the farmer's level, and facilitating timber administration are important policies the government can take to support farming communities in developing forestry plants on their land. So far, this role has yet to be felt enough by the farming community, so there is a need for a synergy of functions between the government, research, educational institutions, and the sector industry.

IV. CONCLUSION

With all their wisdom, local people have been able to develop forestry plants. This genetic heritage started from efforts to fulfill their needs and then turned to economic motives. System agroforestry by mixing forestry plants with agricultural and plantation crops is the leading choice for most people compared to monoculture systems. However, for the development of forestry plants by the community to increase both in quantity and quality, it is necessary to build a synergy between the roles of supporting sectors which are expected to create the best incentive system for the community. Three important sectors that must synergize in supporting the development of forestry plantations by the community are research and educational institutions, the government, and the market (industry).

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