Journal of Science Innovare
https://journal.unpak.ac.id/index.php/jsi

Volume 05, Number 02, September 2022, Page 34-39
e-ISSN: 2615-3750 ; p-ISSN: 2615-3769

THE EXISTENCE OF ALBASIA PLANTS IN CIKARAMAS VILLAGE: A CASE STUDY OF ALBASIA CULTIVATION IN CIKARAMAS VILLAGE, SUMEDANG REGENCY, WEST JAVA

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***Article history**: received 08 August 2022; revised 17 August 2022; accepted 29 August 2022* *DOI: https://doi.org/10.33751/jsi.v5i2.6348*

Abstrak. With forestry development, it is hoped that national development goals will be achieved, in particular the improvement of living standards and community welfare accompanied by improvement of their living environment. Wood is one of the main forest products, which is needed by the community to meet various needs of human life. Although nowadays there are many synthetic materials that can substitute the use of wood, the demand for wood for various purposes is still quite high and even shows an increasing demand. The benefits of this wood are growing, starting from the need for wood for energy, building materials, wood pulp, furniture, to the use of wood for aircraft fuselages. The planting of sengon trees by the community in Cikaramas Village is quite developed and is very suitable considering the topography and land conditions that are suitable for the place where sengon trees grow. Then it becomes a separate added value, if farmers/communities are able to optimize inputs for forest plant cultivation by knowing in advance the characteristics/characteristics of the soil. Albasia that developed in Cikaramas Village, is part of the knowledge system of Cikaramas Village residents about timber plants. The system is a legacy of knowledge about the types and uses of woody plants for subsistence needs used for building materials. Prior to the development of albasia, wood plants of the type of tissue, jackfruit wood, and the type of "swamp" wood had been developed and used for the needs of previous building materials. Then the development of albasia plant species, causing choices in developing woody plants to be utilized and to be developed in more intercropping systems. This allows farmers to choose based on their knowledge and experience, and choose based on the benefits and advantages derived from the timber plant, which will be developed in an intercropping system. This study uses descriptive qualitative research, researchers try to get a picture of the ongoing state of the object of research according to the actual situation, so that accurate data can be obtained with an actual picture from the analysis of the observed phenomena. Through this research, it is hoped that data will be obtained and presented through the use of words to obtain a more concrete, detailed and accurate description of certain phenomena. The development and use of Albasia in Cikaramas Village is a form of adaptation carried out by the community that responds to environmental suitability and changes. Response to information or ideas that enter the social system of Cikaramas Village, which has an influence on the ecological system of Cikaramas Village. And the socio-economic activities of Albasia gave birth to the Albasia trading network. As well as the survival of Albizia as a commodity crop under the influence of the threat of crop failure due to pests, factored in by economic sector and ecological sector.

Keywords: albasia; cultivation; cikaramas; sengon

I. INTRODUCTION

Optimal and sustainable utilization of forest resources, both direct and indirect benefits, is one of the efforts in the framework of implementing forestry development. The direct benefit in this case concerns the function of the forest as a producer of wood to fulfill various human interests. Indirect benefits include the function of forests as regulators of water systems, nature conservation, and regulators of ecosystem balance. With forestry development, it is hoped that national development goals will be achieved, in particular the improvement of living standards and community welfare accompanied by improvement of their living environment **[1]**. Wood is one of the main forest products, which is needed by the community to meet various needs of human life. Although nowadays there are many synthetic materials that can substitute the use of wood, the demand for wood for various purposes is still quite high and even shows an increasing demand. The benefits of this wood are growing, starting from the need for wood for energy, building materials, wood pulp, furniture, to the use of wood for aircraft fuselages. The use of wood to build houses, the amount of wood used is influenced by the shape of the house made, namely whether the shape of the village house or the shape of the city house, and the floor area built **[2]**.

With regard to the above, it is interesting to study the structure or pattern of wood use by the community, the types of wood used, and the volume of wood used for each form of utilization, and the factors that influence wood consumption. One type of wood that has been known by the public for a long time is sengon (*Albazia falcataria*). Sengon is a type of wood that is in great demand and widely planted by the community is sengon wood, because sengon is a fast-growing tree and is easy to sell. Sengon plant is the prima donna plant species and the most dominant is planted in community forest areas **[3]**. This aside from being a fast-growing plant, it is also

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easy to market and wide open. Various small industries processing sengon wood for various purposes have sprung up to remote villages which absorb all the supply of sengon wood from community forests. Sengon wood has good advantages to be developed, so that many sawn timber entrepreneurs use sengon wood in their business. In addition, with the increasing demand for wood for building materials such as rafters, battens, and sills, along with the increasing population of Indonesia, the demand for sawn wood has also increased **[4]**.

The planting of sengon trees by the community in Cikaramas Village is quite developed and is very suitable considering the topography and land conditions that are suitable for the place where sengon trees grow. Then it becomes a separate added value, if farmers/communities are able to optimize inputs for forest plant cultivation by knowing in advance the characteristics/characteristics of the soil. Processing can be interpreted as a process to convert raw materials into finished goods and or semi-finished goods. Semi-finished goods are goods that have been processed until the end so that they can be used immediately, while semi-finished goods are goods that need to be further processed to increase their use value. Sengon wood processing is an effort to increase the use value and added value of sengon wood raw materials (round / into finished goods and or semi-finished goods **[5]**. With the processing will produce varied products (product diversification). The addition of labor input, capital (capital) and technology in the processing of sengon wood will add value to the goods produced. The need for raw materials in the form of sengon wood for the wood processing industry is met from community forests and sengon wood of the surrounding community. The number of products produced is still very limited, as well as variations The variety of products produced include beams, boards and rafters.

Diversification of sengon wood products is intended to increase added value both in terms of value and types of goods produced. Utilization of sengon wood can increase employment and provide employment opportunities for local communities and increase the value of sengon wood itself with the variety of products produced **[6]**. Diversification of processed products, namely by processing logs or logs into blocks, rafters and boards will increase the added value of the business followed by an increase in income as well. The focus of this research is on the inventory of soil characteristics under Albasia vegetation stands and analyzing the added value of sengon wood located in Cikaramas Village, Sumedang Regency, West Java Province.

Albasia that developed in Cikaramas Village, is part of the knowledge system of Cikaramas Village residents about timber plants. The system is a legacy of knowledge about the types and uses of woody plants for subsistence needs used for building materials. Prior to the development of albasia, wood plants of the type of tissue, jackfruit wood, and the type of "swamp" wood had been developed and used for the needs of previous building materials. Then the development of albasia plant species, causing choices in developing woody plants to be utilized and to be developed in more intercropping systems. This allows farmers to choose based on their knowledge and experience, and choose based on the benefits and advantages derived from the timber plant, which will be developed in an intercropping system.

In Cikaramas Village, initially the process of moving from developing tissue types of wood or jackfruit to “swamp” wood plants, was influenced by knowledge of the quality of the type of wood used to develop (utilization of building materials). Meanwhile, the transition from developing "swamp" plants to albasia plants is influenced by the limited supply of "swamp" wood from production forests or natural forests to supply industrial needs, causing the development of fast-growing timber plants such as albasia, which has become an alternative in meeting the needs of these limited woods. not only that, the selling price of albasia can be said to be relatively higher.

Advances in technology and wood engineering have also led to an increase in demand for albasia wood species. Although “swamp” plants are more expensive than albasia, the urgent need to make people prioritize albizia over “swamp” plants, ecological influences also affect the transition, the ability of albizia to grow quickly and its cultivation is quite easy, causing albizia to be prioritized in its development. So that the benefits are obtained faster than having to wait dozens to tens of years. Both of these factors influence the shift in the development of "swamp" timber plantations to the albasia species, as well as the shifting factor from local use to external use (market influence).

II. RESEARCH METHODS

This study uses descriptive qualitative research (Simanjuntak et al., 2021 **[7]**), researchers try to get a picture of the ongoing state of the object of research according to the actual situation, so that accurate data can be obtained with an actual picture from the analysis of the observed phenomena. Through this research, it is hoped that data will be obtained and presented through the use of words to obtain a more concrete, detailed and accurate description of certain phenomena.

III. RESULTS AND DISCUSSION

History of Albasia Plant Development in Cikaramas Village

The history of the development and use of albizia in Cikaramas Village begins with information or introductions that occur into Cikaramas Village. Albizia plant is a plant originating from outside Cikaramas Village which is developed in the gardens belonging to the residents. As explained by Budiman **[8]**, that albasia is a native plant from the island of Banda (Maluku), which was brought by Tesymann in 1871 to the Bogor Botanical Gardens, so that albasia is not a native plant from Cikaramas Village, but is an external plant developed in Cikaramas Village. .

The entry and development of albizia has an influence on residents in Cikaramas Village, especially farmers (non-rice fields) who cultivate land to become gardens. Farmers who previously did not plant albasia in the intercropping

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system then participated in developing it. This is inseparable from the observations of the farmers, that albasia plants are suitable to be developed in Cikaramas Village. Albasia has the ability to grow quickly, as well as the ability to grow naturally without seeding. One of the advantages of albizia is that it can grow fast (fast growing species) in a wide distribution of climatic conditions and does not require high growth requirements (Siregar **[9]**).

Albasia is developed in the Cikaramas Village ecosystem in the form of an intercropping pattern. The intercropping system is a mixed crop form involving the involvement of two or more types of plants in one area of planting land at the same time or somewhat simultaneously. Albasia developed in the intercropping system has the advantage of being able to fertilize the soil which is then beneficial for other plants in the intercropping system. Like albizia planted and developed in Baduy (Iskandar **[10]**), this is related to the modifications and adaptations they make in their shifting cultivation system. The former shifting cultivation land that has been planted with albizia helps in increasing the fertility of the soil that has been used in shifting cultivation. So that the cultivation of albizia which was previously prohibited from planting, after they found out how the benefits of developing albizia were such as fertilizing the soil, then the cultivation of albizia was no longer prohibited.

Albasia in Cikaramas Village which is planted and developed in the form of intercropping, is a form of cropping pattern that is commonly practiced. Like a mixed garden, which is a form of land use that is planted by a mixture of various types of annual and annual plants. The intercropping system is a form of plant selection or selection. The selection of these plants is a form of adaptation by smallholders in seeing environmental conditions. Like albasia that develops in the Baduy community, the development of albasia results from adaptation to conditions or the influence of the introduction of albasia into the community, and from the selection of new plant species such as albasia which provides many benefits (Iskandari**[10]**).

Likewise in Cikaramas Village, the combination of annual crops and annual crops in an intercropping system, such as planting albasia as an annual crop was chosen because it provides many benefits. So that the plants developed in the intercropping system are plants that have ecological functions such as protecting soil fertility, as well as having socio-economic functions for the community. So that the strategy developed by combining subsistence and commercial farming is able to develop a farming production strategy that is in accordance with ecological, social, and economic conditions (Iskandar **[11]**).

In Cikaramas Village, albasia developed in the intercropping system is carried out with management involving at the family or farmer household level in processing the intercropping system. Suharjito **[12]** explains how the management of the intercropping system involves a social organization, at the family or household level which is manifested in the division of labor between men and women, parents and children. The division of labor between men and women is a form of class division based on gender. Like the land preparation process and the albasia nursery process in Cikaramas Village, there is a division of labor based on male and female gender.

However, in planting and developing trees, it does not require a large amount of labor input, such as albizia which is planted and developed in Cikaramas Village. This is a consideration for developing albasia plants in an intercropping system, because it is influenced by the limited availability of labor and work patterns in developing the intercropping system. The influence of labor availability on the choice of developing tree species in an intercropping system is also shown in cases in rural Java (Berenschot in Suharjito, **[12]**) and Eastern Africa (Warner in Suharjito **[12]**), households that lack labor in certain seasons due to migration activities tend to cultivate trees, because tree cultivation requires low labor input and provides relatively high income. So that the limited manpower in processing the intercropping system has been circumvented by the development of tree plants such as albasia.

Energy, Matter and Information

In the development of albizia in Cikaramas Village, social systems such as sharecroppers who develop albizia and ecological systems such as land or gardens in Cikaramas Village are interconnected. This relationship is intertwined with the flow of energy, matter and information. Rambo in Iskandar **[11]** explains how the reciprocal interaction between social systems influenced by cultural background and biophysical systems or ecosystems, the close reciprocal relationship between the two subsystems can run well and regularly because of the flow of energy, material, and information.

Albasia developed in Cikaramas Village is a form of material flow for the ecological system, in the form of new plants developed in an intercropping system. The flow of information also flows into the social system, where information related to the suitability of albasia plants is developed, so that the social system responds by redeveloping albasia or increasing the number of albasia planted. And this also affects the ecological system, where there is a change in land function, the grazing land that is used as a place for cattle grazing is converted into a place for growing albasia plants (gardens), so that land conversion occurs in the ecological system (ecosystem).

The albasia plant that has been developed has benefits such as its wood which can be used for firewood and the need for building materials for houses. It can be seen how the flow of information and materials also flows into the social system, the benefits of wood or the use of albasia wood in the form of wood used for residents' needs such as firewood and wood for buildings have been utilized and developed in the social system in Cikaramas Village. Not only that, the use of albasia wood used for commercial needs or for sale has an influence on the social system in Cikaramas Village, where profits from albasia wood sellers can increase or provide economic opportunities to meet other needs, such as the wood being sold generates money that can be bought or sold. exchanged for other necessities.

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Rambo **[13]** also explains how the reciprocal relationships between social systems and ecological systems also get influence from outside the system itself. Where changes in social systems can occur as a direct result of the influence of the ecosystem, and changes also occur due to the influence of other social systems. Likewise with the ecological system, the ecosystem also changes due to input from the social system, where the two mutually influence each other. Changes can occur indirectly by the influence of other ecosystems that bring about changes in species in the ecosystem that result in changes in that component.

The development of albizia in Cikaramas Village also received influences from outside the social system and the ecological system of Cikaramas Village itself. The development of albasia is inseparable from the introduction or other influences into the social system, where the development of wood technology such as the emergence of the wood processing industry in Cikaramas Village also affects the development of albasia, especially those related to the use of wood for sale. Albasia wood that has been processed into processed wood forms such as poles, beams, and boards makes it easier to sell, thus opening up market access to sell albasia wood.

This is different from the conditions before there was a wood processing industry in Cikaramas Village. Timber sales are still relatively undeveloped because the technology in processing the wood (the use of gobed saws) is said to be ineffective and takes a long time, as well as the limited demand for albasia wood. The opening of market access to sell albasia wood due to the development of the wood processing industry also has an influence on the development of albasia. So that the material in the form of albasia plants is re-entered the ecological system of Cikaramas Village which causes an increase in the number of albasia plants, and makes Cikaramas Village dominant in developing albasia plants.

In addition to technological developments, the sengonization program also has an influence on the development of albasia in Cikaramas Village. The community responded to the suggestion to develop albasia plants as reforestation plants in Cikaramas Village by redeveloping albasia plants on critical lands, and also developing them in an intercropping system. The ecological system or ecosystem of Cikaramas Village is experiencing rapid development, where the dominance of albasia plants in the intercropping system is very dominant. However, even within the ecological system, changes can occur that result from within and outside the system itself. Like pests, pests can interfere with the development of albizia plants, this can cause a decrease in the quality or number of albizia plants that are developed. This information flows to the social system, where the social system responds by handling pests by farmers, but it is not optimal and even ineffective. So farmers are more likely to compensate and develop other types of wood plants other than albasia species. This causes an increase in the number of woody plants other than albasia species in the intercropping system, to compensate for the albasia species. So that the dominant albasia plants in the intercropping system are balanced with other types of woody plants, which causes more variations of woody plants, and affects the dominance of albasia plants.

The influence of pests is a factor from within the ecological system that can bring about change, but factors from outside the system can also influence, such as the reduction or capture of pest competitor birds that eat caterpillars for woody plants such as albasia. This causes the natural enemies of caterpillars to be rarely found, and causes the development of pests to also grow, as well as the emergence of various new types of pests that can damage the development of albizia. This information reaches the social system where pest prevention is carried out again, but it is not very optimal and it can be said that there is no way to handle it properly. However, residents are more likely to balance the development of albizia with other wood species. So that the number of albizia that dominates is balanced with other plants, and the variety of other woody plants is getting higher.

The influence of pests causes the number and quality of albasia plants to decrease. So that the planting is also limited or not too dominant, the results obtained from the benefits of albasia wood will also have an effect. Pest factors that affect the development of albizia in the ecological system provide opportunities to reduce or even reduce the number of albizia developments. However, this has received a response from the social system, where the market price or selling price of albasia wood can be said to be relatively high, and competitive, and the ability of albizia to grow or the relatively short cutting period of albasia from other types of woody plants, causes the cultivator or farmer who develops it. still grow and develop albizia, despite the obstacles such as pests.

Albasia Trading Network as a Form of Albasia Socio-Economic Activities in Cikaramas Village

The use of wood pellets as renewable energy is one of the national natural resources management planning that aligned with the SDGs programme **[14]**. In Cikaramas Village, the use of albasia is used to meet subsistence needs (non-market uses) such as wood used for building houses, firewood, and some use albasia wood for financial gain from the sale of albasia wood, and some use it for fiber subsistence needs. for commercial at the same time. From the results of interviews with respondents in Cikaramas Village, it is also seen that the use of albizia is greater for subsistence needs and 68.0% for commercial use. Santoso **[15]** explains how albasia wood that can be used for subsistence needs and for trading can increase income for those who develop it. And the use of albasia also underlies the decision of smallholders to develop albasia in an intercropping system (Suharjito **[12]**). Albasia is useful not only for the residents who develop it. Residents who do not develop also benefit from developed albizia. The rest of the albasia tree that is cut down can be used for firewood without having to buy the remaining pieces of albasia wood. Albasia which is developed in hilly areas indirectly increases water absorption or water reserves, and produces better water and is used by the residents of Cikaramas Village.

According to Suharjito **[12]**, the fulfillment of the daily needs of smallholders can be provided from the intercropping

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system, and this is the driving force for most farming households to plant trees, such as albizia which is planted and developed in Cikaramas Village. Albasia in Cikaramas Village which was developed in an intercropping system is a form of adaptation made by farmers in seeing the paths of the ecological cycle and the different paths of the economic cycle. The ecological cycle path here is the time needed for albizia to grow and produce selling value, while the economic cycle path here is the time needed to meet daily needs. Then albizia that grows and can be harvested within 3 years to 5 years can be covered with weekly and monthly crop yields from the results of the intercropping system, to meet daily needs.

Utilization of albasia for subsistence needs as well as commercial needs, causing the cultivation of albizia on smallholders vulnerable to economic influences. Suharjito **[12]** also explained that the development of timber plants in the intercropping system is also vulnerable to market influences, such as tree planting which does not require a large amount of labor input, but gets relatively large profits from the wood sellers. Siregar **[9]** also explains how the effect of easy market access to sell tree products from the intercropping system is a consideration for developing tree crops in the intercropping system. Such as the development of albasia in Cikaramas Village, the development of the wood processing industry in Cikaramas Village, opening access to sell wood products, especially albasia, easy access to markets to sell albasia wood products, creating a series of economic activities, as well as creating opportunities for the creation of sources of income, and providing opportunities to exchange inputs. which was originally available from albasia with other inputs.

In Cikaramas Village, Albasia, which is developed in an intercropping system in community-owned gardens, indirectly or indirectly, will be able to absorb local workers. Like albasia which is developed in an intercropping system, this labor is needed for workers at the nursery, planting, maintaining, transporting, or harvesting wood products. Between farmers who own land and farm laborers who participate in processing the intercropping system, it is a relationship of the form of a labor rental system, and is paid for by giving wages by the farmers who hire the workers.

On the other hand, there was also a shift in the workforce as a result of the development of albizia in Cikaramas Village. Not only that, with the increase in the supply of albasia wood raw materials, it will stimulate workers in other business sectors such as the sawmill, furniture, or other wood craft sectors that also require labor.

Albasia socio-economic activities are activities that arise from the use of albasia (commercial production) which have an influence on the development of albizia in Cikaramas Village. So that albasia developed in Cikaramas Village, through a relationship or network of albasia trade in producing albasia in Cikaramas Village, which gave birth to a series of buying and selling activities of albasia wood, with a fairly good productivity in meeting the needs. So that is a factor in the survival of albizia as a commodity that is still being developed and has a relatively high selling value, which still survives under the influence of the threat of crop failure due to pests.

Ease of access to markets to sell albizia wood products creates a series of socio-economic activities, as well as creating opportunities for income sources, and providing opportunities to exchange inputs that were originally available from albasia with other inputs.

The sale and purchase of albasia gave birth to a network of albasia trade systems, trading systems can be interpreted as productive activities, which create form use value, as well as physical distribution that provides facilities to flow components of goods and services from producers to consumers. As explained by Limbong **[16]**, the agricultural trade system is a form of activity and business related to the transfer of property and physical rights of agricultural goods and agricultural business needs from the hands of producers to consumers, including certain activities that result in changes in the form of agricultural products. of goods to facilitate distribution and provide higher satisfaction to consumers.

Likewise, the albasia trading system in Cikaramas Village, this activity begins with seed production, buying and selling seeds, producing wood and buying and selling albasia wood, and producing albasia finished products. This activity involves smallholders in the process of planting and developing albasia, involving timber entrepreneurs in the process of buying and selling timber (negotiations, harvesting and processing wood) who also act as middlemen or collectors, as well as wood processors. Not only that, this network involves holding depots involved in the process of buying and selling processed wood, and the albasia wood processing industry into finished products. So that albasia which was originally in the form of logs, is processed and traded into finished products that are consumed by consumers.

In the albasia trade system, there are classes, positions, or divisions of work in the albasia trade system. Farmers are the first group that is close to the initial process of albizia until albizia can be felled. In this group, there are farmers who own land and those who do not own the land. The relationship created can be like a farmer who owns capital (land) with labor, using a wage rental system. Meanwhile, the sawmill industry group is a group that works in processing wood to be used as raw materials (wooden beams, poles, and boards), then involves another group (timber industry) as processing albasia wood into products that can be consumed, such as producing furniture. for example. The relationship created is not much different from the farmer group, the labor wage system is also carried out. So the relationship between farmers, the wood processing industry, and the timber industry (such as shelter depots), is based on the division of labor, using a labor and wage rental system.

The albasia trade system network in Cikaramas Village, which consists of farmers, timber entrepreneurs, and shelter depots, is different from the albasia trade system network in Cilin District, West Java. In comparison, Cikaramas Village has a relatively shorter network. In Cilin Sub-district, the trading institutions involved in the albizia

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trading system are; farmers who develop albizia, wood middlemen, wood processors, sawmill industries, storage and material traders (Eka **[17]**). In Cikaramas Village, the roles of wood middlemen, wood processors, and the sawmill industry have concurrently become one, namely as "timber entrepreneurs". So that the albasia trade system in Cikaramas Village is shorter in the process of changing the shape of the wood from logs to poles, beams, and boards, and faster in its distribution (wood distribution). That is how the socio-economic activities of albasia in Cikaramas Village have resulted in a relationship or network of albasia trade systems in producing albasia in Cikaramas Village. So that this network runs through a series of economic activities that are developed or developed through the utilization of the selling value of albasia wood.

IV. CONCLUSION

The development and use of Albasia in Cikaramas Village is a form of adaptation carried out by the community that responds to environmental suitability and changes. Response to information or ideas that enter the social system of Cikaramas Village, which has an influence on the ecological system of Cikaramas Village. And the socio-economic activities of Albasia gave birth to the Albasia trading network. As well as the survival of Albizia as a commodity crop under the influence of the threat of crop failure due to pests, factored in by: "Economic Sector" and "Ecological Sector".

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