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Invitation for Professor Dio Caisar Darma to submit manuscript to Virtual Economics Journal

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Aleksy Kwilinski <a.kwilinski@london-asb.co.uk> Min, 26 Apr 2020, 03.11

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Dear Professor Dio Caisar Darma,
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I very much hope you will accept my invitation to submit your manuscript to our journal.

If you require any further information I shall be happy to let you have this.

In any case, I thank you so much for your time and attention.

Wishing you best luck and health,
Aleksy Kwilinski

Aleksy Kwilinski, Ph.D., Professor
Editor-in-Chief of *Virtual Economics*
The London Academy of Science and Business
London, UK

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Submission of paper

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kepada editor, a.kwilinski

Min, 26 Apr 2020, 20.39

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Darma et al. Re: Submission of paper

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From Editorial Review Board we will assign two independent Reviewers. The double-blind review process is applied.

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We will report to you shortly.

Yours sincerely,

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Submission: Darma et al. "AGROFORESTRY CONSORTIUM: MULTIDERMINANT IN INSTITUTING AGRISILVICULTURE SYSTEM IMPROVE WELFARE." Kotak Masuk x

Virtual Economics <editor@virtual-economics.eu> Min, 10 Mei 2020, 04.21

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Dear Professor Dio Caisar Darma,

Thank you for your interest in the *Virtual Economics*.

You have submitted your paper "AGROFORESTRY CONSORTIUM: MULTIDERMINANT IN INSTITUTING AGRISILVICULTURE SYSTEM IMPROVE WELFARE."

I would like to inform you that, following the rules of the *Virtual Economics*, the article submitted should not have been published earlier.

Please provide clarification regarding your publication "Agroforestry consortium : multideterman in a agrisilvicultural system institution increasing welfare in east kalimantan province" available here:
https://www.academia.edu/37345428/Agroforestry_consortium_multideterman_in_a_agrisilvicultural_system_institution_increasing_welfare_in_east_kalimantan_province

Waiting for your kind reply, we remain,

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dio caisar <diocaisar09@gmail.com> 10 Mei 2020, 09.50

kepada editor

Dear publisher board The paper we submitted is the original manuscript. What you see is in Academia.edu is our writing and as lecture material. This manuscript has never been published and is very interested in publishing in Virtual Economics.

Success and thanks.

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Virtual Economics <editor@virtual-economics.eu> 11 Mei 2020, 19.32

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Dear Professor Darma Dio Caisar,

Thank you so much for your prompt response and your interest in the *Virtual Economics*.

Your paper "AGROFORESTRY CONSORTIUM: MULTIDERMINANT IN INSTITUTING AGRISILVICULTURE SYSTEM IMPROVE WELFARE" is accepted after two positive reviews.

The paper will be published in Vol. 3, No. 1, 2020 of *Virtual Economics*.

Please send us the ORCID for the Author:

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Also, please carefully fill out and sign the **Declaration of license grant** and **Author(s) Declaration,** and send us the scans.

Best regards,

Editorial Team of *Virtual Economics*
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kepada editor ▾

11 Mei 2020, 20.48

Many thanks and best regard

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An Agroforestry Consortium: A Multiderminant in Instituting an Agrisilviculture System to Improve Welfare

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AGROFORESTRY CONSORTIUM: MULTIDERMINANT IN INSTITUTING AGRISILVICULTURE SYSTEM IMPROVE WELFARE

Surya Darma, Siti Maria, Dirga Lestari, Dio Caisar Darma

Abstract. Indonesia as the largest forest owner of the normative has huge potential in the exploration. But until 1997, Indonesia has been losing forest from deforestation by 91,924,300 ha. While the government treatment just planting a thousand trees in the absence of supervision and follow-up is ongoing, so most of them broken and do not match expectations. This research is supported by descriptive and qualitative. The data collected is secondary data from the research library from the relevant Government Agencies. The concept of an agroforestry consortium was formed based on a multidetermination government as a function, academics, education, audiovisual training system, and organizational institutions, and management rights holders for the implementation of forest transfers. Land rights as providers of financial institutions and advocacy. The agroforestry consortium as a facility from farmers will accommodate inputs in the development of human resources, capital, and forest land which will later be allocated to farmers. Post-production, farmers provide installations of credit and forest products for agroforestry consortia. Thus, the funds can be channeled to financial institutions and forest products to practitioners. The expectation of the agroforestry consortium is the welfare of the people in East Kalimantan Province.

Keywords: agroforestry consortium, agrisilviculture system, public welfare, farmers

JEL Classification: Q23, Q15, D60, Q12

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1. Introduction

The wide range of functions and benefits, forest resources can provide a variety of human needs and wants, ranging from the production function of goods and services for the benefit of direct and indirect consumption, various natural regulatory mechanisms such as water regulation, nutrient cycling, CO_2 absorption, even various other functions that until now unknown or unthinkable by humans (Faculty of Foresty-Bogor Agricultural University, 1999). That forests play a role in preventing soil erosion, filter and flood control, pest and disease control, providing shelter, gathering of fauna that serves as pollinators and preventing global warming by absorbing carbon (Vinceti et al., 2008).

Furthermore, Shanley et al. (2008) suggest that non-timber forest products such as medicines, food, and shelter, as well as a source of income for communities living around the forest. Besides, the forest also serves as a provider of food directly and indirectly. From the above description, the forestry sector can contribute to food security through its function as a supporter, producer, and as a preserver of the diversity of food potential.

Under the condition of pedroagocratic, Indonesia should be a source of food that can meet its consumption and for export. Technically the development of potential food in Indonesia is no problem. Other factors causing decreased food production are dominated by non-technical ones such as lack of policy support, socio-cultural changes, and the use of technological advances that are not adapted to the potential of natural resources and socio-cultural potentials (fertile land, diversity of marine potentials and agrarian cultures).

The types of food derived from forests can be foliage; fruits and seeds; palms; roots and tubers; mushrooms; some insects, from mangrove (fish, crab, shrimp, etc); and animal feed (Vinceti et al., 2008).

Indonesia has a forest area of 143 million hectares, with 77 types of food sources of carbohydrates, 26 types of nuts, 75 types of oils and fats, 389 types of grains and fruits, 228 kinds of vegetables, 110 kinds of spices, spices and spices, 40 types of beverages, and 1260 types of medicinal plants (Suhardi et al., 2002).

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The occurrence of over-shoot symptoms in natural resource management is rooted in the uncontrolled value of greed that develops in society. The occurrence of environmental damage that is sustainable, especially by the act of over-exploitation collectively and organized, is a reflection of the damage to cultural values that exist in society due to the fulfillment of needs (Odum, 1998; Talmod, 2008).

In addition to having a close relationship with water, forests are also very influential in climate and weather. Forests have a very important climatological function, especially in the distribution of CO_2 during photosynthesis and at the same time the release of O_2 in the same process. In its evolution, the earth is protected by gases that are often referred to as "greenhouse gases". These gases, for example, CO_2, function to hold infrared which is heat from sunlight that bounces back from the earth's surface. Thus, the temperature of the earth is felt now This has changed or adjusted. Without "greenhouse gas" it can cause low temperatures that can reach -180^0 C. And vice versa if the concentration of CO_2 and similar gases increases will experience global warming. Therefore forest conservation impacts the day after tomorrow on life.

The tangible value of Unmul Forest Education and Research in Kutai Kartanegara Regency of 29.01% of the total economic value where the value of wood is only 15.28%, while the rest of 70.99% is the intangible value of services the environment of the forest (Roslinda, 2002). Furthermore, Roslinda (2003) also shows that the intangible value of the Taman Hutan Rakyat (TAHURA) in East Kalimantan is much higher than the tangible value, which is 87% of TAHURA's total economic value is the intangible value of environmental services.

Theoretically, it is believed that forests have enormous economic value, but only a small fraction of forest resources contribute real to the revenue of the state and society. State revenue or sector contribution is often only seen from the Gross Domestic Regional Product (GDRP) of the forestry sector as well as the number of commodity exports the smaller the year as timber is exhausted. Based on this, a development approach that sees the economic value of forest resources as a whole and can be utilized significantly in development.

This study aims to provide the following alternatives: forestry condition; multiterminal construction of agroforestry consortium; and performance of consortium agroforestry mechanism in institution Agrisilvicultural system on forest land management in Province East Kalimantan.

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The expectation of writing this scientific paper is its usefulness for providing a new study topic as an alternative concept that can be developed to improve the productivity of forest land and alleviate the socio-economic poverty of East Kalimantan agriculture through the Agrisilvicultural system, and the government can make this concept as an alternative program in accelerating economic development through the management of forest land by using the Agroforestry Consortium Concept so as to increase farmers' income and welfare distribution for every East Kalimantan people.

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2. Existing literature

Forests based on their functions are divided into several functions, namely as follows: forest areas that are due to their nature are used for water management, flood, and erosion prevention and for maintaining soil fertility, forest areas used to produce forest products to meet the needs of the community in general and in particular, it is a forest area because of its characters it is used specifically for other biological protection, and forest areas that are used specifically to be fostered and maintained for tourism or hunting purposes (Sutikno & Maryunani, 2006).

Biodiversity has several meanings and conditions, is: biodiversity means the richness of genes, species, populations, and ecosystems; genes, types of population, or ecosystem must occupy the appropriate "niche"; and increasing diversity with exotic species without careful consideration can cause havoc.

The evolution of forest functions has effects also on the social production of the forest space. Space, in this case, is not intended as an objective and immutable element but rather, as suggested by Lefebvre (1974), as something that is strictly related to the social context. Indeed, according to Harvey (2006), apart from the absolute space, defined and measurable through Euclidean geometry such as the polygon defining a forest parcel, we can identify other spaces, strictly linked to social and power dynamics. These include the relative notion of space, measured in terms of time or costs, and the relational concept of space, embedded in social, political, economic, and cultural relationships. Since each forest function may have specific effects on the production of space, we can also highlight the evolution of the forest spaces through a diachronic analysis of these functions. What was in the past, and is now, the relationship between forest functions and the social production of forest spaces?.

Forests with vegetation that are closely related to ecology, namely as a buffer for temperature and climate balance, maintaining water flow, preventing O_2-producing erosion and so on. By looking at the many functions of forests for ecology, it means maintaining the sustainability of forests has maintained environmental balance. For example, what happens to the forest will affect soil and water conditions. Therefore, the act of managing forests well, in an integrated manner is also an effort to conserve land and water. Indonesia has dozens of watersheds (DAS) which have close links with forests, as their main buffer. As in Java, 10 watersheds are highly dependent on forests, namely the Ciliwung, Cisadane, Ciujung, Citarum, Cimandiri, Citanduy, Lusi, Serang, Solo and Brantas rivers (Soerjani, 1997).

The various rivers in Java have declined quite seriously with the increase in mud content in river water. This is in line with the increase in land damage and increasingly poor land-use patterns in the upper watershed. In addition to having a close relationship with water, forests are also very influential in climate and weather. Forests have a very important climatological function, especially in the dissemination of CO_2 during photosynthesis and at the same time the release of O_2 in the same process. In its evolution, the earth is protected by gases which are often referred to as "glass chamber gas." These gases, for example, o,

function as infrared which is heat from sunlight that bounces back from the earth's surface. Thus, the earth's temperature is felt now this has undergone a change or adjustment. Without the "greenhouse gas" it can cause low earth temperatures that can reach -180^0 C. And vice versa if the concentration of CO_2 and gas similar increases will experience global warming. Therefore, forest conservation has an impact on life.

The forestry sector is the second non-oil foreign exchange producer after textiles. In addition, the forestry sector also employs approximately 300,000 people directly and 700,000 people indirectly. The increasing use of the forestry sector cannot be separated from the role of Law No. 1 of 1967 concerning the role of foreign capital and Law No. 6 of 1968 concerning the role of domestic capital to engage in forest exploitation. Since the enactment of the Law, there has been a rapid development in the forestry sector in spurring development in Indonesia.

The concept of agroforestry is based on the expected role of on-farm and off-farm tree production in supporting sustainable land-use and natural resource management. While the aboveground and belowground diversity provides more stability and resilience for the system at the site level, the system provides connectivity with forests and other landscape features at the landscape and watershed levels (Nair et al., 2008; Garrett, 2009). These ecological foundations of agroforestry systems manifest themselves in providing environmental services such as soil conservation, carbon storage, biodiversity conservation, and enhancement of water quality.

Law No. 5 of 1967, Law No. 7 of 1990, and Presidential Decree No. 32 of 1990. This regulation appears related to the public interest in forest areas with the following assumptions: (1) Indonesia's biological resources and its ecosystem have an important role for life is a gift of God that needs to be managed and utilized sustainably, in harmony, harmony, and balance for the welfare of the Indonesian people in general and humanity in general, both today and in the future; and (2) Elements of biological resources and their ecosystem are interdependent with each other and influence each other so that the damage and extinction of one element will result in disruption of the ecosystem.

Forest development in the future requires a more accurate conception regarding the management mechanism of forest management given the importance of forest functions. The best forest management is when the management concept includes the following: (1) Efficiency of forest management and sustainability of resources; (2) Demands regional autonomy; and (3) Prevention of community empowerment as an effort to alleviate poverty in communities around the forest.

Therefore, the concept of efficient forest management is needed while maintaining the preservation of resources by empowering the community around the forest while at the same time having an impact on the development of the area around the forest, then the concept is called agroforestry system. So, the agroforestry system is a pattern of forest land management with the function of empowering surrounding communities with the aim of

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forest conservation while increasing the welfare of the surrounding community and the development of agricultural areas.

The Agrisilviculture system is a set of elements that form smallholder agriculture in forest land areas to produce output in totality, both forest products, and agricultural products (Kamus Besar Bahasa Indonesia, 2018).

The advantages of the Agrisilviculture system include an increase in efficiency (labor and land use), the plant population can be adjusted as desired, in one area obtained more than one commodity production, still have the opportunity to get results when one plant species fails, combination some types of plants can create biological stability so that by suppressing pests, and diseases and maintaining the sustainability of land resources, namely soil fertility (Arifin, 2001).

The sole agricultural crop productivity (without trees) in the northern aspect was also higher than that in the southern aspect. An obvious difference in the annual productivity of trees and agriculture crops was observed between the northern aspect and southern aspect. The overall productivity in traditional Agrisilviculture system (crop + tree) was 24% (in northern aspect) and 21% (in southern aspect) higher than that in sole cropping system (Bijalwan et al., 2009).

3. Methods

The research focuses on the multiterminal construction of consortium agroforestry in an institution the Agrisilvicultural system as a form of community welfare improvement and solutions through the forestry sub-sector in East Kalimantan Province. To support this research, the authors conducted a deep literature study, namely by using descriptive research and data used is a qualitative approach data.

A descriptive method is a method in researching the status of a group of people, an object, a system of thought; or a class of events in the present. The purpose of this descriptive research is to make description; description or painting systematically, factually, and accurately about facts, nature, and relationship between phenomena investigated (Nazir, 2003).

Meanwhile, from a qualitative approach is a procedure that produces descriptive data, which include the written word on the object of research that is being conducted that supported by literature studies based on the experience of literature review, either in the form of research data or numbers that can be understood well. Also, the qualitative approach is more sensitive and adaptable to the many sharpening of mutual influences as well as the value patterns encountered in the field (Moelong, 2002).

The data collected in this research is secondary data, which is the source of research data obtained indirectly through intermediate media. Secondary data are generally in the form of

evidence, records, or historical reports that have been compiled in archives (documentary data), both published and unpublished (Sugiyono, 2005).

Techniques used in collecting this data with library research ranging from direct records of documents or documents from relevant Government institutions, copy and download from the source website concerned (Moelong, 2002). Sources of data are collected or obtained from Forestry Office, and other data support sources during 2016 or updated data.

Data collected in this paper are secondary, are the sources of writing data obtained indirectly through intermediary media. Secondary data is generally in the form of evidence, notes, or historical reports that have been arranged in an archive (documentary data), both published and unpublished.

Data collection methods used in this paper are by: (1) Literature study is carried out by reading related literature and supporting this writing, in the form of printed or electronic libraries (internet data); (2) Documentation study is done by reading previous writing reports and articles accessed from the internet, books, and journals that are relevant to the problem. In this method, the writer only removes relevant data from a source or document that is needed, and (3) Subjective intuitive is the involvement of the author's opinion on the problem being discussed.

Because the focal point of this research is literature-based (library), then the data collected is qualitative (Rangkuti, 2001). The process of data analysis conducted in this research occurs back and forth and interactively, consisting of data collection, data reduction, data display, conclusion drawing, and verification.

4. Results and Discussion

Based on Presidential Decree No. 32 of 1990 forest areas are divided into conservation forest, protected forest, and production forest. The data from Table 1 shows if the total forest area in East Kalimantan Province in 2017 is 14,274,506 Ha. When specified according to the forest use agreement, the forest is still the largest forest type compared to the other reaching 5,935,355 Ha and the second is fixed production forest is about 3,027,099 Ha. On the one hand, forests with educational/research uses are the smallest and do not even have an area of use (see Table 1).

Determination of critical land refers to land that has been severely damaged by a loss of vegetation cover, resulting in loss or diminution of its function as water retention, erosion control, nutrient cycling, microclimate regulator, and carbon retention. Based on the condition of the vegetation, land conditions can be classified as very critical, critical, somewhat critical, critical potential, and normal conditions. Therefore, the need for reforestation or forest rehabilitation is aimed at reforesting critical forest areas in watershed areas (DAS) carried out with the community in a participatory manner.

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Table 1. Forest area according to forest land use agreement in East Kalimantan Province, 2017

Type (Usage)	Large (Ha)
Protected Forest	1,844,969
Nature and Tourism Forest	438,390
Limited Production Forest	2,908,256
Permanent Production Forest	3,027,099
Permanent Forest	5,935,355
Production Forest	120,437
Education/Research Forest	-
Total	14,274,506

Source: BPS-Statistics of Kalimantan Timur Province, 2019

The better growth and timber volume in the 'tree+crop' situation were mainly due to the application of fertilizers and weeding. Crop yield reduction was observed with alder, mandarin, and cherry and as the distance from tree increased, yield also improved. However, in albizia, the proximity of the tree did not reduce crop yield. The implications of the results are discussed in the context of the suitability of the species in this region and their usefulness in agroforestry systems (Dhyani & Tripathi, 1998).

Of the total reforested and rehabilitated trees, there are 60,869,495 units, of which Industrial Timber Foresty is the main priority in East Kalimantan Province with 40,432,811 units. The rest is Government activities in the reforestation sector in 2017 reached 17,595,114 units and the reforestation of the tree is still a small role of 4,440 units (Foresty Office of East Kalimantan Province, 2018).

Based from Table 2, production of processed wood of various types in East Kalimantan Province in 2017 as a whole reaches 1,468,858.65 M^3. According to its kind, processed into the wood chip (pulp) is the most ranged 910,478.32 M^3 and plywood of 473,296 M^3. Meanwhile, processed wood to flouring (parquet flooring) until now there is no.

Table 2. Number of trees reforested and rehabilitated in East Kalimantan Province, 2017

Activity	Units
Planting and Enrichment	2,837,170
Industrial forest	40,432,811
Reforestation	17,595,114
Greening	4,400
Total	60,869,495

Source: BPS-Statistics of Kalimantan Timur Province, 2019

With huge forest area, East Kalimantan Province certainly utilizes the field into a commodity, such as processed wood and etc. Utilization of timber forest products shall mean any form of business that utilizes and seeks timber forest products without damaging the environment

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and does not diminish the main function of the forest. This activity can only be carried out on forest areas that have the potential for timber forest product utilization and can be implemented after obtaining a business license.

Timber Forest Product Utilization Permit in natural forest is a permit to utilize a production forest whose activities consist of harvesting or harvesting, planting, maintaining, securing, processing, and marketing of wood forest products. This permit may be granted to individuals, cooperatives, private enterprises, and Badan Usaha Milik Nergara/Badan Usaha Milik Daerah (BUMN/BUMD). Production of primary forest products produced from forests is logging. The production of logs is produced from natural forests through The Activities of Forest Concessionaires, timber permits for forest clearing, Industrial Timber Plantation development, and community forestry activities.

The consortium of agroforestry in etymology means cooperation or partnership agroforestry. Thus, if the terminology of agroforestry consortium can be interpreted as a form of cooperation between several parties with the aim of community empowerment (local farmers) to manage forest land as an effort to increase forest land productivity in conservative functions and to open agricultural land so as to provide useful output for the community.

The consortium of agroforestry has complexity in its formation, through several roles that are synergized with expectations that can provide effectiveness and efficiency to the performance of agroforestry consortiums (see Figure 1).

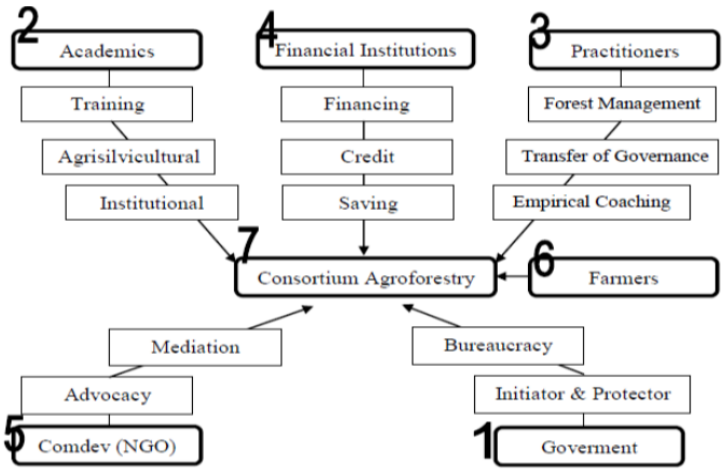

Figure 1. Mechanisms in construction of agroforestry consortium
Source: Authors design, 2020

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Determinant (influence) in the agroforestry consortium is carried out by the Government as a regulatory authority that serves as the initiator in initiating the concept. The government

also has a role to provide protection to the consortium of agroforestry, both from bureaucratic regulations and on performance processes. Therefore, the Government has a role and function that is crucial because it becomes protection through the existing bureaucracy, so the performance of this concept goes according to expectations.

Academics as intellectuals have a role to provide education in the form of education and training (training). Some of the knowledge and insight that should be given is the system of Agrisilviculture pattern of forest management and institutional as a pattern of organizational management agroforestry consortium. This training is oriented to give stimulants (stimulus) for Gapoktan to accelerate production with an education that has been given.

The role of practitioners, in this case, is a forest management company, acting as a forest landowner. Forest land will be transferred to the Gapoktan management right so that Gapoktan can manage through the farmers who joined. The transfer of these rights is carried out according to both time agreement and the sharing mechanism. In addition, the empirical ability of the Practitioner becomes an important point that needs to be transformed to Gapoktan as executor, so as to be able to run the consortium of agroforestry either normative theory from academic but also good in empirical findings given by Practitioner.

Financial institutions act as a function of financing. Financing the production process of consortium agroforestry, because after the transfer of forest land rights by Practitioners for production will require financing so that the role of the Financial Institution is the support of the performance of agroforestry consortium. This financing is divided into 2 forms, namely credit or capital funding and savings as an investment Gapoktan.

Community Development (Comdev) or often called Non-Governmental Organizations (NGOs). Serve as an advocacy function that can provide defenses ranging from legal discrimination to technical matters such as forest land disputes for example. In addition, the form of advocacy provided by NGOs is mediation with related parties when Gapoktan has no way to interact.

Gapoktan as the construction subject of the Agroforestry Consortium which will execute forest land with financing support and knowledge of insight from the education given by each stakeholder. All the roles and functions of each stakeholder are efforts to realize the agroforestry consortium. The consortium of agroforestry which is a joint venture will conduct an organizational cooperation mechanism that will synergize among stakeholders. In the body of this consortium, agroforestry will also run balancing control mechanisms (balanced control) between stakeholders to maintain the role and function to remain in the corridor of performance that is proportional in order to avoid overlap or void role and function.

The consortium of agroforestry in etymology means cooperation or partnership agroforestry. Thus, if the terminology of agroforestry consortium can be interpreted as a form of cooperation between several parties with the aim of community empowerment

(local farmers) to manage forest land as an effort to increase forest land productivity in conservative functions and to open agricultural land so as to provide useful output for the community.

The consortium of agroforestry has complexity in stakeholder synergy, so there is a slightly different mechanism with similar institutions such as cooperatives, trade partnerships, and other forms of co-operation. The complexity due to the many roles is not an obstacle as long as each stakeholder is able to synergize and understand the roles and functions of each so that there is no overlap or vacancy of the stakeholder role.

Meanwhile, the Agrisilvicultural system is an agroforestry system that combines forestry components (woody plants) with agricultural (or non-wood) components. Timber crops are meant to belong to crops (tree crops) and non-timber plants of annual crops (Nair, 1985; Young, 1989).

In Agrisilvikultural, multipurpose trees are planted (see more detail on the multipurpose trees) or trees in the context of protected functions on farms (multipurpose trees/shrubs on farmlands, shelterbelt, windbreaks, or soil conservation hedges).

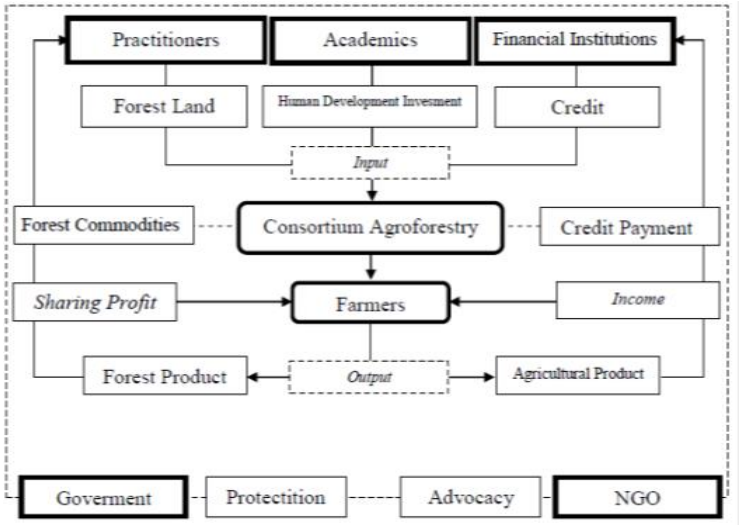

Figure 2. The role of agroforestry consortium in institution Agrisilvicultural system
Source: Authors design, 2020

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Furthermore, the consortium of agroforestry will allocate it to the farmers according to the capacity of the farmers. Farmers will conduct a production process with the Agrisilvicultural system in managing forest land. This process is supported by inputs in the form of trees,

agricultural seeds, and capital funds, and most important is the knowledge and skills of farmers to produce with the system in East Kalimantan Province.

Figure 2 presents after the production and harvest time comes, then this time the farmer will produce 2 outputs, namely agricultural and forest products. Agricultural produce will be income for farmers. Income farmers other than as individual income, this income will also be the installment of credit payments on capital obtained from Financial Institutions through a consortium of agroforestry. A consortium of agroforestry that will accommodate mortgage payments from farmers in East Kalimantan.

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Meanwhile, forest products that become the rights of practitioners or companies owners of the right to manage, will be submitted through the accommodation of agroforestry consortium. However, as a forest land manager farmers will get profit-sharing from forest products that have been produced during the management. On the external side, the Government and Non-Governmental Organization (NGOs) serve to provide protection (protection) and advocacy (defense) in the event of a dispute or problem both internally and in the external consortium of agroforestry.

The financial and investment cycles in the agroforestry consortium are formed on 3 stakeholders: (1) Financial Institution as fund provider; (2) Agroforestry consortium as intermediary; and (3) Farmer as the fund manager. This cycle begins with credits granted by Financial Institutions to the consortium of agroforestry to be allocated to farmers.

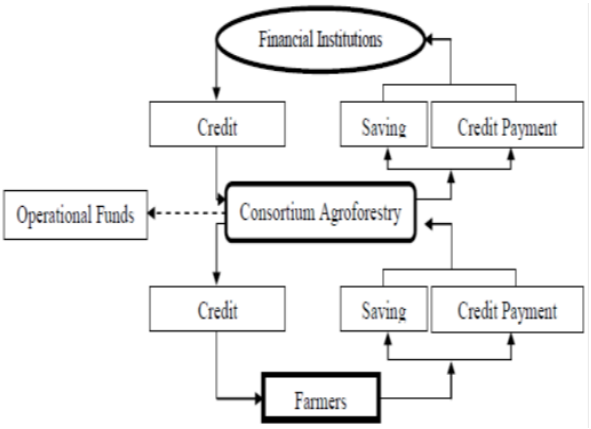

Figure 3. The financial and investment cycle of agroforestry consortium
Source: Authors design, 2020

A consortium of agroforestry has a determinant complexity to form a distinct pattern of performance mechanisms. It will also shape its own pattern on the financial and investment flows of the agroforestry consortium. Figure 3 explains that the financial and investment flow of consortium agroforestry. This agroforestry consortium will manage credit funds from

financial institutions not only as a fund of the Farmers' allocation of capital in managing forest land but also to the operational costs of the agroforestry consortium. This is done as an effort to professionalize the organization so that the Agroforestry consortium is truly professionally managed. Furthermore, capital funds are allocated proportionally to the existing farmers in East Kalimantan Province.

Farmers after producing output will return credit funds to the consortium of agroforestry according to the income earned. This is done so that the farmers are stimulated to make the production in the next period because the credit funds are not fully disbursed, but with low-interest installments with low-interest rates. In addition to credit installments, Farmers can also invest or save their income. Furthermore, funds from farmers in the form of credit installments and savings will be accommodated by a consortium of agroforestry. Funds that have been accommodated will be handed to the Financial Institution as well as the funds' deposits that are too large. Deposits deposited in Financial Institutions become an effort to secure the funds of the consortium of agroforestry so that the funds in the cash consortium of agroforestry are only short term and just operational funds in East Kalimantan Province.

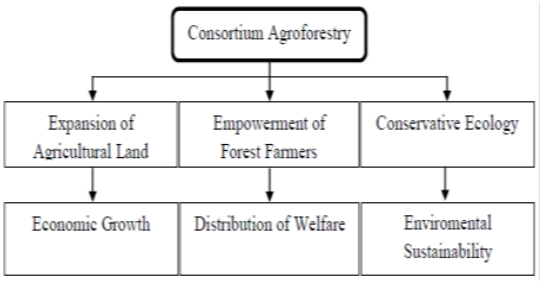

Figure 4. Expectations of agroforestry consortium in realizing the development trilogy
Source: Authors design, 2020

The expectation of the construction and implementation of the agroforestry consortium is the realization of the expansion of agricultural land from former deforestation forest land. Thus, it is expected to increase economic growth through the agricultural sector which has been plagued by land issues (consider Figure 4).

The concept of empowerment in agroforestry will encourage the empowerment of farmers around the migration forest outside the forest area so that this will support the equitable distribution of welfare in the community of farmers. With the system of agroforestry empowerment and Agrisilvicultural system, will make deforestation forest land become greener. And with the conservation of forests, it is expected that natural resources in the forest can be sustainable and sustainable for East Kalimantan Province.

The increase of population and its associated pressures on agricultural land have threatened tropical forests in the production of food, fuel, and timber. After deforestation, it is often

difficult to sustain annual crop production since nutrients are rapidly leached from the soil due to high rainfall in the tropics (Katayama & Luna, 1998).

5. Conclusions

Comment [i-[5]]: The practical implications an managerial contributions have not been disclosed

The consortium of agroforestry as an institutional system of Agrisilvicultural is formed on several determinations of several stakeholders, namely the Government as bureaucratic protection, Academicians as intellectuals conducting education and training, Practitioners who will give rights to forest land and NGOs as a function of advocacy.

The concept of agroforestry consortium as accommodation from farmers (Gapoktan) will accommodate inputs in the form of investment of human resources development, capital credit, and forest land which will then be allocated to farmers. The post-production of farmers will provide credit installments and forest products to the consortium of agroforestry so that funds can be channeled to Financial Institutions and forest products to Practitioners. Expectations from the consortium concept of agroforestry are expected to prosper the society (absorbing the workforce) of East Kalimantan Province.

In comparison to this study with research from other countries, India has been at the forefront of agroforestry research since organized research on agroforestry began around the world 25 years ago. Given the country's unique land use, demographic, political, and socio-cultural characteristics and strong record in agricultural and forestry research, India's experience in agroforestry research are important for agroforestry development, especially in developing countries. Agroforestry has received much attention in India from researchers, policymakers, and others because of its ability to contribute significantly to economic growth, poverty alleviation, and environmental quality. Progressive legal and institutional policies must be created to avoid the historical dichotomy between agriculture and forestry and encourage integrated land-use systems. Government policy holds the key to the adoption of agroforestry (Puri & Nair, 2004).

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