

Women's Participation in Food Agroforestry in Central Kalimantan: Challenges and Obstacles

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Manuscript Chronology: received 30 January 2022, revised 8 February 2022, accepted 11 April 2022

Abstract

Food Agroforestry is one element of the National Economic Recovery Program, which aims to counter the effects of the Covid-19 pandemic by protecting the economy and promoting food security. The agroforestry program targets Social Forestry Business groups with forest utilization activities. Support is provided in the form of productive economic tools and food agroforestry assistance. This paper examines the involvement of women in food agroforestry activities. The research applies the descriptive approach for secondary data related to food agroforestry activities and interviews with female leaders who are involved in forest management activities and group business development. The results of the analysis show that food agroforestry activities provide economic, ecological, and social benefits for the community. Further, these activities provide access for women to be involved in forest management and utilization, and to support food security and family economies.

Keywords: women's groups, agroforestry, food business management, community economic improvement

Introduction

The Covid-19 pandemic has had an impact on the Indonesian economy, including its food security. The Government, through Government Regulation No. 23 of 2020 on the National Recovery Program for Handling the Covid-19 Pandemic, has launched the National Economic Recovery (PEN) program, which is implemented by several ministries/agencies. The main objective of the PEN program is to protect, maintain, and improve the economic capacity of business actors.

The PEN program within the Ministry of Environment and Forestry aims to restore the national economy for forest productivity and a prosperous environment for the people. The activities include: 1) Labour-intensive mangrove planting; 2) Food security (agroforestry); 3) Support for waste productive business; and 4) Labour-intensive support for conservation tourism.

Social Forestry is a national priority program that provides legal access to the community to use forest areas. There are a number of schemes: Community Forests (*Hutan Kemasyarakatan, HKm*); Community Plantation Forests (*Hutan Tanaman Rakyat, HTR*); Village Forest (*Hutan Desa, HD*); Customary Forests (*Hutan Adat, HA*); and forestry partnership for sustainable forest

management and community welfare. According to the data of the Directorate General of Social Forestry and Environmental Partnership, the area of Social Forestry as of the end of 2021 has reached 4.901.778,64 hectares. In addition, as many as 7.477 decrees (*Surat Keputusan, SK*) have been issued by the government and involved 1.049.215 heads of families (*Kepala Keluarga, KK*). From the program's land area, 8.136 Social Forestry Business Groups (*Kelompok Usaha Perhutanan Sosial, KUPS*) have been established.

The utilisation of forest areas by KUPS uses an agroforestry system developed to provide benefits to human beings or improve community welfare. Agroforestry is primarily expected to help optimise the outcomes of land use in a sustainable manner to ensure and improve food supplies (Mayrowani & Ashari 2011). The business activities of forest utilisation by KUPS with an agroforestry system become the targets of the National Economic Recovery program to support food security.

In 2020, Food Agroforestry activities in Central Kalimantan targeted 33 Social Forestry areas in Pulang Pisau Regency with a total area of 58.848 hectares and in Kapuas Regency with an area of 45.224 hectares.

These activities targeted the management right holders of Village Forest, Community Forest, Community Plantation Forest, and Customary Forest. The recipients of these activities included 80 KUPS,¹ which consisted of 70 KUPS in Pulang Pisau Regency and 10 KUPS in Kapuas Regency. In 2021, these activities involved 20 KUPS, namely 14 KUPS in Pulang Pisau Regency and 6 KUPS in Kapuas Regency. Business activities in the Social Forestry areas were developed using agroforestry, silvopostura, and silvofishery systems. Each KUPS carried out Food Agroforestry activities with Food Agroforestry development assistance amounted to Rp100.000.000,00. Fifty percent of the assistance were in the form of wages and productive economic tools provided as leverage and a value add to on-farm and off-farm activities.² In addition, KUPS also received assistance for capacity and institutional strengthening.

These Food Agroforestry activities involve both men and women. The involvement of women in the executive committee of forest management and their effective participation in decision-making can improve forest governance and resource sustainability (CIFOR 2013). This is reinforced by (Puspitawati & Fahmi 2018) that the division of roles in an organization is needed to accommodate human expertise or specialisation that can complement each other in carrying out tasks to achieve a common goal. Furthermore, (Puspitawati & Fahmi 2018) also state that a stronger and more cohesive group of women, both in terms of organization and productivity, will increase the amount of agricultural production so that it can significantly benefit regional economic progress.

This research aims to explain that Food Agroforestry activities in Pulang Pisau and Kapuas regencies in Central Kalimantan provide benefits to women who are involved economically, socially, and ecologically. In addition, this research also reveals the involvement of women in Social Forestry through Food Agroforestry activities.

Research Methodology

This research was conducted in Pulang Pisau Regency and Kapuas Regency in Central Kalimantan Province. Data collection was done through the analysis of data and documents related to the research objectives. The data used in the research were from interviews and literature studies. Researchers conducted in-depth interviews with 2 women: the Head of Social Forestry Business Group and the Head of Kalimantan Regional Social Forestry and Environmental Partnership Centre. The two

interviewees are important figures and actors in the implementation of Food Agroforestry activities in Central Kalimantan. Furthermore, the literature study used in the research included data related to agroforestry, peatland management, and women's participation in forest management. The data in this research were analysed using gender perspective. The researchers used Longwe's empowerment framework in order to describe the real conditions and the impact of women's participation in Food Agroforestry activities.

Food Agroforestry in Central Kalimantan

Agroforestry is an agricultural system where trees are planted in the same plots together with one or more types of seasonal crops. Trees can be planted as fences around the plots of food crops, randomly inside the plots, or in other systems, for example, lining the trees up in an array to form an alley/fence (DLHK Banten 2019). Food agroforestry is part of the National Economic Recovery Program within the Ministry of Environment and Forestry. Food protection for the community through Food Agroforestry activities has a main target, namely social capacity and land infrastructure for food.

The legal basis for the implementation of the National Economic Recovery program and Food Agroforestry activities in Pulang Pisau Regency, Central Kalimantan Province includes: 1) Government Regulation No. 71 of 2014 on the Protection and Management of Peat Ecosystems; 2) Minister of Environment and Forestry Regulation No. P.83/MENLHK/SETJEN/KUM.1/10/2016 on Social Forestry (State Gazette of the Republic of Indonesia of 2016 No. 1663); 3) Minister of Environment and Forestry Regulation No. P.10/MENLHK/SETJEN/KUM.1/3/2019 on the Determination, Confirmation, and Management of Hydrological Unit-based Peat Dome Peaks; 4) Minister of Environment and Forestry Regulation No. P.16/MENLHK/SETJEN/KUM.1/2/2017 on the Technical Guidelines for the Restoration of Peat Ecosystem Functions; and 5) Minister of Environment and Forestry Regulation No. P.37/MENLHK/SETJEN/KUM.1/7/2019 on Social Forestry in Peat Ecosystems, which is a regulation related to Social Forestry activities in peat ecosystems.

The location of Food Agroforestry in Central Kalimantan Province is the location of Social Forestry with a potential area of 58.848 hectares in Pulang Pisau Regency and 45.224 hectares in Kapuas Regency. In Pulang Pisau Regency, there are 33 Decrees on Social Forestry and 24 Decrees in Kapuas Regency with details per sub-district as follows.

Table 1. Number of Social Forestry Decrees in Pulang Pisau Regency and Kapuas Regency

Pulang Pisau Regency			Kapuas Regency		
Scheme	District	Number of Decree	Scheme	District	Number of Decree
HD	Kahayan Hilir	4 Decrees	HD	Timpah	1 Decree
HD	Kahayan Tengah	13 Decrees	HD	Mantangai	3 Decrees
HD	Banama Tingang	3 Decrees	HD	Mandau Talawang	3 Decrees
HD	Panman Tingang	1 Decree	HD	Dadahup	1 Decree
HD	Sebangau Kuala	2 Decrees	HD	Kapuas Tengah	1 Decree
HD	Jabiren Raya	2 Decrees	HKm	Kapuas Hulu	2 Decrees
HKm	Kahayan Tengah	1 Decree	HKm	Mandau Talawang	2 Decrees
HKm	Banama Tingang	1 Decree	HKm	Mantangai	3 Decrees
HTR	Pandih Batu	2 Decrees	HKm	Pasak Talawang	1 Decree
HTR	Kahayan Hilir	2 Decrees	HTR	Kapuas Hulu	2 Decrees
HTR	Maliku	1 Decree	HTR	Mandau Talawang	3 Decrees
HA	Jabiren Raya	1 Decree	HTR	Mantangai	2 Decrees

Source: Directorate General of PSKL (2020)

The main target of Food Agroforestry development is 80 Social Forestry Business Groups (KUPS), namely 70 KUPS in Pulang Pisau Regency and 10 KUPS in Kapuas Regency. KUPS of the Social Forestry Group consists of: 1) Village Forest Management Right Holders; 2) Community Forest Holders; 3) Community Plantation Forest Holders; and 4) Customary Forest holders. During the preparation for the Food Agroforestry activities, there were 65 KUPS, and 5 of them had managed agroforestry. All formed KUPS use agroforestry system with silvofishery and silvopasture development systems, which are adapted to the conditions and commodities selected.

The location of Food Agroforestry activities in Central Kalimantan Province is mostly peat so it is necessary to consider peatland management guidelines. The concept of Food Agroforestry uses local community-based agriculture and is friendly to peat ecology with a system developed in this area, namely agroforestry, silvofishery, and silvopasture. The implementation of Food Agroforestry is determined by the condition of the coverage (*tutupan*) and the presence or absence of canals.

Cultivation of food crops on peatlands uses an adaptive species selection strategy. This strategy uses peat ecosystems and land preparation without burning and provides production facilities/buildings (seeds, fertilizers, and treatments) and agricultural tools to Social Forestry farmer groups. In addition, there is technical guidance assistance for cultivation on peatlands through agroforestry by ministries/agencies, such as the Ministry

of Agriculture, the Forestry Service, and the Agriculture Service at the provincial or district/city level.

Land use preparation on peat needs to pay attention to the hydrological arrangement of peat. Hydrologically, clearing peatlands without burning gives time for improvement in the hydrological arrangement of peat by *rewetting* and *revegetation*. Socially, in peat restoration, a distinctive and unique social approach is required (Gunawan et al. 2020). The utilisation of social forestry peat ecosystem for food security includes cultivation functions, namely the cultivation of mushrooms, bees, and swallows' nests; the cultivation of fish in *beje*, ponds, net cages (*keramba*), canal partitions; the utilisation/harvesting of sago; and the utilisation/harvesting of fruit or seeds, honey, and tubers. In addition, the use of protection functions, including the cultivation of mushrooms, bees, and swallows' nests as well as the use of life-support plants (*tanaman kehidupan*) for food supplies with varieties that are adaptive to the protective function of the peat ecosystem.

Meanwhile, the principles of utilisation of peat ecosystem areas that are applied to the cultivation function of Social Forestry are: 1) In accordance with the Peat Ecosystem Protection and Management Plan (*Rencana Perlindungan dan Pengelolaan Ekosistem Gambut, RPPEG*); 2) Not reducing, changing, or eliminating its main function as limited tillage; 3) Not causing negative impacts on biophysical and socio-economic aspects; 4) Not using mechanical equipment and heavy equipment and not building facilities and infrastructures

that change the landscape; and 5) Implementing a mixed cropping system of agroforestry and/or agrosilvofishery.

The use of forest areas by KUPS for Food Agroforestry activities in 2020 varied according to the conditions and needs of the community. From several types of

businesses carried out by KUPS, it could be seen that honey bees farming business type dominated (22%). Meanwhile, woody plants and agroforestry (about 13%) and mushroom cultivation as well as medicinal plants and ornamental plants or orchids were around 11.25%.

Table 2. KUPS Business Types in Food Agroforestry

No	KUPS Business	Number of KUPS	Percentage (%)
1.	Agroforestry	11	13,75
2.	Ecotourism	6	7,5
3.	Medicinal plants, mushrooms, orchids	9	11,25
4.	Environmental services	4	5
5.	Rattan crafts	8	10
6.	Honey bees farming	18	22,5
7.	Silvofishery and fishery	8	10
8.	Woody plants	11	13,75
9.	Silvopasture	4	5
10.	Propagation	1	1,25

Source: Processed from the data from the Directorate General of PSKL (2020)

The activities of 80 KUPS to support the provision of food from social forestry areas through forest cultivation are carried out using an agroforestry system. This system is a combination of woody plants in the form of forage, honey bees, silvofishery in the form of woody plants, such as shrimp or fish, and upland rice. These Food

Agroforestry activities provide benefits in optimising forest areas. This optimisation is expected to be able to support commodity centres that can be marketed to improve the economy. The data of the 80 KUPS can be found in Table 3.

Table 3. List of 80 KUPS in Food Agroforestry in 2020

No	SF Scheme	KUPS Name	Regency	Number of KUPS Members	Female	Male
1.	HPHD	KUPS Agroforestry -LPHD Tambak	Pulang Pisau	16	6	10
2.	HPHD	KUPS Ecotourism -LPHD Tambak	Pulang Pisau	15	5	10
3.	HPHD	KUPS Crafts - LPHD Tambak	Pulang Pisau	15	5	10
4.	HPHD	KUPS Medicinal Plants - LPHD Tambak	Pulang Pisau	15	5	10
5.	HPHD	KUPS Honey Bees Farming - LPHD Tambak	Pulang Pisau	16	6	10
6.	HPHD	KUPS Agroforestry -LPHD Tumbang Tarusan	Pulang Pisau	18	6	12
7.	HPHD	KUPS Bahalap Orchids - LPHD Tumbang Tarusan	Pulang Pisau	15	5	10
8.	HPHD	KUPS Mushrooms Cultivation - LPHD Tumbang Tarusan	Pulang Pisau	16	6	10
9.	HPHD	KUPS Ecotourism and Environmental Services - LPHD Tumbang Tarusan	Pulang Pisau	15	5	10
10.	HPHD	KUPS Woody Plants -LPHD Tumbang Tarusan	Pulang Pisau	15	6	9

No	SF Scheme	KUPS Name	Regency	Number of KUPS Members	Female	Male
11.	HPHD	KUPS Rattan Crafts - LPHD Tumbang Tarusan	Pulang Pisau	15	5	10
12.	HPHD	KUPS Honey Bees - LPHD Tumbang Tarusan	Pulang Pisau	15	5	10
13.	HPHD	KUPS Kelulut Bawan Honey - LPHD Bawan	Pulang Pisau	15	5	10
14.	HPHD	KUPS Environmental Services - LPHD Bawan	Pulang Pisau	15	5	10
15.	HPHD	KUPS Langanen Bersinar Agroforestry - LPHD Bawan	Pulang Pisau	15	5	10
16.	HPHD	KUPS Bawan Silvofishery - LPHD Bawan	Pulang Pisau	17	6	11
17.	HPHD	KUPS Honey and Mushroom Cultivation - LPHD Tangkahan	Pulang Pisau	15	5	10
18.	HPHD	KUPS Agroforestry - LPHD Tangkahan	Pulang Pisau	15	6	9
19.	HPHD	KUPS Inland Fishing – LPHD Tangkahan	Pulang Pisau	15	5	10
20.	HPHD	KUPS Non-Timber Forest Products (NTFP) - LPHD Tangkahan	Pulang Pisau	15	5	10
21.	HPHD	KUPS Ecotourism - LPHD Tangkahan	Pulang Pisau	15	5	10
22.	HPHD	KUPS Fishery – LPHD Kalawa	Pulang Pisau	18	6	12
23.	IUPHHKHTR	KUPS Oyster Mushrooms – Gapoktan HTR Sengon	Pulang Pisau	21	7	14
24.	IUPHHKHTR	KUPS Sengon – Gapoktan HTR Sengon	Pulang Pisau	199	70	129
25.	HPHD	KUPS Honey – LPHD Buntoi	Pulang Pisau	19	7	12
26.	HPHD	KUPS Propagation – LPHD Buntoi	Pulang Pisau	17	6	11
27.	HPHD	KUPS Fishery – LPHD Buntoi	Pulang Pisau	18	6	12
28.	HPHD	KUPS Rattan - LPHD Buntoi	Pulang Pisau	15	5	10
29.	HPHD	KUPS Ecotourism - LPHD Buntoi	Pulang Pisau	15	5	10
30.	HPHD	KUPS Rubber - LPHD Buntoi	Pulang Pisau	17	6	11
31.	IUPHHKHTR	KUPS Buntoi Harapan NTFP – IUPHHKHTR Gapoktan Forest – Buntoi Village	Pulang Pisau	18	6	12
32.	IUPHHKHTR	KUPS Sengon Bersama - IUPHHKHTR Gapoktan Forest – Buntoi Village	Pulang Pisau	177	63	114
33.	IUPHHKHTR	KUPS Agroforestry - IUPHHKHTR Gapoktan Forest – Buntoi Village	Pulang Pisau	75	26	49
34.	IUPHHKHTR	KUPS Rattan Crafts – IUPHHKHTR Gapoktan Forest – Buntoi Village	Pulang Pisau	18	6	12
35.	HPHD	KUPS Ecotourism – LPHD Gohong	Pulang Pisau	23	8	15
36.	HPHD	KUPS Rattan Crafts Pahari – LPHD Gohong	Pulang Pisau	23	8	15
37.	HPHD	KUPS Agroforestry – LPHD Gohong	Pulang Pisau	23	8	15
38.	HPHD	KUPS Oyster Mushrooms Pambelum - LPHD Gohong	Pulang Pisau	36	13	23
39.	HPHD	KUPS Karya Bersama Agroforestry – LPHD Mantaren I	Pulang Pisau	30	11	19

No	SF Scheme	KUPS Name	Regency	Number of KUPS Members	Female	Male
40.	IUPHHKHTR	KUPS Sengon – Gapotan Hutan Maju Bersama	Pulang Pisau	47	16	31
41.	IUPHHKHTR	KUPS Agroforestry – Gapotan Hutan Maju Bersama	Pulang Pisau	15	5	10
42.	IUPHHKHTR	KUPS Mushrooms – Gapotan Hutan Maju Bersama	Pulang Pisau	15	5	10
43.	IUPHHKHTR	KUPS Kelulut Honey Bees – Gapotan Hutan Maju Bersama	Pulang Pisau	15	5	10
44.	IUPHHKHTR	KUPS Sengon – Gapotan Dandang Bersatu	Pulang Pisau	72	25	47
45.	IUPHHKHTR	KUPS Livestock – Gapotan Dandang Bersatu	Pulang Pisau	90	32	58
46.	IUPHHKHTR	KUPS Rattan – LPHD Bahu Palawa	Pulang Pisau	18	6	12
47.	PHPD	KUPS Forest Honey Bees – LPHD Balukon	Pulang Pisau	15	8	7
48.	PHPD	KUPS Livestock – LPHD Balukon	Pulang Pisau	15	7	8
49.	PHPD	KUPS Oyster Mushrooms – LPHD Balukon	Pulang Pisau	15	5	10
50.	PHPD	KUPS Berkat Usaha (Ecotourism) – LPHD Bereng Rambang	Pulang Pisau	32	11	21
51.	PHPD	KUPS Kelulut Honey Bees - LPHD Bereng Rambang	Pulang Pisau	32	11	21
52.	PHPD	KUPS Hanjak Maju (Oyster Mushrooms) - LPHD Bereng Rambang	Pulang Pisau	32	12	20
53.	PHPD	KUPS Honey Bess – LPHD Bukit Bamba	Pulang Pisau	15	5	10
54.	PHPD	KUPS Agroforestry – LPHD Bukit Bamba	Pulang Pisau	15	5	10
55.	PHPD	KUPS Ecotourism – LPHD Bukit Bamba	Pulang Pisau	15	5	10
56.	IUPHKM	KUPS Fishery – IUPHKM KT 19 POKJA – Bukit Rawi Village	Pulang Pisau	19	7	12
57.	PHPD	KUPS Agroforestry – LPHD Paduran Mulya	Pulang Pisau	18	6	12
58.	PHPD	KUPS Sehati – LPHD Pamarunan	Pulang Pisau	15	5	10
59.	PHPD	KUPS Agroforestry – LPHD Petuk Liti	Pulang Pisau	15	5	10
60.	PHPD	KUPS Honey Bees – LPHD Sigi	Pulang Pisau	29	10	19
61.	PHPD	KUPS Agrosilvopasture – LPHD Sigi	Pulang Pisau	15	5	10
62.	PHPD	KUPS Livestock – LPHD Sigi	Pulang Pisau	15	5	10
63.	PHPD	KUPS Fishery – LPHD Sigi	Pulang Pisau	15	5	10
64.	PHPD	KUPS Environmental Services – LPHD Sigi	Pulang Pisau	17	6	11
65.	PHPD	KUPS Agroforestry – LPHD Tahawa	Pulang Pisau	39	14	25
66.	PHPD	KUPS Livestock – LPHD Tuwung	Pulang Pisau	23	8	15
67.	PHPD	KUPS Kelulut Honey Bees Cultivation – LPHD Tuwung	Pulang Pisau	18	6	12
68.	PHPD	KUPS Fishery – LPHD Tuwung	Pulang Pisau	23	8	15
69.	PHPD	KUPS Fishery – LPHD Tanjung Sangalang	Pulang Pisau	15	5	10

No	SF Scheme	KUPS Name	Regency	Number of KUPS Members	Female	Male
70.	HPHD	KUPS Agroforestry – LPHD Tanjung Sangalang	Pulang Pisau	15	5	10
71.	HPHD	KUPS "Tampung Karuhei" Honey Bees – LPHD Katunjung	Kapuas	21	7	14
72.	HPHD	KUPS Harapan Jadi Fishery – LPHD Katimpun	Kapuas	21	8	13
73.	HPHD	KUPS "Dare Jawet Katimpun" Rattan Artisan – LPHD Katimpun	Kapuas	21	7	14
74.	HPHD	KUPS "Sari Madu Lebah" Honey Bees – LPHD Katimpun	Kapuas	21	8	13
75.	IUPHKM	KUPS "Kapakat" Fishery – KTHKm Tumbang Muroi	Kapuas	21	7	14
76.	IUPHKM	KUPS NTFPs "Batuah" – KTHKm Tumbang Muroi	Kapuas	21	7	14
77.	HPHD	KUPS Segah – LPHD Kayu Bulan	Kapuas	15	5	10
78.	HPHD	KUPS Hajunjung – LPHD Kayu Bulan	Kapuas	15	5	10
79.	HPHD	KUPS Bintang Sakti – LPHD Kayu Bulan	Kapuas	15	6	9
80.	HPHD	KUPS Hapakat – LPHD Kayu Bulan	Kapuas	15	5	10
Total				2.020	707	1.313

Source: Directorate General of PSLK (2020)

The total number of people involved in Food Agroforestry activities was 80 KUPS (2.020 people) - 70 KUPS (1.834 people) were in Pulang Pisau Regency, and 10 KUPS (186 people) were in Kapuas Regency. Based on the number of working days³, Food Agroforestry activities produced 23.881 working days with an average wage of Rp150.000,00 per working day. Thus, the total value of wages reached Rp3.58 billion.

Food Agroforestry activities carried out in 2020 were considered to have benefits for the community economically, socially, and environmentally, including benefits for supporting food supplies (Directorate General of PSLK 2020). Economically, the community received assistance in the form of direct cash, Food Agroforestry assistance, and productive economic tools to support the development of business management. KUPS business management is adapted to the potentials of each location, such as honey bee cultivation, agroforestry, silvofishery, and silvopasture. Socially, the community benefited from institutional strengthening, such as facilities for preparing business management plans and annual plans as well as institutional capacity strengthening. In this regard, several social forestry business groups benefited from the group classification upgrade facilities.

Environmentally, the community enjoyed environmental restoration from the planting of woody plants, fruits, and vegetables through agroforestry system. The mechanism of activities, which was carried out in a participatory manner from planning, implementation, and monitoring to channelling funds directly to groups' accounts (account-to-account mechanism), was a learning process experienced by the community (Directorate of PKEG 2020). In the implementation, Food Agroforestry activities were carried out by community members of social forestry groups from planning, namely identification of group business potentials, preparation for social forestry business management plans, to Food Agroforestry implementation. The distribution of funds for Food Agroforestry activities was directly disbursed to groups' account.

In 2021, the program continued by involving 20 KUPS in Pulang Pisau Regency and Kapuas Regency, Central Kalimantan Province. The system remained the same, namely with agroforestry, silvofishery, and silvopasture. In addition, there were other concepts used, namely local-based community, community farming, and environmentally friendly peat ecology.

In 2021, 14 KUPS in Pulang Pisau Regency and 6 KUPS in Kapuas Regency involved 348 heads of families. The

largest commodity from KUPS was agroforestry (21%). Other commodities included fruits (17%), ecotourism (16%), timber (12%), coffee (7%), food crops (7%), honey (5%), palm sugar (4%), eucalyptus (1%), bamboo (2%), rattan (2%), and other NTFPs (6%). KUPS data in 2021 could be seen in the table below.

Table 4. Data of 20 KUPS involved in Food Agroforestry in 2021

No	License Name	License Area (Ha)	Regency	KUPS Name	Number of Members	Male	Female
1	LPHD PILANG	8583	Pulang Pisau	KUPS "Karya Bersama". Fishery	16	15	1
				KUPS "Tampung Penyang" Agroforestry	15	15	0
2	MHA BARASAK PILANG VILLAGE	102	Pulang Pisau	KUPS Kelulut Pambulan Agroforestry & Honey Bees	18	15	3
				KUPS Barasak Silvofishery	19	16	3
3	KTH IJE ATEI	180	Kapuas	KUPS "Kahanjak Atei" Agroforestry	19	17	2
				KUPS "Batang Pambelum" Rubber Cultivation	19	11	8
4	KTH RIMBA LESTARI	100	Kapuas	KUPS Lunuk Ramba Agroforestry	15	8	7
				KUPS Handep Hapakat Silvofishery	15	8	7
5	LPHD PELITA MUDA/ LPHD TUMBANG MANGKUTUP	2012	Kapuas	KUPS "Itah Tempon Gawi" Agroforestry	16	6	10
				KUPS "Maju Makmur" Fishery	16	11	5
6	LPHD Parahangan	1574	Pulang Pisau	KUPS NTFPs	17	0	17
				KUPS Silvopasture	18	13	5
7	LPHD BUKIT LITI	896	Pulang Pisau	KUPS Bees	21	20	1
				KUPS Silvofishery	16	14	2
8	LPHD PENDA BARANIA	514	Pulang Pisau	KUPS Agrosilvofishery	15	10	5
				KUPS Silvopasture	15	13	2
9	LPHD HENDA	3932	Pulang Pisau	KUPS Kahanjak Henda Agrosilvofishery	15	11	4
				KUPS NTFPs Henda Sejahtera	15	4	11
10	LPHD TANJUNG TARUNA	4858	Pulang Pisau	KUPS Taruna Mandiri	15	12	3
				KUPS Taruna Bersatu	33	29	4
	Total Area	22.751		Total KUPS Members	348	248	100

Source: Kalimantan Region PSL Centre (2021)

Women's Participation in Food Agroforestry

Social Forestry Management can be done by local community living in and around forest areas. Pursuant to Minister of Environment and Forestry Regulation No. 9 of 2021 on Social Forestry Management, local community who can manage forest are women and men who live around forest areas. However, community who lives or conducts activities in state forest areas must have a social community that can be proven by a history of forest area management and its form of dependence on the forest. In accordance with these regulations, the management of Social Forestry provides equal opportunities to men and women.

In 2020, women's participation in the membership of Food Agroforestry activities was 707 people out of 2,020 people or about 35%, while in 2021, as many as 100 women (out of 348 people or 27%) were involved as members. Most of the women in the Food Agroforestry KUPS are permanent members in accordance with KUPS' establishment decision. Moreover, women's participation in the institutional structure is also visible as there are women who become chairpersons, treasurers, and companions.

While women have been involved in KUPS, their participation is still limited because some still feel hesitant and embarrassed to be seen and to speak in public. The lack of information and access to participate in trainings is one of the obstacles for women. In order to encourage the participation of women's groups, awareness-raising is needed to enhance women's self-confidence through gender education or training. These efforts can be done through meetings, workshops to improve the role of women, and discussion groups on issues of women's roles, women's rights, and organizations.

Women's participation in the management of Food Agroforestry activities was mainly presented by 2 KUPS. KUPS NTFPs Parahangan has 16 Kelulut honey stups for cultivation. In addition, to support bees' food, they grow plants, such as sunflowers, *kaliandra* flowers, and bridal tear flowers. Since July 2021, there have been several honey harvests reaching a volume of around 4 liters per harvest. The price of honey per liter ranges from Rp350.000,00-Rp375.000,00 per liter. Meanwhile, Henda Sejahtera's NTFPs LPHD Henda has 30 Kelulut honey stups. Since July 2021, KUPS NTFPs Henda has harvested about 4 times with a selling price of Rp375.000,00 per liter. In addition to working on Kelulut honey, the two KUPS also grow other types of fruit plants as an on-farm business, such as crystal guava, bitter beans (*petai*), and longan.

The involvement of women in Food Agroforestry activities has started since 2020 with 707 women involved in KUPS membership. There are seven women as chairperson and 28 women as group treasurers. In 2021, there were 100 women involved as members of KUPS. In the KUPS institutional structure, there were 7 women as treasurers and 4 women as secretaries. In 2021, 2 KUPS – KUPS NTFPs Kelulut Honey Bees LPHD Parahangan and KUPS NTFPs Henda Sejahtera LPHD Henda – were created and chaired by women. Their membership is entirely or mostly (more than 50%) women. KUPS NTFPs Henda Sejahtera consists of 15 people, 4 of them are men and the rest are women, while KUPS Kelulut Honey Bees LPHD Parahangan consists of all women (17 people). The establishment of women KUPS was driven by women's desire to help their families to increase their income. There was also encouragement from the Head of Village for women to be involved in Food Agroforestry activities. Women's KUPS develop groups' business management by cultivating Kelulut honey, flower plants, and fruit trees.

In developing the business management of honey bees cultivation, bee food plants, wood plants, and fruits, these two KUPS received assistance in developing Food Agroforestry that includes plant seeds, working days calculation, and productive economic tools to support cultivation activities. Based on KUPS' types of commodities and needs, the tools provided included Kelulut honey bee boxes, honey suction equipment, packaging bottles, packaging stickers, buckets, containers, and harvest clothes.

The results of women's group business management, mainly Kelulut honey, have empowered women economically. The results were used for consumption by families and sold to the market. They also managed to increase families' income and fulfil and support food security. Women, who have gained experience in Food Agroforestry activities, share their knowledge and take the initiative to invite their closest groups, such as through *arisan*.

Challenges to Women's Participation

Women's participation in Food Agroforestry activities includes propagation, land clearing, planting, and harvesting activities. Women as KUPS members assist more in propagation and harvesting activities, while men are usually involved in land clearing. In women's KUPS, all activities are carried out by women. Women's participation in Food Agroforestry activities is important to share roles in implementing forest management and utilisation. The production, processing, and marketing

processes can be carried out together according to their roles.

Group members jointly carry out activities ranging from land preparation, honey *stups* installation, harvesting, and packaging. For activities that require more precision, such as packaging, it would be better for women to do it. The involvement of women in Food Agroforestry activities is important to enhance women's capacity through training activities organised by Kalimantan Region PSL Centre (Erna-Chairperson of KUPS NTFPs LPHD Henda 2022, interview, 8 January).

KUPS members, especially women, have the courage to speak in public, and are no longer shy. They can learn about packaging and marketing online. Female members gain knowledge of land use for business management so that they can increase their income. Accompaniment, both from companions and PSL Centre officials, is very helpful in land management activities (Erna-Chairperson of KUPS NTFPs LPHD Henda 2022, interview, 8 January).

To enhance the group's capacity in business management, technical guidance and training are provided to KUPS members. The training aims to provide knowledge of online product marketing. Currently, KUPS is connected to Tokopedia and Shopee and has an online store. Several KUPS have been contacted by buyers (Nurhasnih-Head of Kalimantan Region BPSKL 2022, interview, 25 January).

Women's participation in the management of Social Forestry is still very low. At least, only five percent of women take part in the management of Social Forestry. Socio-cultural influence is the main factor that affects the low participation of women in forest management (Andriansyah 2021). In forest utilisation activities through Food Agroforestry, the criteria for beneficiaries have actually provided opportunities for both men and women, but there are still challenges for women's involvement in terms of meaningful participation and institutional governance. In general, women join as group members; not many become group administrators. Limited ability and lack of self-confidence are obstacles and challenges for women. Women's groups are also constrained in terms of securing their business management; groups that are mostly women have to employ men as guards. From this example, it seems that women cannot own or fully control the resources. The benefits and profits earned have to be reduced to pay the guards.

Impact of Women's Participation in the Management of Food Agroforestry Activities

According to SETAPAK (2016), in the context of governance in the forest and land sectors, there are still many gender inequalities as there is not much

participation of women in decision-making processes related to their access to land and forest resources as a source of livelihood. According to CIFOR (2013), women depend on forest for basic income and needs. World Bank's 2010 data state that women in forest communities earn half of their income from forest, while men only earn a third. The research result on women's participation in Community Forest management shows that the area of cultivation and income of women farmers groups have a very substantial effect on family income (Yudischa et al. 2014).

The role of women in Food Agroforestry activities can be seen from their involvement in propagation, land clearing, and honey harvesting. The use of Food Agroforestry in Social Forestry areas promotes the role of women to participate in the management and utilisation of forest areas through agroforestry systems. The 2020 data of the Directorate General of Social Forestry and Environmental Partnership for the Kalimantan Region reveal that the involvement of women in Food Agroforestry activities was at an average rate of 30%, namely as supporters (around 38,75%). The total number of women as KUPS members was at 35% or around 707 women and the absorption of working days from Food Agroforestry activities that affect women was around 30%.⁴ Food Agroforestry activities promote the participation and role of women as actors in business development to improve the economy.

The involvement of women in Food Agroforestry activities has a positive impact, including increasing family income from group business management activities, as explained by the Head of KUPS NTFPs LPHD Parahangan below.

Through Food Agroforestry activities, the group cultivates Kelulut honey bees and harvests flower and fruit plants. Kelulut honey bees have been harvested several times and the products are not only consumed by the family but also sold to increase income (Fitria-Head of KUPS NTFPs LPHD Parahangan 2022, interview, 8 January).

The impacts of women's participation in Food Agroforestry activities were felt by the Chairperson of the KUPS NTFPs LPHD Parahangan. These impacts included economic contributions to families as well as access to knowledge and learning from participating in trainings held by Kalimantan Region PSL Centre that could be transferred to group members. Women became more confident in influencing and sharing knowledge with fellow female members.

Gender Analysis with Longwe's Framework

Gender analysis is a process that systematically analyses data and information about men and women in order to identify and unpack the positions, functions, roles and responsibilities of men and women, as well as the influencing factors (Faraz 2012). Furthermore, gender analysis provides the basis for carrying out social transformation to realise a new, better life order through more just social relations.

Analysis at the site level shows that Social Forestry tends to favour male elites in forest management, which has implications for gender inequality (Tobing et al. 2021). Furthermore, it is said that women tend to play a domestic role in the household, while forest management is identical to the male-dominated public sphere. In fact, in one of the cases of Community Forest management, the role of women is in the low category (Pratiwi et al. 2018), which is influenced by three factors, namely social, cultural, and religious aspects.

Social aspect affects women's participation in forest management and utilisation. For example, in institutional governance, women are considered being incapable of management so they cannot be involved in group management. It was also found that women have a desire to contribute to family income by developing honey bees cultivation, but in the field there is a lack of disclosure of information. From a cultural aspect, there is a tradition of farming communities that involves women in planting and harvesting activities. For example, when planting rice in shifting cultivation, men generally carry a sharpened wooden stick to make holes. After that, women will follow from behind and put the rice seeds into the rice holes. This traditional culture assumes that women cannot carry out a complete planting process, although in practice women can also do it themselves. For example, in Sigi Village, Pulang Pisau Regency, Kahayan Tengah District, Central Kalimantan Province, women working in the fields follow the *Handep* system, a form of social organization that is fairly ancient among the Dayak community. In this organization, people agree to help each other to do the work. The organization does not discriminate between genders; it adheres to what is commonly applicable or sees the type of work being carried out (Directorate General of Cultural Values, Arts and Film, Ministry of Culture and Tourism 2009).

Furthermore, in this section, the data that have been explained in the previous subsections are analysed using Sara Longwe's analytical framework (1999). There are two stages in Sara Longwe's gender analysis. The first stage is to identify the level of equality and the second stage

is to assess the level of recognition of women's issues contained in an activity (Nurhaeni 2013). According to Longwe's framework, identification will be carried out to observe equality and assess the level of recognition. The following is the identification of Food Agroforestry activities in the first stage.

Welfare: Increasing Women's Income through Food Agroforestry Activities

Food Agroforestry aims to optimise the utilisation of forest areas and support in the supply of materials from forest areas. The utilisation of forest areas through agroforestry systems includes agroforestry, silvofishery, and silvopasture. Commodities including woody plants, such as *galam*, *ketapang*, and others as well as fruit trees, such as guava, *durian*, and *rambutan*. This activity involves a lot of people; in 2020, it involved 2020 people, and in 2021, it involved 348 people to support labour-intensive programs. This activity recognised and fulfilled women's interests without differentiating between the beneficiaries' membership. In Longwe's terminology, all levels of women's programs prioritise a higher level of equality because all activities start from the premise of trying to increase women's level of confidence, awareness, and control (Nurhaeni 2013).

Food Agroforestry activities of 80 KUPS in 2020 involved 707 women, and 20 KUPS in 2021 involved 100 women. This provides opportunities for both men and women to utilise forest area. The main activity is the development of Food Agroforestry with commodities according to the potentials of the area. This activity promotes women's empowerment by requiring the criteria for KUPS recipients of Food Agroforestry to have at least 15 members, both men and women. This provides opportunities for women to participate in accessing resources. Women in Food Agroforestry activities gain knowledge through e-learning and technical guidance, earn additional income through the developed businesses, and are able to expand their network through inter-group communication and a mindset change that women can be involved in development activities.

Access: Women's Access to Food Agroforestry Activities

The stages of Food Agroforestry activities include inventory of KUPS data, socialisation at the site level, facilitation of planning, institutional strengthening, Food Agroforestry development, and provision of productive economic tools as well as technical guidance. All activity stages can be followed by both men and women, including technical guidance and trainings. The number

of women in Food Agroforestry activities in 2020 was at an average rate of 35% with the proportion of women membership in 80 KUPS reaching 33%-40%. In 2021, the number of women in Food Agroforestry activities was at an average rate of 29% with the proportion of membership in 20 KUPS relatively varied between 0%-100%. In Food Agroforestry activities, if the activities could be done by women, for examples, preparation, planting, and harvests processing, their involvement would be encouraged. This experience fostered confidence in women, hence the following year there were women who already initiated the establishment of women's KUPS.

Women's Critical Awareness: Promoting Women's Critical Awareness of Gender Roles

There are limitations to the implementation of Food Agroforestry activities during the Covid-19 pandemic, particularly in regard to community's activities and movements. To raise awareness of gender issues, the Food Agroforestry activities introduce trainings with an e-learning system. E-learning is a remote online training. This online training is intended for socialisation as well as capacity building for institutions, assistants, and groups. It also aims to encourage community and companion activities in the field so that the activities of Social Forestry program do not stop because of Covid-19. The activity includes materials on gender issues and gender mainstreaming in Social Forestry program. With these materials, it is hoped that participants will be able to understand gender issues, raise awareness of women's rights, and there is a transformation of knowledge to increase the capacity of women members of KUPS.

Women's Empowerment in KUPS

Food Agroforestry provides development assistance according to the potential conditions in the KUPS area and the needs of the KUPS. This program does not require the existence of certain types of commodities in each group. KUPS is adjusted to the agreement of the members, and

with the guidance of the companion determine the type of commodity and the type of equipment proposed. This activity has encouraged an open participation of men and women in decision making. Although it is open to women, sometimes women have time constraints in terms of its implementation because it is done together with other household tasks. In addition, in the decision-making process, women are still shy to give opinions or speak in public.

In some KUPS, men trust women to decide when the crops will be sold and enter the market. However, negotiations are still being done by men (Nurhasnih-Head of Kalimantan Region BPSKL 2022, interview, 25 January).

Control: Women's Independence

Women are involved in the production process and benefit from the results of business management. The results of business management such as honey are used for family consumption and as a source of income. Women earn additional income and contribute economically to the family. This activity gives consideration to women to increase their capacity, especially in forest resource management, agroforestry cultivation, and institutional governance. They can decide for themselves the utilisation of business management results and have control over resources.

The level of equality between women and men in Sara Longwe's empowerment model is classified into 5 (five) levels and is defined in terms of welfare, access, awareness, participation, and control (Nurhaeni 2013). The findings in the Food Agroforestry activities are described in table 5, which has been sorted according to socialisation/technical guidance for production area and business management. This production area is considered being able to clearly describe the involvement of women in Food Agroforestry activities.

Table 5. Analysis of Equality Level

Use of Tool 1: Women's Empowerment: Level of Equality		
	Socialisation/Technical Guidance	Business Management
Welfare	No	No
Access	Yes	Yes
Awareness	Yes	Yes
Participation	Yes	No
Control	Yes	Yes

Source: Processsed from the data from Kalimantan Region PSL Centre (2021)

Analysis of the Level of Recognition of Women's Issues

Longwe identifies three different levels of recognition of women's issues in project design (Nurhaeni 2013). Recognition is divided into negative, neutral, and positive levels. At a negative level, the objective of the project does not mention women's issues. Experience shows that women are very likely not to be the target of a project.

The neutral level indicates that at this level the project recognises women's issues, but the project's intervention does not make women worse than before. At this level, the positive objective of the project relates to women's issues, namely to improve the position of women to men. The second stage, which is an assessment of the level of recognition of Food Agroforestry activities, is presented in table 6 below.

Table 6. Analysis of Women's Issues

Project	Using of Women's Empowerment Framework: Tools 1 and 2					Level of Recognition of Women's Issues
	Welfare	Access	Awareness	Participation	Control	
Socialisation/ Technical Guidance	No	Yes	Yes	Yes	Yes	Positive
Business Management	No	Yes	Yes	No	Yes	Positive

Food Agroforestry can be said to have a positive level because the implementation of its activities has a level of recognition of women's issues. Women's participation in the management and decision-making processes of farmer groups needs to be enhanced to encourage the strengthening of women's capacity with a policy and planning approach, namely by providing greater opportunity and access for women's groups to resources (knowledge, skills, finance, and organization) and services. (Prastiti et al. 2012). In fact, Food Agroforestry activities have provided access to both men and women, and thus, there are equal opportunities and rights in forest management and utilisation.

In addition, there is already control for decision-making in development and its resources. This can be seen from the establishment of KUPS that is chaired by women and entirely or mostly consists of women. However, there is still a need for increasing the involvement of women to ensure equal participation of men and women. Steps to increase women's participation include capacity building to ensure that women can also gain knowledge and skills. This can be done through trainings, comparative studies, or field schools. With this knowledge, women are expected to be involved in accessing development programs and decision-making processes.

The encouragement from the Head of Village gave women the initiative to be involved in Food Agroforestry activities in order to benefit from the business management activities. It was hoped that women could support their family's economy (Fitria-Chairperson of KUPS NTFPs Parahangan 2022, interview, 8 January).

Women have the desire to provide economic support to their family through the cultivation of Kelulut honey bees, but they do not know how. They had to look for information to understand that women could also be involved in the cultivation of Kelulut honey bees through Food Agroforestry activities by forming a KUPS (Erna-Chairperson of KUPS NTFPs LPHD Henda 2022, interview, 8 January).

From the interviews above, it was found that women's participation remained lacking. Thus, there needs to be encouragement from other parties to enhance women's confidence. This shows that opportunities for women have yet to be fully utilised. Hence, there is still a need for control so that decision-making and participation could be improved. Furthermore, access to information should also be increased to bring opportunities closer to women.

Conclusion

Food Agroforestry, which was implemented in 2020 and 2021, provided social, economic and environmental benefits. Socially, the community was formed in business groups (KUPS), where group institutions could be strengthened and improved. Economically, the community benefited from groups' business results, including from the cultivation of Non-Timber Forest Products (NTFPs), honey bees, plants with agroforestry system, silvofishery, and silvopasture. The community also benefited from environmental restoration and land cover improvements by using agroforestry planting system.

In Food Agroforestry activities, the involvement of women as KUPS members can contribute to the implementation of business management activities. To women, the opportunity in such involvement can be to pursue personal development and get support to better understand their constitutional rights and knowledge of production and post-production management.

Food Agroforestry also has a positive level of recognition for women. Women are involved in all stages of the process, from socialization to business management. Challenges and obstacles to women's participation in this activity partly come from women (domestic roles and lack of access to information). Capacity building in business management activities can help enhance women's ability, knowledge, and self-confidence so that women become more confident, able to implement an equal division of gender roles at home, and receive sufficient information to be able to participate in activities.

In terms of business development, it is recommended that groups for capital and commodity market be assisted through program collaboration and support from various parties, such as Regional Government Organizations in provinces and regencies/cities, NGOs, as well as capital institutions and the private sector. Food Agroforestry activities carried out by the community could encourage women's participation through the creation of KUPS consisting of women to participate in managing forest area through Food Agroforestry. The group's business results can help sustain food security, especially for family resilience during a pandemic. Women's groups must continue to be active so that KUPS institutions can remain sustainable and actively manage their business.

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End Notes

- 1 KUPS is a business group established by the Social Forestry group that will and/or have done businesses.
- 2 Off farm is an activity carried out outside of agricultural land but is still related to agricultural products.
- 3 Working day is a labour unit that is generally used to compute farm business analysis.
- 4 See table 4.