The contribution of housewives in timber and non-timber harvesting activities during the Covid-19

Muhammad Dassir, Nurdin Dalya, and Christine Esye Semoin
Faculty of Forestry, Universitas Hasanuddin, Jl. Perintis Kemerdekaan Km.10 Tamalanrea Makassar, South Sulawesi, Indonesia 90245

E-mail : nurdindalya@unhas.ac.id

Abstract. The current pandemic situation has a major impact on the economic sector, especially household income. Housewives often contribute to the family economic system, one of the ways is by utilizing forest products. This research aims to describe the role of housewives in harvesting timber and pine resin products, and to determine the time spent and the contribution of income generated by these housewives. Data collection process was carried out directly using interview techniques to 27 selected samples by purposive sampling. Data from interview then processed and analyzed using quantitative descriptive analysis methods. The results showed that the role of housewives in harvesting wood forest products was used as raw material for charcoal production, with an average flow of work time of 43% and an income contribution by 42.5%. While in harvesting pine sap, housewives act as pine sap collectors with an average working time of 48% and an income contribution by 26%.

1. Introduction
Forest harvesting aims to optimize timber value, industrial supply, increase employment opportunities and develop regional economies [1]. Based on the objectives of forest harvesting, Sarah (2017) argues that sustainable forest management cannot be separated from community participation [2]. In the forest resource management system, housewives unwittingly have a very important role in it, including land management, plant maintenance, harvesting of forest products until the final stage, namely marketing forest products.

Several things that cause housewives to try to earn additional income include the willingness of women to be independent in the economic sector, namely trying to finance their daily needs and the necessities of life of those they depend on and to increase family income [3]. According to Wulansari et al. (2019) in their research, assessing the Gender Perspective of Pine Sap Tappers shows an interesting phenomenon, where housewives have more work time than men [4]. In line with the income they have, it is found that the contribution of housewives to income is greater than that of men, which is 75%. This is supported by data from the labor market indicators of the province of South Sulawesi in 2018 from the Central Bureau of Statistics, it is known that there has been an increase in the ratio of working population to total population (Employment to Population Ratio). EPR is an important indicator in the labor market, where the EPR figure for South Sulawesi in 2018 was 49.17 percent. In 2018, women's EPR increased by 2.74 points, where the 2017 EPR was 34.43 points to 37.17 points in 2018. This information is indispensable for development planning with a gender perspective, especially those related to balanced development between boy and girl.
Based on the various phenomena described above, this study was conducted to determine the involvement of housewives in harvesting timber and pine sap. Some of the households in Cenrana Baru Village, Cenrana District, Maros Regency, his wife also helps in harvesting forest products. The consideration of determining the conduct of this research is due to the absence of research conducted in that place regarding the role of housewives in assisting the harvesting of timber forest products and pine sap.

2. Research methods
2.1. Time and places
This research was conducted from September 2020 to June 2020 in Cenrana Baru Village, Cenrana District, Maros Regency, South Sulawesi Province. The data collection process starts from December 2020 to January 2020.

2.2. Data collection techniques
This method uses direct interviews with housewives who are respondents in the study. Includes (a) techniques for implementing pine sap tapping, (b) equipment used in tapping pine sap, (c) time spent on labor for men and women in tapping pine sap, (d) income earned by housewives from tapping pine sap, (e) the technique of utilizing wood harvested waste into charcoal for fuel.

2.3. Data analysis
The results of the interview will be analyzed descriptively quantitatively, namely describing the data that has been obtained from a sample of the study population and then further processed to obtain a picture related to the role of housewives in harvesting wood and pine forest products, in Cenrana Baru Village, Cenrana District, Maros Regency. Descriptive analysis is carried out at each position (status) of the community in the village as well as the role they play after occupying that position (status), then it will describe the role that each position (status) plays in each forest management process.

3. Results and discussion
3.1. Description of harvesting of timber forest products
3.1.1. Description of harvesting timber forest products. Utilization of Timber Forest Products (HHK) carried out by the community is the manufacture of charcoal. Charcoal making is one of the community's alternatives to be used as a source of energy (cooking) or can be sold to increase daily income. This wood can be obtained from pruned wood or from dry wood. The type of wood chosen is the wood they plant around their house, namely acacia wood and teak. The charcoal making begins with the process of cutting wood into small pieces which is done by the husband.

After that the wife manages the wood starting from making a hole with a size of 2x1 m with a depth of 0.8 m. Then, put the wood into the hole that was made earlier, then fill it with rice husks. The next stage is the burning process which is carried out according to the time and type of wood used. After the burning process is complete, the rice husks are cleaned from the burning hole. The wood that has become charcoal is dipped in a bucket filled with water considering the charcoal condition is still hot until it continues at the last stage, namely charcoal collection.

3.1.2. Harvesting description of pine sap. Pine sap harvesting in Cenrana Baru Village is managed by a company called PT APU HOME BESSE ARNESH, with a land area of 100 ha which is right in Tanete Hamlet, Cenrana Baru Village. The process carried out in harvesting pine sap uses the koakan technique. Koakan technique is used to make cuts on the pine trunk. The making of the tapping wound is made 15 cm above the ground surface with a koakan length of 15 cm and a width of 5 cm with a depth of up to 3 cm. The tools used are kedukul or pellet. Tapping wound renewal is carried out every 5-6 days over the existing tapping wound with an extension of the wound 3-5 cm. The pine pine sap is harvested every 2 times a month.
The wife’s role is to help the husband in collecting the tapped sap and putting it in a bucket. In 1 bucket, it can only accommodate 25 kg of pine sap which is then carried by the husband to the place where the sap is collected. The distance traveled from the tapping site to the sap collection point varies. The closest distance is 0.5 km and the farthest distance is 3 km. The sap received is then weighed and paid directly based on the weight of the sap obtained by the farmers and then transported by the company. The tools used in the pine sap harvesting process include: kedukul or pellet, tapping gutter, sap bowl, tapping bucket, sap scraper, sprayer, bamboo ladder, and drum. Most of the tools had been prepared by the company, except for the sap and whetstone scrapers which they purchased at a price of IDR 15,000 and IDR 12,000, respectively. The company often adds tools such as rubber gloves and rubber shoes. Tappers sometimes buy sprayers when they want to do tapping if the company has not prepared it.

3.2. Outline of working time for harvesting timber forest products and pine sap

3.2.1. Time outpouring of harvesting timber forest products. The amount of time devoted or allocated to carry out a series of activities carried out within or outside the household scope is called the amount of working time [5]. The table below shows that most of the husband’s time spent working more than his wife. The difference in time is due to the husband continuing other work, namely cultivating rice fields and dry land. However, there was one respondent who had more time spent on his wife than his husband, namely 0.375 HOK while the husband was only 0.250 HOK. The age factor of these respondents is almost entering old age, so the process of making holes from rice husks is quite long compared to respondents who are still of productive age. This was also experienced by respondents who had the same amount of time as their husbands, namely 0.375 HOK.

| No. | Name of the family member | Outpouring of the working time (HOK) | Event description |
|-----|--------------------------|-------------------------------------|-------------------|
|     | Husband and Wife         | Husband and Wife                     |                   |
| 1   | Sultan Dharma            | 0.375 / 0.250                        | wood cut into pieces small To process the small wood, starting from the process of hoarding wood with husks, dyeing it to drying the charcoal, which can then be Sold |
| 2   | Asrul Asma               | 0.375 / 0.250                        |                   |
| 3   | Mukhtar Jawiah           | 0.375 / 0.250                        |                   |
| 4   | Khadir Hj. Aisyah        | 0.375 / 0.375                        |                   |
| 5   | Akhmad Midah             | 0.250 / 0.375                        |                   |
| 6   | Syamsul Aisyah           | 0.375 / 0.250                        |                   |
| 7   | Muhayang Usmani          | 0.375 / 0.250                        |                   |
| 8   | Amir Kanang              | 0.375 / 0.250                        |                   |
| 9   | Jabir Sitti              | 0.375 / 0.250                        |                   |
| 10  | Ismail Nisba             | 0.375 / 0.250                        |                   |
| 11  | Irwansyah Ernawati       | 0.375 / 0.250                        |                   |
It can be seen from the diagram that the husband's average time spent working is greater, namely 57%, while the wife is only 43%. This difference is not much different considering that the age of the wife is mostly included in the working/productive age, so that they still have great motivation to work.

In the charcoal making process, it also takes a long time to wait for the wood to turn into charcoal. Some respondents only needed one night to make charcoal. However, some have to wait up to three nights depending on the condition of the wood. If the wood is dry, it can be finished overnight. Meanwhile, if the wood is wet, it can be finished for three to five days.

**Figure 1.** Contribution diagram for timber harvesting of timber forest products

### 3.2.2. Time outpouring of harvesting pine sap

Based on Table 2, most respondents spend their time harvesting pine resin with their husbands from the morning at 08.00 WITA - 16.00 WITA. As previously explained, the participating respondents only work as sap collectors, while their husbands do jobs such as: tapping trees, collecting sap to carry the sap to the sap collection point for transport by the company.

However, some respondents also only chose to accompany their husbands from the morning at 08.00 WITA to 12.00 WITA only. As experienced by Ibu Kumala, where one of the factors is age, distance to the location and the number of dependents she has. Kumala's mother's age can be said to have entered old age so that she has decreased physical endurance, then the distance from the house is quite far, which is 3 km by foot. Ibu Kumala also has three children who require her to be at home doing activities such as cooking for the family. Thus, it becomes a consideration for respondents not to be able to fully accompany their husbands in working as pine sap tappers.

**Table 2. Outline table of harvesting time for pine sap**

| No. | Name   | The outpouring working time (hours / day) | Activity description |
|-----|--------|------------------------------------------|----------------------|
|     | Husband| Wife                                     |                      |
|     | Wife   | Husband                                  |                      |

*Husb-and*
pine resin collection. The pine sap which has been transported to the sap collection point to be weighed by the company.

Collection of pine sap.

|   | Name     |   |   |   |   |
|---|----------|---|---|---|---|
| 1 | Arafat   | 0.875 | 0.500 |
| 2 | Anwar    | 0.750 | 0.750 |
| 3 | Masse    | 0.875 | 0.875 |
| 4 | Jasmir   | 0.750 | 0.750 |
| 5 | Nawa     | 0.750 | 0.500 |
| 6 | Jufri    | 0.875 | 0.875 |
| 7 | Lassang  | 0.500 | 0.500 |
| 8 | Amir     | 0.750 | 0.750 |
| 9 | Usman    | 0.750 | 0.750 |
|10 | Sama     | 0.750 | 0.750 |
|11 | Jusman   | 0.750 | 0.750 |
|12 | Baco     | 0.750 | 0.500 |
|13 | Saleh    | 0.875 | 0.875 |
|14 | Muh. nur | 0.750 | 0.750 |
|15 | Rusli    | 0.750 | 0.750 |

Average 0.770 0.710

Figure 2. Contribution of pine sap harvesting working time distribution diagram.

The diagram shows that the average time spent by husband and wife workers is not that great. Where the husband has an average work time of 52% while the wife is 48%. Most of the respondents are of working / productive age, there are also some people who are nearly old age. This is in line with the statement of Hasyim (2006) in Dwinaga (2017), which states that age can be used as a benchmark in seeing someone's activities at work. If the age is getting into the stage of old age, the physical
strength they have will decrease so that it can affect their productivity at work including the time needed to complete a job which is also getting slower [6].

3.3. Revenue contribution of harvesting timber forest products and pine sap

3.3.1. Revenue contribution for harvesting timber forest products. Revenue is the income received by a person or group from a business or job in the form of money or within a certain period of time. A wife who generally works as a housewife who performs reproductive activities can also contribute to productive activities [7]. Most of the residents of Cenrana Baru Village have their main livelihood as a rice farmer. A job as a farmer is considered insufficient to meet his daily needs. With the harvest period only once a year they are required to manage their finances as well as possible. One of the reasons that housewives participate in doing work is to increase family income. Apart from that, to fill their spare time when their husbands go to work or their children go to school, respondents choose jobs that do not take up much of their time and they can work with their husbands, namely managing wood forest products as raw material for energy such as charcoal. Where the type of acacia wood is suitable if it is processed into charcoal which will then be sold as additional income for their family is presented in table 3.

| No. | Husband and Wife Income (Rp.) | Contribution of income (%) |
|-----|------------------------------|-----------------------------|
|     | (1)  | (2)  | (3)  | (4)  | (5)  |
| 1.  | 90,000 | 60,000 | 150,000 | 40 |
| 2.  | 120,000 | 80,000 | 200,000 | 40 |
| 3.  | 60,000 | 40,000 | 100,000 | 40 |
| 4.  | 50,000 | 50,000 | 100,000 | 50 |
| 5.  | 20,000 | 30,000 | 50,000 | 60 |
| 6.  | 30,000 | 20,000 | 50,000 | 40 |
| 7.  | 60,000 | 40,000 | 100,000 | 40 |
| 8.  | 30,000 | 20,000 | 50,000 | 40 |
| 9.  | 120,000 | 80,000 | 200,000 | 40 |
| 10. | 30,000 | 20,000 | 50,000 | 40 |
| 11. | 30,000 | 20,000 | 50,000 | 40 |
| 12. | 150,000 | 100,000 | 250,000 | 40 |
| **Average** | **65,833** | **46,667** | **112,500** | **42.50** |

Table 3 shows that the role of housewives in managing timber forest products has an effect on income, with an average income contribution of 42.50% or as much as IDR 112,500. The husband has an average income of IDR 65,833, while the housewife is IDR 42,667. Even though the husband's
average income was greater, one housewife had a higher income contribution rate, reaching 60% or as much as IDR 30,000. This is due to the fact that housewives have longer working hours than their husbands. This happens because the husband uses timber forest products to fill his spare time before plowing the fields, which is their main source of livelihood.

The wood that is processed solely matches the needs of their family such as cooking needs. The less production they produce in making charcoal the less they need the charcoal so that if their charcoal is not sold, they can use it for their daily needs. There are 10 logs used in the manufacture of charcoal with a diameter of 12.06. The charcoal is put into sacks with a capacity of 25 kg and sacks with a capacity of 50 kg. Sacks with a capacity of 25 kg can be used for 7 days (1 week) while sacks with a capacity of 50 kg can be used for 30 days (1 month). The existence of events such as celebrations increases the demand for charcoal production. Although the housewives in the village use gas stoves, to reduce the cost of living, the use of gas is also balanced with the use of charcoal. Given that the 3 kg LPG gas used for IDR 27,000 can only be used within approximately 7 days of usage. Apart from making charcoal, they also have a side job, including planting peanuts, candlenut or corn.

3.3.2. Pine sap revenue contribution. Income is the income received by someone in doing a job. The size of the income obtained by farmers depends on how much pine sap is produced in the following table.

| No. | Husband and Wife | Income (Rp.) | Total | Contribution of income (%) |
|-----|------------------|--------------|-------|----------------------------|
| 1   | 4,373,000        | 523,000      | 4,896,000 | 11 |
| 2   | 853,000          | 413,000      | 1,266,000 | 33 |
| 3   | 1,843,000        | 303,000      | 2,146,000 | 14 |
| 4   | 1,733,000        | 413,000      | 2,146,000 | 19 |
| 5   | 1,183,000        | 193,000      | 1,376,000 | 14 |
| 6   | 5,583,000        | 413,000      | 5,996,000 | 7 |
| 7   | 963,000          | 633,000      | 1,596,000 | 40 |
| 8   | 633,000          | 413,000      | 1,046,000 | 39 |
| 9   | 2,723,000        | 1,073,000    | 3,796,000 | 28 |
| 10  | 2,723,000        | 1,073,000    | 3,796,000 | 28 |
| 11  | 1,073,000        | 523,000      | 1,596,000 | 33 |
| 12  | 1,183,000        | 413,000      | 1,596,000 | 26 |
| 13  | 1,073,000        | 523,000      | 1,596,000 | 33 |
| 14  | 1,623,000        | 523,000      | 2,146,000 | 24 |
| 15  | 633,000          | 413,000      | 1,046,000 | 39 |
The contribution of housewives’ income to increasing family income can be seen in Table 4. The average income contribution of housewives was 26% with an average income of IDR 523,000. Although the average increase in income owned is not that large, one respondent can reach up to 40% of the contribution to income. This indicates that the motivation of a wife to work at a productive age is a support to generate income. There are also housewives who choose to work not only to earn income, but also to fill their spare time to work in addition to carrying out household reproductive activities.

4. Conclusion
The involvement of housewives in harvesting wood and pine resin products in Cenrana Baru village is done to fill their spare time as well as to increase family income. Where in the utilization of timber forest products, housewives manage it into charcoal. Meanwhile, in harvesting pine sap, housewives only carry out the stage of collecting the sap into buckets which are then transported by the husband to the sap collector. The average contribution of working time spent in harvesting wood and pine resin products by housewives is 43% and 48%. This is because most housewives engage in reproductive activities such as cooking, cleaning and caring for their children. The contribution of housewives has an influence on increasing family income. Where the harvesting of timber forest products has a percentage contribution of income of 42.5% while the harvesting of pine sap has an income contribution of 26%.

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