



ITTO Project PD 646/12 Rev. 3 (F)

**Initiating the Conservation Cempaka Tress Species (*Elmerrillia* sp.) through
Plantation Development with the Local Community Participation in North Sulawesi**

Technical report

Execution of activity 2.1

**TO CONDUCT INTENSIVE DIALOGUES ON LONG-TERM BENEFITS OF
CEMPAKA PLANTATION WITH 20 VILLAGES IN 3 DISTRICTS**

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Manado, January 2020

Technical Report Activity 2.1

“To conduct intensive dialogues on long-term benefits of cempaka plantation with 20 villages in 3 districts”

*ITTO Project PD 646/12 Rev.3 (F) “Initiating the Conservation of Cempaka Tree Species (*Elmerrillia* spp) through Plantation Development with Local Community Participation in North Sulawesi, Indonesia”*



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Development Institute**

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PROJECT & ACTIVITY 2.1 DESCRIPTION

Project Title : Initiating the Conservation of Cempaka Tree Species (*Elmerrillia spp.*) through Plantation Development with Local Community Participation in North Sulawesi, Indonesia

Project Number : PD 646/12 Rev.3 (F)

Host Government : Government of Indonesia

Executing Agency : Environment and Forestry Research, Development and Innovation Agency (EFORDIA), Ministry of Environment and Forestry, Indonesia

Implementing Agency : Manado Environment and Forestry Research and Development Institute (MEFORDI)

Project Coordinator : Diah Irawati Dwi Arini

Activity Starting Date : 1 August 2019

Activity Duration : 5 months

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1. INTRODUCTION

1.1 Background

Cempaka Wasian (*Elmerrillia ovalis*) has been used by the Minahasa people as a raw material for the construction of houses and furnitures such as cabinets, as well as music instrument (kolintang). The use of cempaka wood has become its own prestige (often proudly calling the house or furniture derived from cempaka wasian wood).

The need for cempaka wood continues to increase with the development of the furniture industry and the Minahasa Wood House Industry. For the wooden house industry, this is not only to meet the needs of the Minahasa people but also has reached the national market even to export abroad (Wooden Houses, Cottages or Gazebo). Nowadays with the increasing number of enthusiasts who are famous for earthquake-resistant wooden houses, the Minahasa Wooden House industry which was originally developed in Woloan Tomohon Village (so it is often called the Woloan House), has now developed to form the Timber House industry centers in other areas such as Mokobang Village - modounding; Sion Village - Tompaso Baru and Tombasian Village - Kawangkoan.

Cempaka Wasian tree is a plant that is easy to grow, does not require high soil fertility requirements, can live on moist soil and rainfall ranges from 1.400-2.600 mm/yr, with an average of 9 wet months and 2 dry months, so that Trees Cempaka Wasian thrives on community forests (including on plantations) and natural forests in North Sulawesi (Minahasa, Tomohon, South Minahasa, Southeast Minahasa and Bolaang Mongondow).

But as the demand got increased, the tree resources have also degraded both in quality and quantity. This is caused by the early harvested tree in its young year, and not accompanied by reforestation (plantations of cempaka). This is also caused by the lack of community's interest in developing cempaka plantations. Despite strong demand for cempaka wood by the wooden house industry, local communities remain less interested in growing cempaka. The main reasons are:

- Local communities are not well informed or do not quite understand on the long-term benefits of growing cempaka.
- Local communities have no direct incentives for growing cempaka.

Therefore, efforts are needed to increase community understanding of the long-term benefits of planting cempaka wasian trees and intensive dialogue about incentives needed by the community, so that the interest in planting cempaka wasian can be increased.

For this reason, in ITTO collaboration with the Manado Forestry Research Institute, ITTO PD 646/12 REV.3 (F) project Activity 2.1 discussed the dissemination of information about the long-term benefits of conservation and development of cempaka through intensive dialogue with the community.

1.2 Purpose

The purpose of this activity is to conduct dialogue with community groups from 21 Villages in 3 Regencies. In order to enhance the understanding of local community about the long term benefit of conservation and resource development of cempaka wasian, the dialogues will be conducted so that the interest of local communities to planting cempaka wasian can be increased.

1.3 Expected Outcomes

- 1) Local communities understand the long-term benefits of conservation and development of cempaka wasian resources.
- 2) Interest of local communities in growing cempaka trees increased.

2. APPLIED METHODOLOGY

To achieve the expected results, the following methods have been arranged :

- Phase I : **Preparation**, which is preparing the materials for socialization, village meeting modules, and activity evaluation to related parties, in order to achieve the objectives of Activity 2.1.
- Phase II : **Socialization**, Socialization activities was carried out to related parties such as the North Sulawesi Regional Forest Service, KPH, the Village Government, and identified villages that are targeted by the project.
- Phase III : **Village Meetings**, Village Meetings were conducted in 21 Villages spread over 3 Regencies (Minahasa, South Minahasa and North Minahasa), where the 21 Villages are selected from the results of the socialization activities. Likewise, the schedule for conducting village meetings is based on the results of the socialization.
- Phase IV : **Evaluation**, for each stage of the activity, an evaluation of the achievement of activities was carried out using the forms prepared at the beginning of the activity such as pre and post-test as well as the achievement sheet of other activities, all of which will be an evaluation materials to determine whether the objectives of the Activity 2.1 has been achieved or not.

The time-line phases of activity

No	Phases of Activity	Oct.2019				Nov. 2019				Des. 2019			
		I	II	III	IV	I	II	III	IV	I	II	III	IV
1	Preparation												
2	Socialization												
3	Village Meetings												
4	Evalation												
5	Reporting												

2.1 Preparation

Formulating a dialogue concept that can build understanding of the long-term benefits of planting and conservation of Cempaka Wasian resources and fostering community interest in planting.

Understanding is a person's ability to understand and comprehend something after something is known and remembered. In other words, understanding is knowing about something and being able to see it from various aspects. A participant is being classified as understand only if he can provide an explanation or give a more detailed description using his own words.

Understanding begins after someone has made the process of finding out. Understanding is one step ahead after knowing.

The understanding of a concept can be developed well if it is first presented the most general concept as a bridge between new information and the information that participants already have.

Interest is a condition where someone has attention to something and is accompanied by a desire to take real action (try). Factors underlying interest are:

- 1) Factors of encouragement from within, can be in the form of needs related to physical and mental.
- 2) Encouraging factors from social, the recognition and respect from the community in which someone involved.
- 3) Factors related to emotional. Such as custom, culture, and pride that brings inner satisfaction.

For this reason, the dialogue process is carried out with the following principles: Translating abstract concepts into a model, or can be known as translating, changing, illustrating, defining, and explaining again. Knowing and understanding ideas, or can be known as interpreting, differentiating, explaining, and describing. Infer from something already known, or in the other terms are to calculate, guess, conclude, predict, differentiate, determine and fill.

The indicators of understanding of a concept are:

- 1) To restate a concept is a person's ability to re-express what has been communicated to him.
- 2) Classifying objects according to certain properties (according to the concept) is a person's ability to be able to group objects according to their properties.
- 3) Give examples and non-examples of concepts is the ability to distinguish between examples and non-examples of material that has been studied.
- 4) Presenting concepts in various forms of mathematical representation is the ability of someone to draw or make a graphic, make mathematical expressions, compile a story or written text.

- 5) Applying the concept or algorithm of problem solving is the ability of someone to use concepts and procedures in solving problems.

2.2. Socialization

From the results of the socialization and consultation in 3 districts, 21 villages were selected. These villages can be seen in the following table.

Table 1. Selected Villages Become the Target of Activities

No.	Region	Village	Keterangan
1	South Minahasa Regency		
	Tareran,	1. Rumoong Atas 1 2. Rumoong Atas 2 3. Lansot	✓ Potential for the development and conservation of cempaka wasian Potentially the development of Community Forests
	Amurang Barat,	1. Pondos 2. Wanga 3. Tewasen 4. Elusan	✓ Potential for the development and conservation of cempaka wasian ✓ There are Forest Areas and Social Forestry Activities ✓ Potentially the development of Community Forests
2	Minahasa Regency		
	Tondano Selatan,	1. Peleloan 2. Tonsaru 3. Urongo 4. Koya	✓ Potential Development and conservation of cempaka wasian ✓ The Tondano Lake buffer zone ✓ Potentially the development of Community Forests
	Tombulu,	1. Kembes 1 2. Kembes 2 3. Koka	✓ Berpotensi Pengembangan Wasian ✓ Buffer City of Manado ✓ Potentially the development of Community Forests
3	North Minahasa Regency		
	Dimembe,	1. Tatelu 2. Tatelu Rondor 3. Wasian 4. Lumpias	✓ Potential for the development and conservation of cempaka wasian ✓ There are Forest Areas and Social Forestry Activities ✓ Potentially the development of Community Forests
	Wori,	1. Talawaan Atas 2. Wori 3. Tiwoho	✓ Potential for the development and conservation of cempaka wasian ✓ Bunaken Marine National Park buffer zone ✓ Potentially the development of Community Forests

2.3. Village Meetings

Place and time

Place and time of the village meeting activities can be seen in the table below

Table 2. Time and Place of Implementation of Village Meeting Activities

No.	Region	Date	Place
South Minahasa Regency			
1	Tareran, Minsel	25 Oktober 2019	Rumoong Atas 2 Village Hall
2	Amurang Barat, Minsel	31 Oktober 2019	Pondos Village Hall
Minahasa Regency			
3	Tondano Selatan, Minahasa	8 November 2019	Peleloan Village Hall
4	Tombulu, Minahasa	15 November 2019	Kembes 1 Village Hall
North Minahasa Regency			
5	Dimembe, Minut	21 November 2019	Tatelu Village Hall
6	Wori, Minut	29 November 2019	Talawaan Atas Village Hall

Participants

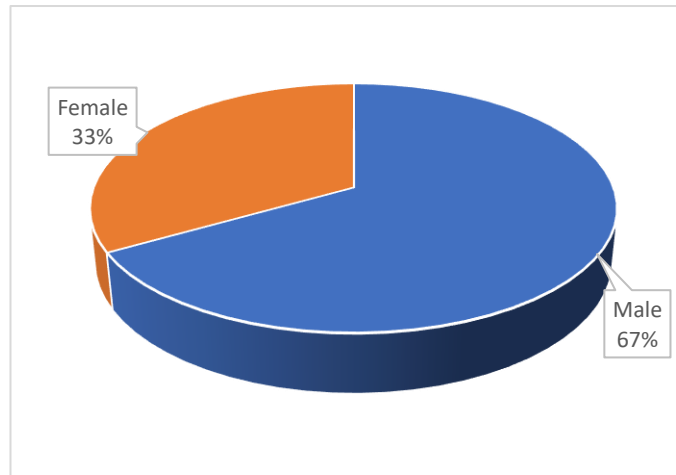
Participants in the dialogue came from 3 districts: South Minahasa, Minahasa and North Minahasa. There were 109 participants from South Minahasa, they came from 7 villages in 2 regions (Tareran and Amurang Barat). The village meeting in Minahasa district were attended by 105 person from 7 villages in 2 regions (South Tondano and Tombulu). In North Minahasa, there were 105 participants that came from 7 villages in 2 regions (Dimembe and Wori). Thus, there were 319 participants in total, derived from 21 villages in 3 regencies (as shown in table 3).

Table 3. Number of participants in the dialogue

No.	Region	Participants		
		Male	Female	Total
South Minahasa Regency				
1	Tareran,	37	11	48
2	Amurang Barat,	40	21	61
Minahasa Regency				
3	Tondano Selatan,	42	18	60
4	Tombulu,	28	17	45
North Minahasa Regency				
5	Dimembe,	33	27	60
6	Wori,	33	12	45
	Total	213	106	319



Figure 1. Distribution of Participants by Gender



Based on the gender of the participants who attended the village meeting, 33 % were female and 67 % male, as shown in the picture above.

88.9% of participants who came from Tareran, planted cempaka on their land. This huge percentage was because in this area many people cultivated cempaka. Tareran followed by South Tondano, with 70% of participants own and plant cempaka, then was followed by West Amurang area with 65% participants. In the other hand, Wori has the lowest percentage of participants planting cempaka, which is only 15.6%. The reason is because in this region, the communities have been there since a long time, cultivated coconuts and other businesses. (See figure 2. below)

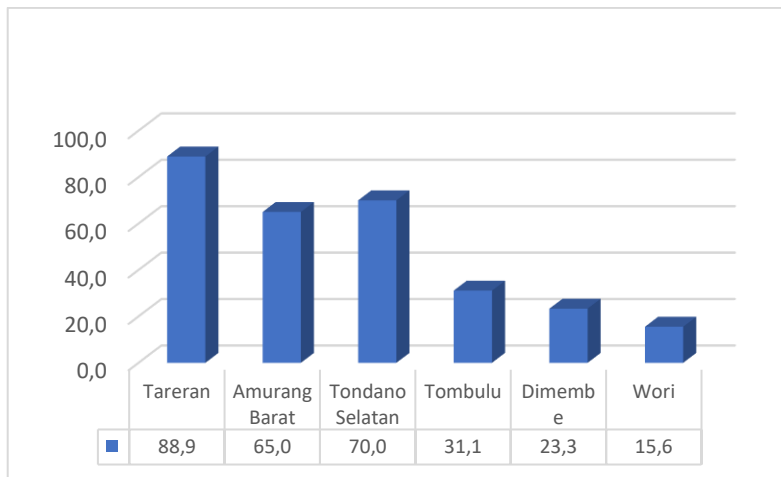


Figure 2. Percentage of participants who planted cempaka



The reason of communities not planting cempaka is generally because they do not have cempaka seedlings, except for the Tareran area, they have many seedlings because a lot of cempaka mother trees exist in there. Mostly in the other areas, cempaka parent trees are really hard to be found, it is caused by the lack of knowledge for the cultivation of cempaka, and the land has

been attempted by other businesses (coconut, clove or nutmeg plantations and others). The reasons for not planting cempaka can be seen in the table below.

Table 4. the reason Why participant does not planting cempaka wasian

No	Wilayah	Why does not planting cempaka wasian
South Minahasa Regency		
1	Tareran	There is no free land for Cempaka Tree Planting, because it is already full planted by Cempaka Tree or other plants (coconut, clove, etc.).
2	Amurang Barat	1) Does not have cempaka tree seeds. 2) There is no land for Cempaka Tree Planting, because it is already full planted by other plants (coconut, clove, etc.). 3) Don't Understand Cempaka Tree Planting.
Minahasa Regency		
3	Tondano Selatan	1) Does not have cempaka tree seeds. 2) No experience in planting cempaka trees. 3) For marketing cempaka wood, there are many obstacles.
4	Tombulu	1) do not have the capital to plant cempaka trees. 2) Does not have cempaka tree seeds. 3) No experience in planting cempaka trees. 4) For marketing cempaka wood, there are many obstacles. 5) Requires a long time to be harvested.
North Minahasa Regency		
5	Dimembe	1) do not have the capital to plant cempaka trees. 2) Does not have cempaka tree seeds. 3) There is no land for Cempaka Tree Planting, because it is already full planted by other plants (coconut, clove, etc.). 4) Don't Understand Cempaka Tree Planting.
6	Wori	1) do not have the capital to plant cempaka trees. 2) Does not have cempaka tree seeds. 3) There is no land for Cempaka Tree Planting, because it is already full planted by other plants (coconut, nutmeg, etc.). 4) Don't Understand Cempaka Tree Planting.

The dialogue process at village meetings is described as follow:

- Opening Ceremony
- ✓ Welcome Greetings.
 - ✓ Prayer.
 - ✓ Explanation of activities and Dialogue Process.
 - ✓ Speech of the Local Village Government and continued with the opening of the dialogue program.

first session: Testimonies of successful Farmers who plant trees or Community Forestry Extension.



- Start planting trees, even if other people don't have intention to plant trees.
- Cempaka trees that are planted can also be sold. Not only the woods, seeds also can be sold. This

cempaka business has been carried out since the GERHAN project was carried out.

- Cultivating cempaka trees can also supporting the economy of people, especially when the money is needed to pay for children's school and the other thing. Cempaka harvest of more than 50 cm in diameter usually has more than 20 years of age.
- "Planting trees can support the economy of my family as well as sending my children to school", as said by one of the farmers.
- "There is another pride when getting a National award and invited to the Independence Ceremony at the State Palace", said one of the farmer.

Second session: Dialogue About the functions and benefits of forests including the Cempaka Wasian Plantation Forest is described as follow :

Forest Function

1) Aesthetics

Forest is an incredibly beautiful work of art. Therefore, the forest has become one of the visitor destinations that can calms the soul and its beauty is enjoyable.

2) Orological

One of the most important function of forest is orological to prevent erosion and flooding. The existence of forests can hold layers of soil so that it would not be drifted when heavy rain occurs.

3) Climatologist

Forests have climatological function or regulate climate. With the forest, the humidity and air temperature can remain stable and stay awake. In addition, forests also functioned to reduce the rate of evaporation of water in the soil.

4) Hydrological

Forests have a hydrological function, which acts as a store of water and then regulates its distribution in the form of springs.

5) Lungs of the Earth

Providing Oxygen (O₂), the large number of trees in the forest will increase the amount of oxygen that can supply the sustainability of life and at the same time absorbing the Carbon Dioxide (CO₂). Areas that have many forests will definitely feel cooler, beautiful and also healthier. Toxic gases that threaten human health such as the results of industrial processes will be absorbed by the forest. The greater area of forests, the more absorption of carbon dioxide, and more oxygen can be produced.

Forest Benefits

The benefits of the forest were carried out in a discussion that was at the same time to increase understanding of the benefits of planting and conserving cempaka wasian tree resources.

The result of the discussion is divided into two categories, there are economic benefits and ecological benefits.

Third session : Forward Together Achieving Goals.

Why group?

As humans, including farmers in rural areas, they certainly have aspirations or desires to live prosperously, including the basic needs such as adequate food and house, cost of children school or medical expenses when sick can be met and so on. Expectations are not automatically achieved, because many obstacles or problem appears.



Farmers with their middle income will more easily solve their problem through groups. For example, their problems are purchasing saprodi, lack of labor, lack of capital, etc.

Besides that, the culture of the Minahasa people is SiTou Tumou Timou Tou. With the motto of life: (1) Maesa-esan (2) Masawang-sawangan, (3) Matombol-tombolan, and (4) Magenang-genangen.

So that together farmers can possibly do these things :

- Developing farming.
- Expanding marketing results.

- Obtain agricultural information / technological innovation on an ongoing basis.
- Exchange experiences and thoughts among fellow members.
- Solve problems faced by members.

Group Benefits

By joining a farmer group, there are many advantages including: (1) strengthening friendship, (2) mutual learning, (3) helping each other, (4) helping each other, (5) Learning to hear the opinions of others (6) learning to convey suggestions, proposals, opinions or thoughts, (7) learning to lead and increase responsibility and (8) enhance collaboration.

Benefits of Farmer Groups

- 1) A place for learning to lead and increase responsibility.
- 2) The base to developing cooperation.
- 3) Train members to think and deliberate.
- 4) Strengthen friendship ties between members.
- 5) Increase the trust of outside parties.

2.4. Evaluation

Understanding is knowing about something and being able to see it from various aspects. A participant is said to understand something if he can provide an explanation or give a more detailed description of it using his own words.

Understanding begins after someone has made the process of finding out. After knowing the next step is understanding. One indicator according to Kenneth D. Moore is to state and give examples and non-examples of concepts, or use, utilize, and apply concepts.

To measure participants' understanding of the long-term benefits of the conservation of Cempaka Wasian resources, the questions are rated 1-4 and then tabulated to get an average grade that near of the criterion level of understanding. The formula to calculate the average value is described as follow:

$$\frac{\text{Total score of Participant}}{\text{Number of participants}} = \text{Avg score}$$

The level of understanding is classified as follow:

Score	level of understanding
$0 < - < 1$	not quite understand
$1 \leq - < 2,0$	Understand enough
$2,0 \leq - < 3,0$	Understanding
$3,0 \leq - 4$	Fully understanding

Interest is a condition where someone has attention to something and is accompanied by a desire to take real action (try). Measuring interest can be done by evaluating participant's plan to finish the dialogue, which is recorded in the questionnaire and to see the growth of interest in planting Cempaka Wasian trees. This measurement can be done by comparing the 'before and after' data of the presence of participants in the dialogue.

3. RESULTS OF ACTIVITIES

3.1. Understanding the Long-Term Benefits

From the results of the dialogue held at the village meeting, it was illustrated that the participants who participated in the dialogue understood the long-term benefits of developing and conserving cempaka wasian resources. This can be seen from the questionnaire result distributed at the end of the dialogue activity. The average value spread between $3 \leq - 4$, which is included in the category of fully understanding. Table 5 describes the long-term benefits (in terms of economic value) of developing and conserving cempaka.

Table 5. Average participant understanding of the long-term economic benefits of developing and conserving cempaka wasian resources.

No.	Region	Avg Value	Description
1	Tareran, Minsel	3,65	Fully understanding the long-term benefits in terms of economic value
2	Amurang Barat, Minsel	3,60	Fully understanding the long-term benefits in terms of economic value
3	Tondano Selatan, Minahasa	3,40	Fully understanding the long-term benefits in terms of economic value
4	Tombulu, Minahasa	3,40	Fully understanding the long-term benefits in terms of economic value
5	Dimembe, Minut	3,30	Fully understanding the long-term benefits in terms of economic value
6	Wori, Minut	3,25	Fully understanding the long-term benefits in terms of economic value

The above table shows the results of the assessment based on predetermined criteria. Most of the participants from 6 regions proved that they've understood the long-term economic benefits of planting and conservation of resources wasian cempaka. The highest value is seen coming from the Tareran and South Minahasa areas. This is allegedly because cempaka wasian cultivation are experienced and have become the source of livelihood for the local community. Meanwhile, the result in North Minahasa region is lower than other regions because cempaka wasian is not a mainstay plant for their plantation areas.

In understanding the benefits of long-term economic value in development and conservation, the participants generally argue that:

- 1) The need for cempaka wasian wood in the future will continue to increase.
- 2) With the increasing demand for cempka wasian wood, price will also increase.
- 3) There will be an increase in demand for seeds (including seeds), because many people develop cempaka wasian.
- 4) There is another economic potential from cempaka wasian besides wood and grains.

To understand the ecological value of the development and conservation of cempaka wasian resources based on the criteria that have been prepared, it is

included in the category of understanding, although when compared from an economic standpoint, it is still lower in value. It's because most participants only gain economic knowledge during the dialogue. More detailed assessment results and categories of understanding can be seen in the table 6.

Table 6. Average participant's understanding of the long-term ecological benefits of developing and conserving cempaka wasian resources

No.	Region	Avg Value	Description
1	Tareran, Minsel	2,85	Fully understanding the long-term benefits in terms of ecological value
2	Amurang Barat, Minsel	2,60	Fully understanding the long-term benefits in terms of ecological value
3	Tondano Selatan, Minahasa	2,85	Fully understanding the long-term benefits in terms of ecological value
4	Tombulu, Minahasa	2,65	Fully understanding the long-term benefits in terms of ecological value
5	Dimembe, Minut	2,60	Fully understanding the long-term benefits in terms of ecological value
6	Wori, Minut	2,55	Fully understanding the long-term benefits in terms of ecological value

The main issues that often appear in the discussion of the long-term ecological benefits in developing and conserving cempaka are describe as follow :

- 1) Prevent Flooding.
- 2) Preventing Landslides and erosion.
- 3) Provides fresh air.
- 4) Providing fresh water through rivers and springs.
- 5) Preserve the earth for future generations.

3.2. Interest in planting cempaka trees

The evaluation result illustrates that there has been an increasing of interest to plant cempaka wasian in their own land in the process of dialogue. This can be seen through figure 4.

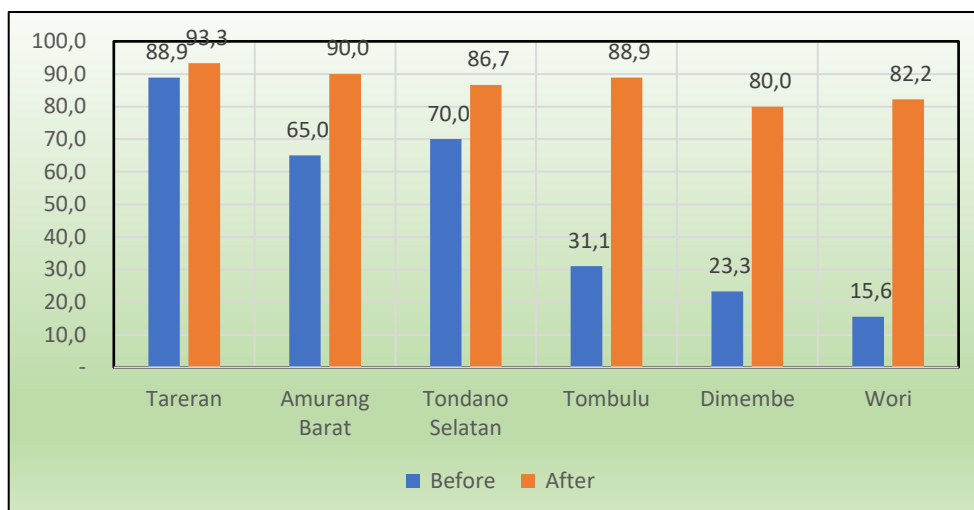


Figure 4. interest in planting cempaka wasian trees by dialogue participants, before and after the dialogue.

From figure 4, there is a growth of interest in planting even though the interest in planting was already quite high.

However, there were also some participants who didn't had plan to plant cempaka wasian trees for the reasons presented in the following table.

Table 7. The reasons participant has no intention to plant cempaka wasian

No.	Region	Reasons do not yet have a plan to plant cempaka
1	Tareran,	If the land full of cempaka wasian trees, it is not possible to plant another trees.
2	Amurang Barat,	<ul style="list-style-type: none"> Not yet fully understanding cempaka planting The lands is full of other plants such as: Cloves and coconuts Timber legality certainty
3	Tondano Selatan	<ul style="list-style-type: none"> It's hard to get good seeds Not yet fully understanding cempaka planting Timber legality certainty
4	Tombulu	<ul style="list-style-type: none"> It's hard to get good seeds Not yet fully understanding cempaka planting Do not have money to plant cempaaka The lands is full of other plants such as: Cloves and coconuts tree
5	Dimembe	<ul style="list-style-type: none"> It's hard to get good seeds Not yet fully understanding cempaka planting Do not have money to plant cempaka Do not have land to plant cempaka The lands are full of other plants such as: Cloves and coconuts tree

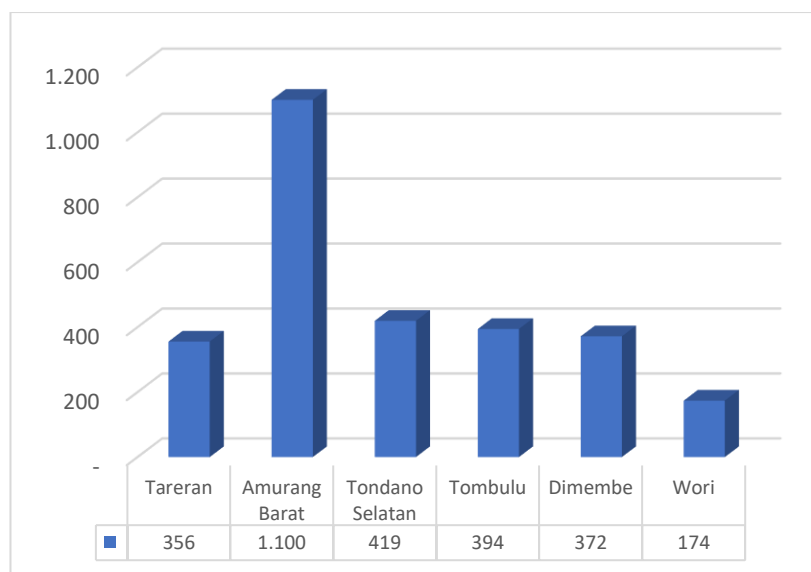
6	Wori	<ul style="list-style-type: none"> • It's hard to get good seeds • Not yet fully understanding cempaka planting • Do not have money to plant cempaka • Do not have land to plant cempaka • The lands is full of other plants such as: Cloves, nutmeg and coconuts tree
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The positive response from the participant were manifested in their willing to plant cempaka wasian trees and reproduce the population of cempaka wasian in their land (which has had previous wasian plants) or to plant in their empty land.

The amount of seedlings that is needed by the participant to be planted in their land can be seen in the figure 5.

Figure 5. Total of average cempaka wasian seedlings needed by participants to be planted in their land



The obstacles to cultivate cempaka that participant might have is summarized as follow:

- ✓ Lack of knowledge to cultivate cempaka, except in the tareran area.
- ✓ Lack of understanding in the forest regulations.
- ✓ There are regulations regarding the distribution of wood that haven't been followed by participants.
- ✓ Lack of materials and equipment for cempaka cultivation (such as seeds and business capital).



4. CONCLUSIONS AND RECOMMENDATIONS

4.1. CONCLUSIONS

- 1) An intensive dialogue in the villages meeting were attended by 319 participants from 21 Villages in 3 Regencies, with a composition of 33% women and 67% men.
- 2) Participants fully understood the long-term benefits of developing and conserving Cempaka resources in terms of economic and ecological value.
- 3) Related to the interest of participants in planting cempaka trees, there were 80-90 percent of them who have plan to plant cempaka. The rest of them have no plan to plant because their field have already been planted with cempaka or other plants (such as coconut, clove or nutmeg). Most of them didn't have seeds and knowledge of cempaka cultivation, and adequate knowledge of timber legality.

4.2. RECOMMENDATIONS

- 1) In the developing and conserving of cempaka resources, it is necessary to maintain the interest of the community to plant cempaka remains high.
- 2) It is really necessary to solve the problems and obstacles faced by the communities in developing and conserving cempaka resources in the form of incentives that are relevant to the problems of the community.