






# Application of Analytical Hierarchy Process in Strategy of Human Resource Capacity Building at The Karya Lestari Farmers Group, Sibaganding Village, Simalungun Regency

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## ABSTRACT

Social Forestry is a system of sustainable forest management implemented in state forest areas/private forests/customary forests by local communities or customary law communities as executors. This study aims to analyze the priority level of Human Resources (HR) capacity-building strategies in the Karya Lestari Farmers Group, Sibaganding Village, Girsang Sipangan Bolon District, Simalungun Regency. The research was carried out from September to November 2022 using primary and secondary data. The method used is the Analytical Hierarchy Process (AHP) using the Software Expert Choice tool. The data collection method is the Focus Group Discussion (FGD). Based on the results of the AHP, the priority of the HR capacity-building strategy is the criteria for increasing group knowledge in managing business potential to produce products that have good selling value and sell well in the market in the first place. The criteria for applying to the relevant agency to be included in group business management training activities are in second place and the criteria for establishing cooperation with related parties to help introduce group business products are in third place. Alternative aspects of institutional management are in first place, alternative aspects of area management are in second place and alternative aspects of business management are in third place.

**Keywords:** Analytical Hierarchy Process, Comparative Studies, Cooperation, Social Forestry, Training



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## 1. Introduction

According to [1], local communities or communities governed by customary law take the lead in managing state forests, private forests, or customary forests sustainably. The goal is to enhance the well-being of the communities involved, maintain environmental balance, and enhance socio-cultural dynamics. Customary Forest, Village Forest (VF), Community Forest (CF), Community Plantation Forest (CPF), and Forestry Partnership (FP) are the five strategies for managing forests.

According to [2] CF is a Social Forestry scheme that involves communities around the forest in utilizing the area. The aim is to provide legal access to communities in managing forests to improve their welfare, reduce

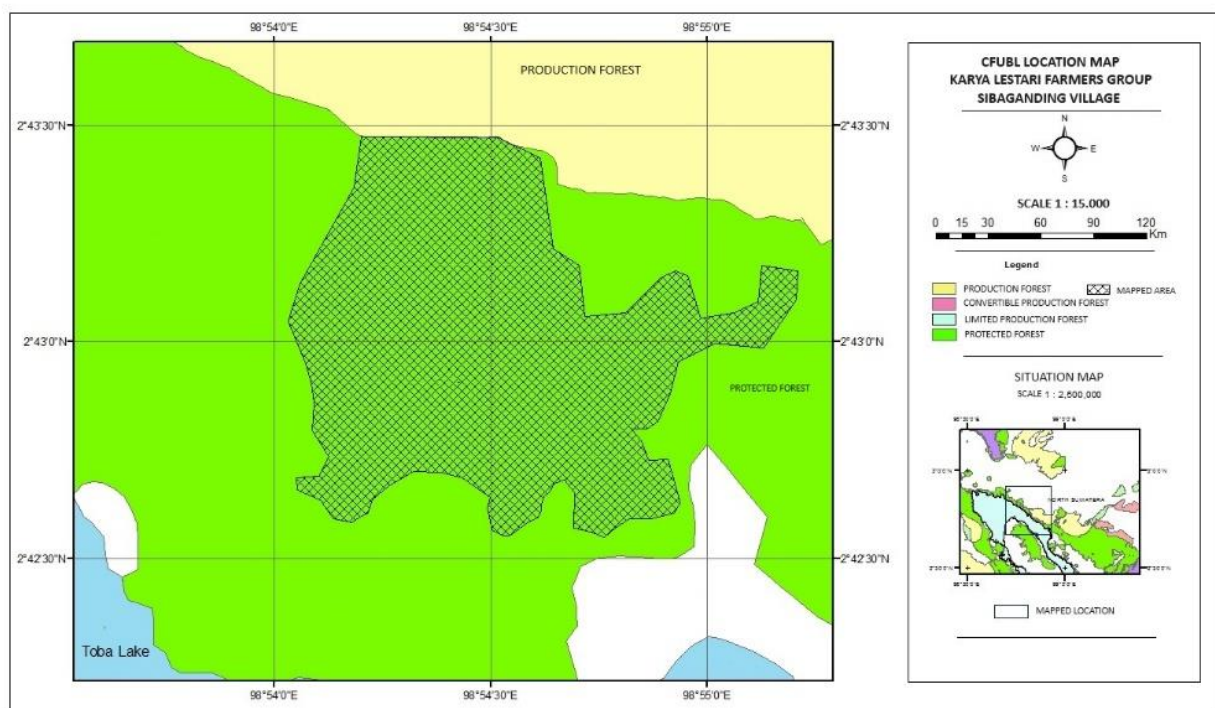
conflict, and develop the capacity of Human Resources (HR). The CF scheme is granted by the Minister of Environment and Forestry for 35 years fully obligations and responsibilities being borne by the community holding the permit. Social Forestry Groups (SFG) are Forest Farmers Groups (FFG), Community Groups or cooperatives holding Social Forestry management permits.

According to [3] after the SFG is formed it is followed by the establishment of the Social Forestry Business Group (SFBG). This business group was formed based on the efforts that have been carried out by SFG. To increase this activity, it is necessary to increase the capacity of SFG and SFBG human resources. The increase in human resources relates to area management, business management, and institutional management. Strengthening human resources is not only given to household heads but women and youth also need to get equal capacity building to provide a balance in the management of social forestry. The Karya Lestari Farmers Group in Sibaganding Village, Girsang Sipangan Bolon District, Simalungun Regency is one of the SFG that has a CF scheme permit. This group has 4 SFBG, that is Citra Alam Lestari (tapping pine resin), Lestari Agroforestri (agroforestry), Lestari Jasa Lingkungan (environmental services), and Lestari Madu Sileutu (honey bee cultivation).

Since obtaining a CF management permit in 2019, this business group has not yet known how the management and production conditions are produced. Business management from start to production and post-production depends on the Human Resources (HR) manager. A good level of human resources will affect the success of business management and vice versa. Therefore, human resource capacity building needs to be implemented with an appropriate strategy. Research on the strategy for strengthening the capacity of Community Forest FFG has been carried out previously by [4] and the strategy for strengthening capacity at Community Forest FFG by [5]. This study aims to analyze the priority-level HR capacity-building strategies in the Karya Lestari Farmer Group, Sibaganding Village, Girsang Sipangan Bolon District, Simalungun Regency.

## 2. Materials and Methods

The research was conducted at the Karya Lestari Farmers Group, Sibaganding Village, Girsang Sipangan Bolon District, Simalungun Regency, Indonesia. The map and conditions of the research location are presented in Figure 1 and Figure 2. The research was carried out from September to November 2022. This study uses recording equipment, computer devices, stationery, camera, and additional equipment in the form of Expert Choice software. Survey questionnaires are used to determine the priority order of the group's human resource capacity-building strategy.



**Figure 1.** Research location map in the Karya Lestari Farmer Group

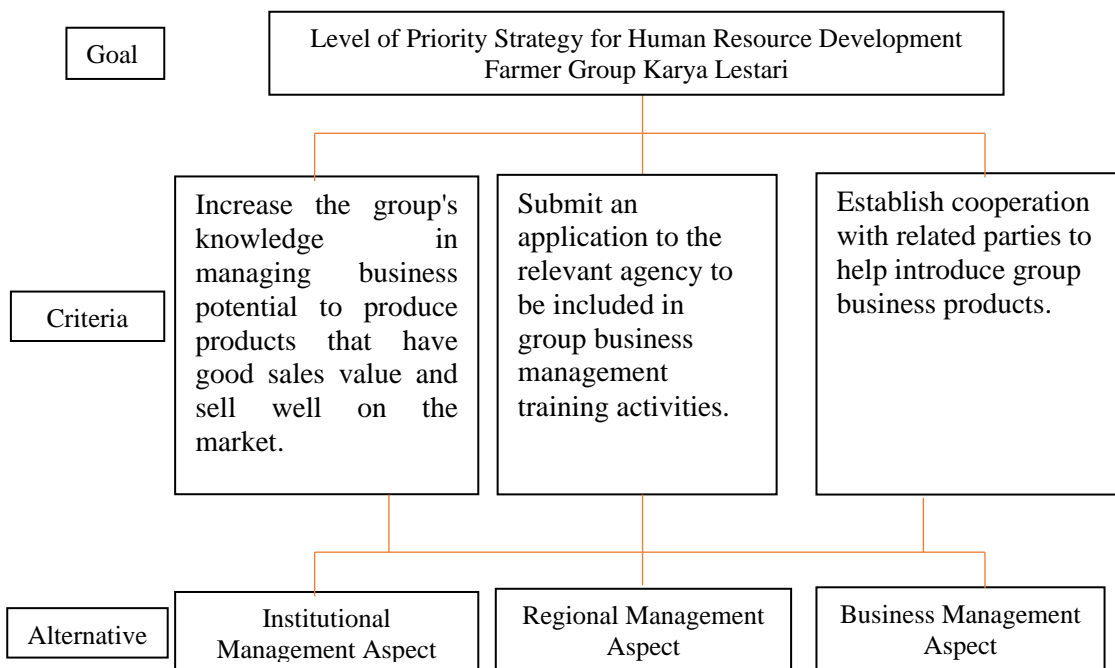


**Figure 2.** Research location area in the Karya Lestari Farmer Group

The data collected consists of primary data and secondary data. Primary data is data obtained directly from data sources. Primary data is from the results of filling out questionnaires or interviews. Supporting research data includes general location conditions and institutional data of the Karya Lestari Farmer Group. The research object retrieval method used is the Analytical Hierarchy Process (AHP) using the Expert Choice Software tool. The required data and information are obtained through Forum Group Discussion (FGD). The experts used were the head of the FMU Region II Pematang Siantar, the administrators of each SFBG, the SFG administrators, and accompanying extension workers. According to [6] data analysis using the AHP method is done by 1) The hierarchy is arranged in the structure chart; 2) Determining the related comparison matrix between criteria; 3) Determine the priority weight of the criteria; 4) Calculating logical consistency; 5) Determine the priority weights and pairwise comparison matrix between alternatives with the criteria and their logical consistency calculated; 6) Create comprehensive priorities; 7) Write down the calculation results in the respective criteria and alternative boxes on the hierarchy chart; and 8) Make decisions based on expert choice software data processing.

**3. Result and Discussion**

Based on the FGD results, the AHP hierarchical structure is presented in Figure 3.



**Figure 3.** AHP Hierarchical Structure Chart

Based on data processing results with expert choice software, the weight of the criteria and alternative outputs of AHP is obtained in Table 1 and Table 2.

**Table 1.** Weight of AHP Output Criteria HR Development Strategy

No	Criteria	Criteria Value	Rating
1	Increase group knowledge in managing business potential to produce products that have good selling value and sell well in the market	0.481	1
2	Submit an application to the relevant agency to be included in group business management training activities	0.405	2
3	Establish cooperation with related parties to help introduce group business products	0.114	3
Inconsistency Value = 0.03			

**Table 2.** Weight of Alternative AHP Output HR Development Strategy

No	Alternative	Alternative Value	Rating
1	Institutional Management Aspect	0.513	1
2	Regional Management Aspect	0.322	2
3	Business Management Aspect	0.165	3
Inconsistency Value = 0.03			

Based on the data above, it can be seen that the value of the level of inconsistency in the weighting of criteria and alternatives is  $<10\%$  with the same value of 0.03. From this value, it can be concluded that the answers of the interviewees regarding comparisons between elements are considered consistent so that the research does not need to be re-evaluated and no re-interviews with the informants are carried out. This is in line with the research by [7] that if the inconsistency value is more than 10%, the research needs to be re-evaluated and conducted interviews with sources of information regarding comparisons between elements. Table 1 shows that the strategy criteria for increasing group knowledge in managing business potential to produce products that have good selling value and sell well in the market are the first-order criteria. The criteria for applying to the relevant agency to be included in group business management training activities are in second place and the criteria for Establishing cooperation with related parties to help introduce group business products are in third place.

The level of knowledge of the business group regarding identifying potential areas already exists where the main occupation is forest-related farming. Their lack is the managing skill of this potential to create value products and sell well in the market. Therefore the need for this knowledge is given through training activities. The training activities organized by the education and training center are very decisive and influential in increasing the capacity of their human resources. After they have received training, this knowledge will be applied directly to their business products. Quality business products produced by business groups will attract entrepreneurs to establish cooperation as well as promote these business products. According to [8] capital is not always synonymous with money, but can be said to be anything that can be used to produce goods or services. Capital is part of production, to produce the company will maximize its capital to achieve maximum production results. Maximum output is needed so that entrepreneurs can combine certain production factors in order to maximize income. The management of production factors should be done in such a way that the resulting output is in accordance with consumer demand, both in quality, price, and delivery time. Labor plays an important role in a company because it can help the company's productivity. The size of the production results is determined by the number of workers employed. Each production process must be provided with an adequate and efficient workforce so that it can produce optimally.

Table 2 shows alternative aspects of institutional management as the first order, followed by aspects of regional management and aspects of business management. The successful management by Forest Farmer Group (FFG) institutions is inseparable from membership participation. According to [9] the role of groups in managing CF consists of; planning, implementation, monitoring and evaluation, and utilization. According to the technical guidelines for post-approval social forestry management assistance issued by [3] to strengthen institutions,

several things need to be considered, namely: 1) Organizational structure (a system of work procedures, work mechanisms, relationships, accountability, and communication between individuals and groups); 2) SFG-SFBG statutes and bylaws; 3) Internal rules include administrative and financial management, cooperation mechanisms with other parties, asset management, coordination, and communication mechanisms; and 4) Other agreements deemed necessary by SFG-SFBG.

According to [10] improving the organizational governance of SFG and SFBG through the agreement of association governance structures, statutes, and bylaws, as well as administrative, financial, asset management, and other provisions and procedures. If necessary, organizational strengthening is also carried out through the status enhancement of SFG and SFBG. SFG-SFBG has a strong institutional capacity, is operational, can establish cooperation, can improve environmental quality, has a positive impact on social conditions, and improves the economy in a sustainable manner [11].

Aspects of business management are the second alternative in the HR improvement strategy priority. The objective of the business management aspect is to increase the effectiveness of the Social Forestry Business Group (SFBG) business management so that it can run and be profitable. Based on the technical guidelines for Social Forestry assistance issued by [3] the development of a business can be carried out through business cooperation and the cooperation of the parties. The basic principles in business cooperation are SFBG as the main actor in the business, not just as an object, equality, fairness, agreement, mutual benefit, locally specific, trust, transparency, participation, and sustainability. Cooperation between parties is carried out to support the operation and business development of SFG-SFBG. This cooperation can be carried out in the form of technical and institutional assistance, capital facilitation, marketing facilitation, and operational support [12]. Forms of cooperation can be in the form of entrepreneurship training, comparative studies, institutional improvement to become a business entity, capital facilitation, and marketing facilitation.

Aspects of regional management are the third alternative in strategic priorities. In general, the area management stage is carried out after the implementation of institutional management. Based on the AHP analysis, the data is the result of discussions with the informants, and area management is carried out after business management. According to [13] AHP analysis has several advantages. Overall, the AHP analysis shows that a comprehensive and integrated approach is needed to address contributing factors. By prioritizing and ranking various strategies based on their effectiveness and feasibility, decision-makers and stakeholders can make informed decisions. According to [14] the main activities in area management are area boundary marking, spatial/zoning/cultivation area marking, and preparation of the Social Forestry Work Plan (SFWP) and Annual Work Plan (AWP). The preparation of SFWP and AWP is the main activity carried out when management permits are granted. The work plan is a reference and guideline for the group in carrying out activities. All activities related to management activities are included in the work plan. The activity of marking area boundaries and zoning/cultivated areas requires enormous skills and costs [15]. Considering that the business group's capital is limited, these activities are carried out after there are results from business activities so that aspects of business management are prioritized after a work plan has been prepared and approved by the authorized official. Knowledge of marking boundaries can also be obtained from training activities and can be carried out jointly with competent parties such as the local Forest Management Unit (FMU) [16], [17].

According to [18] capacity-building should take many forms, including technology, finance, MRV, institutional arrangements, and regulatory frameworks (extending as far as reformed fiduciary standards). HR capacity building is carried out in accordance with the group needs, management needs, and the Social Forestry business [19]. Based on technical assistance guidelines issued by [3] there are several basic capacities (knowledge and skills) needed by business groups such as area mapping (at least being able to read maps and operate GPS), data collection on potential areas (at least simple potential data collection), planning management (preparing SFWP and AWP), administrative and financial management (minimum correspondence, recording financial expenditures and income), business management and marketing of Wood Forest Product, Non-Timber Forest Products, area utilization, and environmental services, as well as environmental and conservation management [20].

#### 4. Conclusion

Increasing group human resource capacity can be carried out by carrying out training related to business products. Quality business products produced by business groups will attract the desire of entrepreneurs to collaborate and promote these business products. Institutional strengthening is also carried out by increasing the status of institutions that are strong, operational, able to collaborate, able to improve environmental quality, have a positive impact on social conditions, and sustainably improve the economy. All activities related to management activities are included in the work plan. The work plan is a reference and guideline for the group in carrying out activities. Increasing the effectiveness of business management is carried out so that the business can run and be profitable.

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