Analysis of community sector affected for village forest management in Bantaeng Regency, South Sulawesi, Indonesia

Mustafa, S Alam, M Alif K. Sahide and A Arif
Forestry Faculty, Universitas Hasanuddin, Makassar
Email: mustafahmd@yahoo.com

Abstract Village forest was a social forestry practice in empowering communities in and around the forest. The study aimed to analyze the community sector affected the implementation of Village Forest Management in the field. Data collection using survey, interview, and questionnaire methods carried out in the village forest area in Tompobulu districts, Bantaeng Regency, and analyzed by using descriptive analysis and interpretative structural modeling (ISM). The results showed that the community sector affected in the village forest development program were identified as many as eight sub-elements, namely: village-owned business entity (BUMDes-Badan Usaha Milik Desa), forestry extension agent, forest farmer groups, farmers, communities around village forest, coffee processing workforce, non-governmental organizations, and forestry and plantation entrepreneurs. The classification of sub-elements of this sector based on the Driver Power Dependence (DP-D) analysis places the sub-elements of NGO and coffee processing workforce in sector II (dependent); whereas BUMDes, forestry extension agent, forest farmer groups, farmers, communities around village forest, and forestry and plantation entrepreneurs in sector III (linkage) of the system. The key sub-element that plays an essential role in encouraging the success of the village forest management program based on ISM analysis, which is a link element, is the village institution (BUMDes) as the village forest implementer.

I. Introduction
Forestry development policies at the beginning of Indonesia's independence favor more large businesses and are more business-oriented. These policies had an impact in the neglect of a sense of justice, disruption of sustainable forest management systems, weakening of community empowerment in and around forests, and difficulty in accessing communities around forests to the utilization of forest resources. Besides, changes in forestry development policies in target-oriented programs and projects also create various gaps and problems in the community due to program discontinuity and incompatibility with the potential and physical conditions of local communities. In the late 1970s, the concept of social forestry shifted the paradigm of forestry development from conventional forest management to community-based forest management [1,2]. Social forestry or community forestry offers an alternative to solving forest management problems [3], and forest conflicts [4], by developing cooperation through capacity building of local communities [1]. Also, the issue of community welfare in forest development began to get a response from the government through a community empowerment program, which is contained in Law no. 41 of 1999, Article 70, paragraph 1 states that the community participates in development in the forestry sector [5]. In Government Regulation, No. 6 of 2007, Article 83 states that the utilization of forest resources optimally and fairly can be done by empowering the community through capacity building and providing access to
improve their welfare [6]. The community empowerment enables greater community involvement in forest management through village forest, community forests or partnerships programs [7,8]. The granting of access to village forest management has been regulated in Minister of Forestry Regulation No. P.49 /Menhut-II/2008 [9]. Since the enactment of this regulation, there has been a village forest area in South Sulawesi established by the government, namely in Bantaeng Regency, South Sulawesi Province covering an area of 704 hectares [10]. Village Forest is a form of community's need to get legal, planned and sustainable management of forest areas, and to get greater benefits for the welfare of farmers' households and village welfare [11,12]. In the concept of sustainable forest management, the Ministry of Forestry has given village communities access to manage forest areas legally, one of which is the village forest scheme with management access rights for 35 years [13,14]. Village forest is defined as a state forest managed by the village and utilized for the welfare of the town and has not been encumbered with permits/rights [9]. Another definition of village forest is a state forest area, community forest, and state land within the village administration area, which is managed by economic institutions in the village to provide public services related to forest management and management. These institutions can be farm households, group businesses, private-owned business entities, or village-owned enterprises formed explicitly for that [15]. In South Sulawesi, based on the Decree of the Minister of Forestry (now the Ministry of Environment and Forestry or KLHK) No.55-57/Menhut-II/2010 has established a Village Forest in Bantaeng District with an area of 704, spread over three villages, namely Labbo (342 ha), Pattaneteang Village (339 ha), and Campaga Village (26.68 ha) are located in the administrative area of Tompobulu District [16–20]. After obtaining legal rights to manage the village forest area based on the decree of the Minister of Forestry and the permit to operate the village forest through the Decree of the Governor of South Sulawesi number 3805-3807/XI/TH 2010, the government then delegates its authority to the village institution (BUMDes) [21–23]. This institution is responsible for making village forest management plans as outlined in the Village Forest Work Plan (RKHD) documents, Village Regulations, Village Forest Annual Plans (RTHD), and BUMDes Management Guidelines as a reference for implementing forest management [11].

Conceptually, five aspects underlie the direction in various community empowerment activities in and around forests in terms of policies, social economy, institutions, human resources, and forest resources. Based on these five aspects, there are no doubt many interrelated elements and sub-elements that will influence the implementation of the village forest development program in Bantaeng Regency. However, ineffectiveness and inefficiency will occur in the application if applying all elements and sub-elements that affect the village forest development program. Therefore, studies to determine the key sub-elements in a program are necessary for conducting. One tool for analyzing the key sub-elements in the implementation of the program is Interpretative Structural Modeling (ISM). The ISM technique produces a structural design model of development by examining the complex interactions of a system through carefully designed patterns with graphical methods and sentence formulations [24]. The ISM technique provides a basis for analysis where the information generated is very useful in policy formulation and planning. To implement a valid, efficient, and structured village forest development program in Bantaeng Regency, a study of elements and key sub-elements in the village forest development program is required using the ISM technique. Therefore, the research objective is to examine the key sub-elements of the community sector affected in the village forest development program.

2. Materials and Methods

2.1. Population and sampling

The population in this study are the parties related to the implementation of village forest development programs in Bantaeng Regency; and samples selection or respondents using a purposive sampling method. Criteria for respondents are directly involved in the village forest development program. The selected respondents are the people who are members of the institute formed to manage village
forests, field assistants (NGOs) and universities, forestry service staff, village heads, forestry extension agent and farmer groups in the research site.

2.2. Data Collection
Data collected in this study are: (i) primary data: i.e. data obtained through direct observation in the field, and interviews with several respondents by asking questions in a structured and open manner following the needs of analysis and research objectives. Primary data consists of: sub-elements of the structural elements of the village forest development program; and (ii) secondary data: i.e. supporting data collected through documentation studies from relevant agencies/institutions. Secondary data consists of maps, the general condition of the research site and government policies related to the program.

2.3. Data Analysis
2.3.1. Descriptive analysis To describe the sub-elements of the community sector affected in the village forest development program. Activities needed for action planning, activity measures for evaluating the results achieved by each goal, and the institutions involved in implementing the program

2.3.2. Structural analysis To formulate a model for managing the village forest development program to achieve the program's implementation. The Interpretative Structural Modeling (ISM) method provides a basis of analysis where the information generated is very useful in policy formulation and planning. ISM is a descriptive modelling technique that is a structuring tool for a direct relationship [25]. Structural models enable to capture complex problems in a system, through carefully designed patterns using graphics and sentences. The first part of the ISM Technique is to compile a hierarchy. Five criteria can approach determination of the level of the hierarchy [26], namely (1) bond strength in and or between groups/levels, (2) the relative frequency of oscillations; the lower level is shaken faster than the level above it, (3) context; higher rates operate at slower periods on a broader space, (4) coverage; higher level includes the level below, and (5) functional relations; the higher level has a slow variable that affects the fast variable at the lower level. The second part of the ISM technique is to divide the substance being studied into elements and sub-elements in depth until it is considered adequate. This sub-element arrangement uses input from related groups. Furthermore, contextual relationships between sub-elements are determined, which are stated in sub-ordinate terms leading to pairwise comparisons. Based on the consideration of contextual relationships, a Structural Self Interaction Matrix (SSIM) was compiled. A Reachability Matrix (RM) table was made and calculations according to the Transitivity Rule were corrected to the SSIM until a closed matrix was obtained. RM that has met the transitivity rule is then processed to determine the level selection (partition level). The results can be described in the form of a scheme of each element according to vertical and horizontal levels. Based on RM, sub-elements within one element can be arranged according to Driver Power Dependence (DP-D) into four classifications or sectors, namely dependency, linkage, independent I, and independent II.

3. Results and Discussion
The Village Forest covering an area of 704 ha in Bantaeng Regency was determined based on the Decree of the Minister of Forestry No.55-57 / Menhut-II / 2010 January 21, 2010, are forest area with protected functions. The implementation of the village forest focused in three villages in Tompobulu Subdistrict, Labbo with an area of 342 ha, Pattaneteang covering an area of 339 ha, and Campaga covering an area of 23.68 ha. The permit for village forest management rights to BUMDes (Village-Owned Enterprises) as a village forest management agency refers to the decree of the Governor of South Sulawesi Province. The three village forests have different potential and resource characteristics. In addition to these differences, the community sector is one element that can influence the success of the village forest development program in Bantaeng Regency.
Structural analysis of the sub-elements of the communities sector affected in village forest development program using data from field surveys, survey respondents and interviews with experts. The structural analysis focused on explaining and finding: (1) the structure of the system of the affected factor elements, (2) the ranking of sub-elements of the affected communities sector, (3) the classification of sub-elements in the four categories of variables and (4) the structural model of rural forest development.

The community sectors identified were involved in the village forest development program based on the results of the field survey and interviews of eight sub-elements, namely: village-owned enterprises or BUMDes (SM1), forestry extension agent (SM2), forest farmer groups (SM3), farmers (SM4), communities around the village forest (SM5), coffee processing workers (SM6), local non-governmental organizations (SM7), and entrepreneurs in the forestry and plantation sectors (SM8). The number of respondents interviewed was 23 people consisting of village heads and BUMDes Institutions as well as forest farmer groups representing village governments and communities, forestry service staff and forestry extension agents representing the government and local NGOs representing independent samples. Some of the respondents’ perceptions about the sub-sectors of the community sector affected in managing the village forest development program can be seen in Table 1.

Table 1. The identified sub-elements of the community sector affected in the village forest development program

| No. | Sub-elements of the affected community sector | Number of respondents |
|-----|---------------------------------------------|-----------------------|
| 1.  | According to community representatives       | 16                    |
|     |  a. BUMDes                                   | 12                    |
|     |  b. Communities around forest                | 11                    |
|     |  c. Coffee processing workers                | 8                     |
|     |  d. Communities around the village forest    | 7                     |
|     |  e. Farmers                                  | 14                    |
|     |  f. Forest farmer groups                     | 10                    |
|     |  g. Coffee entrepreneur                       | 4                     |
| 2.  | According to the government representative   | 5                     |
|     |  a. Forestry extension agent                 | 3                     |
|     |  b. Local NGO                                | 2                     |
|     |  c. Forest farmer groups                     | 5                     |
|     |  d. BUMDes                                   | 3                     |
| 3.  | According to an independent institution      | 2                     |
|     |  a. Forestry extension agent                 | 1                     |
|     |  b. Forest farmer groups                     | 2                     |
|     |  c. Communities around the village forest    | 2                     |
|     |  d. BUMDes                                   | 2                     |

Table 1 shows that 16 respondents were representing the community, five government representatives and two from independent institutions. BUMDes institutions and forest farmer groups are sub-elements of the affected communities sector whose existence considerable to have an essential role in the implementation of village forest development programs, both by community representatives, the government and independent institutions.

Relationships between sub-elements of the community sector affected by the management of the village forest development program in Bantaeng Regency is obtained from opinions or judgments by experts. The initial SSIM matrix displays the relationships between these sub-elements. This matrix represents the element of respondents’ perceptions of the intended sub-elements, with results as in Table 2.
Table 2. Structural self interaction matrix (SSIM) of sub-elements of the affected community sector

| Sub elements | SM8 | SM7 | SM6 | SM5 | SM4 | SM3 | SM2 | SM1 |
|--------------|-----|-----|-----|-----|-----|-----|-----|-----|
| SM1          | X   | X   | V   | X   | X   | X   | A   |     |
| SM2          | O   | O   | V   | V   | V   | V   |     |     |
| SM3          | A   | X   | X   | V   | V   |     |     |     |
| SM4          | A   | O   | A   | A   |     |     |     |     |
| SM5          | V   | O   | A   |     |     |     |     |     |
| SM6          | V   | A   |     |     |     |     |     |     |
| SM7          | V   |     |     |     |     |     |     |     |
| SM8          |     |     |     |     |     |     |     |     |

The results of expert assessment of the sub-elements presented in the structural self-interaction matrix (SSIM) are the basis for developing the initial reachability matrix (RM) by changing the symbols to 1 and 0 as seen in Table 3.

Table 3. Reachability matrix (RM) of the affected community sector

| Sub elements | SM1 | SM2 | SM3 | SM4 | SM5 | SM6 | SM7 | SM8 |
|--------------|-----|-----|-----|-----|-----|-----|-----|-----|
| SM1          | 1   | 0   | 1   | 1   | 1   | 1   | 1   | 1   |
| SM2          | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 0   |
| SM3          | 1   | 0   | 0   | 1   | 0   | 1   | 1   | 0   |
| SM4          | 1   | 0   | 1   | 1   | 0   | 0   | 0   | 0   |
| SM5          | 1   | 0   | 0   | 1   | 1   | 0   | 0   | 1   |
| SM6          | 0   | 0   | 1   | 1   | 1   | 1   | 0   | 1   |
| SM7          | 1   | 0   | 1   | 0   | 0   | 0   | 0   | 1   |
| SM8          | 1   | 0   | 1   | 1   | 1   | 0   | 0   | 1   |

Based on the initial reachability matrix, it is crucial to correct according to the transitivity matrix to compile the final reachability matrix (RM), and its interpretation of the community sector affected in the management of the village forest development program as shown in Table 4.

Table 4. Final Reachability matrix (RM) of the affected community sector

| Sub elements | SM1 | SM2 | SM3 | SM4 | SM5 | SM6 | SM7 | SM8 | DP | R |
|--------------|-----|-----|-----|-----|-----|-----|-----|-----|----|---|
| SM1          | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 8   |    | 1 |
| SM2          | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 7  | 2 |
| SM3          | 1   | 1   | 1   | 0   | 1   | 1   | 0   | 6   | 3  |
| SM4          | 1   | 1   | 1   | 1   | 0   | 0   | 0   | 5   | 4  |
| SM5          | 1   | 1   | 0   | 1   | 0   | 0   | 1   | 5   | 4  |
| SM6          | 0   | 0   | 1   | 1   | 1   | 0   | 1   | 5   | 4  |
| SM7          | 1   | 1   | 1   | 1   | 0   | 1   | 1   | 6   | 3  |
| SM8          | 1   | 1   | 1   | 1   | 0   | 0   | 1   | 6   | 3  |
| D            | 7   | 7   | 7   | 8   | 6   | 4   | 4   | 5   |

The sub-element of village-owned business entity or BUMDes (SM1) as shown in Table 4 occupies the highest rank and is the key to successful management of village forest development programs in Bantaeng district. Contextual relations between sub-elements in the affected community sector can be described in the form of structure, as shown in Figure 2.
Figure 1. The hierarchical structure between sub-elements of the community sector affected by the Village Forest Development Program

The village institution, namely the village-owned business entity (SM1), is the basis for the other elements (Figure 2). BUMDes is the most influential community sector in the village forest development program in Bantaeng Regency. This institution was appointed by the Village Regulation to implement the village forest. As the BUMDes function is locomotives from all business sectors in the village, BUMDes is needed in the development of village forests to drive the community sector of the village forest and overcome obstacles that can hinder the achievement of objectives. If the sub-element of the village institution (BUMDes) is affected to carry out the activities of village forest management, then the forestry extension agent (SM2) also will be affected. The forestry extension agent is affected to carry out the strengthening of BUMDes institutions. If these two sub-elements are affected to conduct activities in village forest management, then other sub-elements of the community sectors will be affected, namely forest farmer groups (SM3), local NGO(SM7), and forestry and plantation entrepreneurs (SM8). Furthermore, if the five sub-elements are affected, the farmer (SM4) will be affected, and the community around the village forest (SM5) will also be affected. With the movement of all sectors of the community to carry out activities, the village forest in Bantaeng Regency will produce and influence the existence of a coffee processing workforce (SM6).

Based on the results of the reachability matrix (Table 4), the driver-power and dependence values for each sub-element of the community society affected by the program are plotted into the four sectors as shown in Figure 3.

Figure 2. Matrix driver power (DP) - Dependence (D) of the affected community sector
The DP-P matrix presents the classification of sub-elements of the community sector affected by the village forest development program, as shown in Figure 3. In this matrix, sub-elements of BUMDes (SM1), forestry extension agent (SM2), forest farmer groups (SM3), farmers (SM4), communities around the village forest (SM5), and entrepreneurs in the forestry and plantation sectors (SM8) occupy sector III (linkage) of the system. The variable in sector III, as stated by [26], must be carefully examined because the relationship between variables is unstable. Each action on the variable will have an impact on other sub-elements, and the feedback of its influence can magnify the impact of the success of the program. Weak attention to these variables will cause failure in the program.

The sub-elements of local NGO (SM7) and industry (coffee processors) occupy sector II (dependent). It indicated that the two sub-elements provide a powerful impetus to the implementation of other community sector sub-elements. However, the implementation of the two sub-elements of the community sector slightly influences the implementation of other sub-elements of the affected community sector.

The main obstacle in the development of village forests in Bantaeng Regency that needs attention is the Village Institutions implementing village forests that are not yet strong. The weakness of village forest institutions is due to the absence of a clear institutional structure. The institutional structure is the key to organizational success. The institutional structure is related to the structure of power or decision making, tasks and division of labour, the structure of communication and how the flow of communication takes place within the Institute and the means for the Institute to interact.

To overcome the obstacles in managing the village forest development program in Bantaeng Regency, the Forestry Service agency is needed their active participation. Based on the main tasks and functions of the Forestry Service includes three things, namely the construction of forest management infrastructure in the form of technical guidelines and guidelines, public forestry services, and forest management activities. In the framework of implementing the village forest development program in Bantaeng Regency, active participation from the forestry service requires a structure that carries out its main tasks and functions at the lower regional level, namely the management unit. The structure is responsible for planning, managing and controlling oversight. Besides, it can also help in the development of forest farmer group institutions as well as functioning as a facilitator in overcoming the gap between the community facing managing the forest area and the existing policies.

Good coordination among all parties involved is also a program need that needs attention in the context of achieving village forest development goals. One indicator of coordination to run well is the existence of a task function. Good coordination will produce a proper task function, which has implications for institutions/agencies that are getting stronger. The stronger the institution/agency, the more often it explains everything clearly, and the frequency of inviting its members to participate in development programs is increasing.

In addition to the Forestry Service, the sub-elements of community sector also needs attention, namely the village institution (BUMDes) as the village forest manager. The BUMDes who are appointed by village regulations to carry out village forest management is information resources in developing a village forest development system. As BUMDes functions as a locomotive of all business sectors in the village, BUMDes is needed in the development of village forests to overcome obstacles that can hinder the achievement of goals. One of the locomotive barriers that often hinder a program is the weakness of community institutions so that it is often a barrier to the occurrence of an agreement. Therefore, it is necessary to enforce the strengthening activities of village institutions (BUMDES). The development of village institutions can be done through the provision of facilities to participate from planning to program evaluation, increasing program socialization as well as an educational process that brings the institutional members to be aware of the objectives within the institute. In case of Labbo Village Forest, the existence of the village head as an advisor is beneficial in carrying out BUMDes activities, because BUMDes are included in the village program so that the village is responsible for all BUMDes activities to the community [19].

The objective to be achieved from the village forest development program in Bantaeng District, which is a crucial objective is to develop forest management institutions. This institutionalization is
essential primarily to provide forestry services to forest village communities so that those forest village communities can participate in forestry development. Community participation is a condition for sustainable forest management. Government action by not involving the community in its management will only cause the failure of programs and plans carried out by the government. An example is a reforestation program that failed because the community did not participate in its maintenance, even in some cases, they deliberately failed the program and plan because they were not involved. The forms of community participation in forest management are numerous, namely by providing assistance, mobilizing or mobilizing the community, instruction, paying the community as labour, sharing the results of the community as equal partners in every decision making, planning and implementation.

The standard to assess the success of the objectives of the village development program in Bantaeng Regency is the existence of community access in managing forests. Community access to forest management is related to the use of land in forest areas, the use of non-timber forest products, the use of environmental services. To access the forest area, the community can submit to the authorities through permits or precise mechanisms and processes under the existing laws and regulation. The designation of protected forest areas in Bantaeng Regency as a village forest working area is part of granting access to the community to be able to utilize the forest area land. The implementation of this policy is a benchmark in assessing the objectives of a village forest development program.

4. Conclusion

The key sub-element that plays an essential role in encouraging the success of the village forest management program based on the ISM results is the village institution (BUMDes) as the linkage elements. This institution is the implementer of the village forest, building forest management institutions, enhancing the community's role in managing the forest, community access to manage the forest. A careful review of sub-elements in the affected community sector needs to underline because the relationship between variables is unstable. Every action on these variables will give effect to the success of the program, and the feedback of its influence can increase the success of the village forest development program.

References
[1] Pujo P, Sofhani T F, Gunawan B and Syamsudin T S 2018 Community Capacity Building in Social Forestry Development: A Review J. Reg. City Plan. 29 113–26
[2] Moeliono M, Thuy P T, Bong I W, Wong G Y and Brockhaus M 2017 Social forestry -why and for whom? acomparision of plocies in Vietnam and Indonesia. For. Soc. 1 78–97
[3] Gilmour D 2016 Forty years of community-based forestry: A review of its extent and effectiveness (FAO)
[4] Purnomo E P and Anand P B 2014 The conflict of forest tenure and the emergence of community based forest management in Indonesia
[5] Anon Law No. 41/1999 on Forestry.
[6] Regulation G No. 6/2007 on Forest Governance.
[7] Respatiadi H 2016 Penerapan Hutan Kemasyarakatan di Indonesia: Kisah dari Dua Desa
[8] Suradiredja D, Hakim E R, Markum, Pramaria A and Santoso W J 2020 Sejarah perhutanan sosial, antara kesejahteraan masyarakat dan kelestarian fungsi Kawasan hutan http://agroindonesia.co.id
[9] Anon Ministerial Decree No. P. 49/2008 on Village Forests.
[10] Departemen Kehutanan 2010 Pemberdayaan masyarakat melalui program HKM, HTR, dan HD Siar. Pers
[11] Sahide M A K 2013 Hutan Desa dan Pembangunan Sosial Ekonomi Masyarakat Desa di Kabupaten Bantaeng
[12] Muin N and Hapsari E 2014 Hutan Desa Kabupaten Bantaeng dan Manfaatnya Bagi Masyarakat *Bul. Eboni* **11** 27–36

[13] Supratman and Sahide M A K 2010. *Pembangunan hutan desa di Kabupaten Bantaeng: Konsep, Proses dan Refleksi. Regional Community Forestry Training Center for Asia and The Pacific.* (CV Bumu Bulat Bundar)

[14] Suwarti S and Soeaidy M S 2015 Implementasi Perencanaan Pengelolaan Dan Pemanfaatan Hutan Desa Di Kabupaten Gunungkidul *Reformasi J. Ilm. Ilmu Sos. dan Ilmu Polit.* **5** 195–203

[15] Alam S 2003 *Mewujudkan hutan desa sebagai alternatif pengelolaan hutan berbasis masyarakat.* (Makassar: Makalah Lokakarya Hutan Desa Universitas Hasanuddin)

[16] Anon Ministerial Decree No.55/Menhut-II/2010 on Designation of forest area as working area of village forest in protected forest area of 342 (three hundred forty two) hectares is located in the administrative area of Labbo Village, Tompobulu District, Bantae

[17] Anon Ministerial Decree No.56/Menhut-II/2010 on Designation of forest area as working area of village forest in protected forest area of 339 (three hundred thirty nine) hectares is located in the administrative area of Pattanetenang Village, Tompobulu Distri

[18] Anon Ministerial Decree No.57/Menhut-II/2010 on Designation of forest area as working area of village forest in protected forest area of 26.68 (Twenty six point sixty eight) hectares is located in the administrative area of Campaga Village, Tompobulu Distric

[19] Batari A, Yusran Y and Sahide M A K 2017 Analisis tingkat keaktifan pengelolaan hutan desa labbo *J. Hutan dan Masy.* **9** 54–60

[20] Moeliono M, Mulyana A, Adnan H, Manalu P and Yuliani L 2015 *Village forests (hutan desa): empowerment, business or burden?* (World Agroforestry Centre-ICRAF Southeast Asia Regional Office, Bogor, Indonesia)

[21] Anon Governor of South Sulawesi Decree No. 3805/XI/TH 2010 on the granting of village forest management rights in protected forest area of 342 (three hundred forty two) hectares to the Village-Owned Enterprises (BUMDes) Ganting of Labbo Village, Tompobulu Di

[22] Anon Governor of South Sulawesi Decree No. 3805/XI/TH 2010 on the granting of village forest management rights in protected forest area of 339 (three hundred thirty nine) hectares to the Village-Owned Enterprises (BUMDes) Ganting of Pattaneteang Village, Tom

[23] Anon Governor of South Sulawesi Decree No. 3805/XI/TH 2010 on the granting of village forest management rights in protected forest area of 26.68 (Twenty six point sixty eight) hectares to the Village-Owned Enterprises (BUMDes) Ganting of Campaga Village, Tom

[24] Marimin M 2004 *Teknik dan Aplikasi Pengambilan Keputusan Kriteria Majemuk* (PT. Grasindo: Jakarta)