

THE INFLUENCE OF FOREST MANAGEMENT POLICY ON FOREST AREAS AND COMMUNITY EMPOWERMENT IN YOGYAKARTA

Drasopolino, University of Indonesia

ABSTRACT

Purpose: This study wanted to test and determine the impact of implementing forest management policies in forest areas and community empowerment in Yogyakarta. Method: The method used in this study used qualitative research with data sources obtained through surveys with variable measurement results. Samples were taken based on the forest area of the Yogyakarta area seen from the forest planning and management plans as well as the culture of the people in the Yogyakarta area itself. The analysis used also uses Stakeholder Analysis to define the parties who influence this research.

Result: Research results showed that the village community, as a local institution, can collaborate and interact with external parties to develop the local institution. Policies made to develop collaborative activities do not fully accommodate existing situations and conditions. Therefore, collaborative activities require various strategies and innovations to maintain the sustainability of cooperation. Collaborative activities recognize local institutions in forest management. Empowerment of local community using clear design principles will last long and capable of adapting to environmental changes. The success of community institution management does not rely on the institution's sustainability since community institutions have prevailed through various crises for an extended period.

Originality: This research is expected to contribute to efforts to increase forest areas in forest management policies for Community Empowerment in Indonesia.

Keyword: Impact of Policy Implementation, Policy Implementation, Forest Management Policy, Forest Area.

INTRODUCTION

State forest management often conflicts with local community needs and interests. Claims over forest resources cause tenurial conflicts between various parties. State forest resources are shared resources. However, related parties merely use forest resources without preservation effort. Sustainable management requires an influential institution. Kesatuan Pengelolaan Hutan (FMU), or the Forest Management Unit (FMU), is responsible for implementing public forest management policies. FMU is accountable for forest utilization and sustainability. FMU regulates the rules to ensure the efficient and sustainable use of forest resources. FMU identifies community interests and needs. Furthermore, FMU increases community access to forest resources by recognizing rights, permits, forms of partnership, and/or

collaborative forest management. FMU improves forest governance and directs related parties' behavior to achieve common goals (Ali, 2017).

FMU encourages real decentralization, optimize community access to forest resources as a conflict resolution, and increases the ease and certainty of investment. FMU may handle areas that "do not have" a management unit, for instance, unlicensed forest. FMU improves the success rate of forest rehabilitation and protection. FMU, as an operational forest management unit, control and manage forest area at the field level. Besides, FMU responds to local community interests and needs. FMU establishment is a series of processes of planning/compiling a forest area design. The planning/compiling refers to FMU's primary function and designation to realize proper forest management. FMU is part of the national, provincial, and regency forest management system. FMU establishment aims to provide a forum for efficient and sustainable forest management. The primary challenge of forest management is space for development purposes, high rate of biodiversity (population and values), and intense pressure to ensure dominant forest economic function. However, less attention is given to the ecological and social role (Burris et al., 2009).

LITERATURE REVIEW

Stakeholder Analysis

Every stakeholder is crucial for the sustainability of an organization. Deloy (2016) explained that pemangku kepentingan (Indonesian) is referred to as stakeholders (English). The word "stakeholder" is derived from "stake" and "holder". In general, the term stakeholder is translated into pemangku kepentingan. Stakeholders are individuals or profit and non-profit organizations holding interest over a company. Stakeholders may determine the achievement of company goals. Also, stakeholders are internal and external parties possessing predetermined interactions. There are exclusive and non-exclusive company stakeholders.

Depoorter & De Mot (2006) defines stakeholders as parties capable of influencing or be affected by decision-making. Stakeholders are individuals, groups, or forums concerned with and/or can determine an activity's output (Eddyono, 2011). Stakeholders were exclusive or non-exclusive individuals and parties concerned over a project and/or could determine output (positive or negative). Stakeholders were parties possessing interests and decisions. Stakeholders are individuals and group representatives having power, legitimacy, and interest in a program.

Differentiates stakeholders into two types, namely primary stakeholders and secondary stakeholders. Primary stakeholders are parties who have an undivided interest in a resource. They are concerned over livelihood or involved exclusively in exploitation. Primary stakeholders as key stakeholders. Secondary stakeholders are parties who have non-exclusive interests or depend on the entrepreneur's wealth or business. Every stakeholder has unaligned interests, needs, and points of view. Managing interest needs, and points of view ensure goal achievements (Eldar, 2010).

Actor-Network

Network studies examine a series of interrelated objects or actors. The network study aims to perform analysis as a limited social collectivity. In practice, network limitation is often absent or ambiguous. The focus of egocentric studies lies in actors. The inter-actor approach starts from the environment of actors who relate to other actors. To maintain its existence, an actor needs resources. The actor establishes relationships with other actors, and a network of actors communicating with each other is established. The network approach assumes that policies are made in a complex interaction among actors within the network of interdependent actors.

A policy network is a relationship formed due to a coalition between government actors, including the private sector (Epstein, 2005). Policy actors are often referred to as stakeholders. Stakeholder's management is an approach to adjust stakeholder's condition, namely:

1. Partner;
2. Consult;
3. Inform;
4. Control.

Policy networks are formed and developed depending on the intensity and dominance of the three actors' relationships. The policy network grows depending on the intensity of the relationship between the three actors and the dominance of one actor. The types of policy network are:

1. Bureaucratic network;
2. Clientelistic network;
3. Triadic network;
4. Pluralistic network.

Four types of networks are formed when a community dominates the relationship between the government and society. The network types are:

1. Participatory statistic network;
2. Captured network;
3. Corporatist network;
4. Issue network.

Social Network Analysis (SNA) mixes sociology and mathematics. SNA requires a variety of approaches and techniques from various disciplines in understanding various social networks. SNA uses social relations and is conceptualized in the form of a node representing actors, and Edge indicates an interaction or relationship between actors. The relationship or interaction between actors is a complex form, so it is not easy to understand and analyze. Application is crucial to understand the social network. Researchers used Social Network Visualization (SocNetV 2.1) application, an application or software used to analyze a social network based on the most important nodes (centrality) among the network nodes. SocNetV 2.1 produces several analysis results through several types of measurements. For instance, degree centrality, between centrality, closeness centrality, and information centrality.

Public Policy

Easton stated, “*Public Policy is the authoritative allocation of values for the whole society, but only the government can authoritatively act on the ‘whole’ society...*” Public policy as the allocation of power to all binding societies. Therefore, the government can take action against society. Government action is a decision made by the government as a form and allocation of values to society (Feldman & Lobel, 2009).

Thomas R. Dye states that public policy is what the government determines to do or not do. Thomas R. Dye definition refers to various community problems, desire and need (Gunasekara, 2005).

Heinz Eulau and Kenneth Prewitt stated policy could be defined as an implementable decision. Policies are steady behavior and repeated actions applicable to policymakers and compilers. Halverson (2017) outlined several public policy concepts, namely:

1. The government decides to act or not to act;
2. Written government regulations and conventions;
3. Legislative and executive cooperation.

Public Policy Implementation

Policy implementation is a stage of public policy, between the formation of policies and the consequences of policies for the affected community. Inappropriate or ineffective policy generates failure despite good implementation. On the other hand, a well-planned policy may fail due to improper implementation.

Implementation understands the reality of a program after program formulation and validation. Events and activities after adopting guidelines of State Regulation. Implementation covers the regulation effort and causes real consequences or impacts on society or events.

Policy implementation occurs after the valid policy issuance. Policy implementation covers input management and output production for society.

Public Policy Implementation Models

Policy implementation studies emphasize examining the factors that influence the success and failure of achieving policy targets (Huda, 2006). According to George C. Edward in Edward III, policy implementation is influenced by four variables, namely:

1. Communication. The success of policy implementation requires implementers to understand the policy's action, goals, and objectives. The implementers relay the policy's goals and objectives to the target group to reduce implementation distortion.
2. Resources. Regardless of clear and consistent communication of policy content, lack of resources will cause policy implementation ineffective.
3. Disposition is related to implementers' character and characteristics. Good disposition encourage implementer to carry out policies as intended.
4. A bureaucratic structure is an arrangement of work components (units) in an organization. The bureaucratic structure is the division of labor and clarity on how different functions or activities are integrated or coordinated. Also, the bureaucratic structure uses job specialization, order channels, and reporting.

Four groups of variables influencing program performance: environmental conditions, relations between organizations, organizational resources for program implementation, and characteristics and abilities of the executing agent.

Forest Management

Forest management is the practice of applying principles of biology, physics, chemistry, quantitative analysis, management, economics, social, and policy analysis in a series of activities to build or regenerate, develop, utilize and conserve forests to achieve specific goals and objectives while maintaining forest productivity and quality. Forest management manages forest aesthetics, fish, and other aquatic fauna in forest rivers, recreation areas, forest values and functions for urban areas, water, wildlife, timber, other non-timber forest products, and other forest resources. Forest management is:

1. Forest administration and preparation of forest management plans;
2. Forest utilization and forest area utilization;
3. Forest rehabilitation and reclamation;
4. Forest protection and nature conservation.

Forest management activities and preparation plans are carried out in each forest management unit covering the following forest area:

1. Conservation forest's primary function is preserving the diversity of plants and animals and their ecosystem. Conservation forest consists of natural reserve forest areas, natural conservation forest areas, and hunting parks.
2. Protected forest's primary function is protecting life support systems, such as regulating water systems, preventing flooding, controlling erosion, preventing seawater intrusion, and maintaining soil fertility. Forest management in protected forests is carried out in each management unit. The Forest Management Unit (FMU) determines forest boundaries and inventory and identifies and analyzes forest conditions. Furthermore, FMU collects social, economic, and cultural data in the forest and its surroundings and divides the forest into blocks (protection block, utilization block, and other blocks). Also, FMU registers, measures, and maps forests.
3. Production forest's primary function is producing forest products. Production forest management determines forest boundaries, organizes an inventory of forest potential and conditions, determines forest problems, divides the forest into blocks and compartments, makes boundary markers of the blocks and compartments, cleaning forest area, and builds a management facility. It also registers, measures, and maps forests.

It is necessary to increase forest resource yield (production plantations and natural forests) without destroying forest sustainability. Community forests can be maintained by providing seeds for recently harvested forests. Besides, companies and communities who use forest products need to reserve timber and carry out reforestation. The entire forest management must prevent damage and preserve the forest (Ibrahim, 2006). Forest management programs that involve the community influences the following aspect:

1. Economic aspect—the welfare of the community involved in forest management. Forest management increases forest production, especially timber.
2. Ecological aspects—forest sustainability and functions.

Forest Management Unit (FMU)

FMU activities must involve local communities in a participatory manner and address social and conflict issues. The conflict issues refer to tenure conflicts, access to forest resources, and customary rights. The Ministry of Forestry defines FMU as forest management adhering to forest primary function and designation. FMU allows efficient and sustainable forest management. FMU manages forests at the field level to avoid forestry problems, such as communities seeing forests as an open-access area free for exploitation. Thus, effective and efficient management is crucial to establish forest management at the field level.

It is necessary to separate the role of administrator and forest management operator role to achieve efficient and effective forest management. The Ministry of Forestry and Forestry Service carry out the role of administrator or regulator and operator. The administrator or regulator and operator roles require clear, separate, non-overlapping, and transparent division. The government, as state administrators, needs to separate administrator or regulator and operator functions mainly for activities that control community lives. The separation of roles deters regulators from acting as operators and vice versa. In our opinion, forest management is activities influencing community livelihood. Forest has ecological, social, and economic functions. The Forestry Service should carry out administrative or regulatory functions. Furthermore, FMU should carry out operator functions. We believe that effective and efficient management indicates good management of small forest areas.

Based on Government Regulation Number 6 of 2007, forest areas are divided into FMU to realize sustainable forest management. FMU is the smallest forest management unit adhering to the forest's primary function and designation. Furthermore, FMU allows for efficient and sustainable forest management. There are two different values of the prevailing regulation. Firstly, the Central Government and Provincial Government issue a forest management direction. However, the Central Government and Provincial Government are located far away from forest resources. Therefore, government directions may be ineffective. Secondly, the establishment of FMU as the smallest management unit requires re-evaluation. The administrative level of FMU management (Regency FMU or Provincial FMU) is unrelated to the forest management area.

In general, FMU possessing small areas is easier to manage than FMU owning extensive areas. Large FMU may be managed effectively and efficiently. However, large FMU requires reliable managerial capabilities to manage forest areas. FMU of extensive areas requires better managerial capabilities compared to FMU of small areas.

Community Empowerment

Community empowerment refers to improving human assets and capacity in a broad sense. Therefore, the community may make choices and act according to their choices to solve problems. Participation is an essential component in empowerment. Empowerment requires participation to achieve development goals (Kaligis, 2011).

Community empowerment might be interpreted as: Empowerment as a process: Empowerment is a process of change and requires innovation of ideas, product ideas, methods, equipment, or technology. In practice, innovations often come from an external factor. However, innovation may be developed through studies, recognition, and development of habits, traditional

values, local wisdom, or traditional wisdom (indigenous technology). Empowerment as a learning process: Theoretically, changes through empowerment may be conducted through coercion, threats, persuasion, and education. Change through coercion or threats may speed up the process within the required parameter. However, empowerment as a learning process must refer to the needs of the community. Also, empowerment optimizes community resources and potential and improves community welfare.

Community empowerment at the policy-making level will increase the effectiveness and efficiency of the limited development resources. Community empowerment increases the compatibility between development programs and local realities. Also, community empowerment strengthens the program's sustainability as it has a sense of ownership and responsibility.

Several policies and institutional deterrents occur in community empowerment. Senior managers and policymakers have limited commitment and understanding of community empowerment's principles and benefits at all levels.

RESEARCH METHOD

This study was a qualitative-verification study instead of being driven by an explicitly stated hypothesis. The theory verification was not explicitly stated, as the main theory served to understand observed empirical phenomena. The advantage of the inductive model refers to the most basic level of research. Researchers often start from events not expressed in various theories and social phenomenon. The truth of qualitative research results is intersubjective. Truth is built through interweaving various collaborative factors—for instance, culture and unique traits of individuals. Therefore, something “*perceived*” becomes a reality to those who see and experience it. Also, facts rely on context and interpretation.

Therefore, inter subjective truth is a construction of facts compiled by researchers through notes on understanding social interactions (Kaligis, 2011). Qualitative methods refer to research procedures that produce descriptive data. The descriptive data are in the form of speech, writing, and observable community behavior. Researchers used the library research method to understand the history of forest management in the context of actors who influence the concept of forest management. In addition, researchers aimed to understand the influence of forest management on the legal relationship between communities and state-controlled forests. Library research methods refer to data collection, data processing, data analysis, and findings presentation. Researchers conducted the preparation stage by doing the following four things. (1) Researchers study library sources, books, journals, dissertations, theses, documents, or articles related to research problems. (2) They conduct a comparative study between written sources to sort data and information related to research problems and facilitates interpretation. (3) Researchers interpreted data analysis. Data analysis explained the state management dynamics of forest resource management. (4) Researchers write a chronological history of the legal relationship between the authorities and the community over forest management.

FINDINGS AND DISCUSSION

General Description

According to the Decree of the Head of the Forestry and Plantation Service Number 188.4/3710 on 22 October 2003, the total forest area in Daerah Istimewa Yogyakarta (DIY) Province was 18,715.06 ha. The total forest area was 5.86% of the total area of Yogyakarta (318,518 ha). The forest is available in four regencies: Gunungkidul Regency, Bantul Regency, Kulon Progo Regency, and Sleman Regency. Gunungkidul Regency has the largest forest area compared to other districts. Natural Resources Conservation Center manages 1,262.15 ha conservation forest. Mount Merapi National Park Office of Yogyakarta manages 1,728.28 ha of conservation forest. As the technical implementation unit of the Forestry and Plantation Service, the Yogyakarta Production Forest Management Unit manages 15,724.50 ha of forests.

The area managed by the Yogyakarta FMU refers to the Decree of the Minister of Forestry Number 721/Menhut-II/2011. The Yogyakarta FMU covers an area of 15,724.50 ha. The forest was divided into Production Forest (13,411.70 ha) and Protection Forest (2,312.80 ha). The Yogyakarta FMU covers three regencies: Gunungkidul Regency (13,826,800 ha), Bantul Regency (1,041.20 ha), and Kulon Progo Regency (856.50 ha).

Forest Administration and Management Plan

Forest planning and forest management plans are part of forest management activities as stipulated in Law Number 41 of 1999, amended by Government Regulation Number 6 of 2007. Forest management refers to designing forest management units. Forest management groups forest resources according to the type of ecosystem and existing potential. Furthermore, forest management aims to obtain the maximum benefit for the community in a sustainable manner. Forest management divides forests into blocks based on the ecosystem, types, functions, and forest utilization plans. In addition, forest division takes forest management intensity and efficiency into account. The division serves as a guide to prepare a forest management plan.

The initial implementation of the forest area boundary, mapping, and designation was carried out by the Dutch East Indies government, known as Boschwezen (Forest Service) and Djatibedrift (Forestry State Owned Enterprise). It was completed in 1930. The 1930 forest planning arranged outer boundaries and divided forest areas into plots, Resort Pemangkuan Hutan (RPH), or Forest Management Resort, and Bagian Daerah Hutan (BDH), or Forest Region. There are boundary markings in the form of concrete pegs and road grooves between blocks. Within ten years, FMU Yogyakarta routinely reconstructed the FMU inner and outer boundary. FMU routinely updates forest data to consolidate and manage forest areas.

There was outer and inner boundary establishment within ten years. FMU established outer boundary of AB (Afgeschreven djati-Bosch) forest area, Yogyakarta FMU, and conservation areas, and Yogyakarta FMU forest area and non-forest area. FMU established inner boundary of protected forest and production forest, Izin Usaha Pemanfaatan Hutan Kemasyarakatan (IUPHK), or Community Forest Utilization Permit, Izin Usaha Pengelolaan Hutan Tanaman Rakyat (IUPHTR), or Community Plantation Forest Management Permit, Ijin Usaha Pengelolaan Hutan Desa (IUPHD), or Village Forest Management Permit, and Penataan Areal Kerja (PAK), or Work Area Management. Furthermore, FMU reconstructed and

maintained boundary plots and sub-plots. In 2017, Yogyakarta FMU reconstructed temporary boundaries between plots and sub-plots. Yogyakarta FMU conducted the reconstruction in BDH Panggang (28,850 m) and BDH Karangmojo (42,650 m). The forest management aimed at realizing one of FMU missions, strengthening forest governance.

The forest management plan refers to planning, organizing, implementing, evaluating control, and supervision. The forest management plan considers environmental conditions and community aspirations, participation, and cultural values. During the first years after the establishment of Yogyakarta FMU, the forest management plan referred to Rencana Teknik Tahunan (RTT), or the Annual Technical Plan. Forest management plan concerning leaf production, planting, logging, and production road maintenance refers to RTT. Leaf production, planting, and production road maintenance started from 2009 to the present, while logging started from 2013.

Based on the Regulation of the Directorate General of Forestry Planning Number P.5/VII-WP3H/2012 concerning Technical Guidelines for Forest Management and Formulation of Forest Management Plans for Protected Forest Management Units and Production Forest Management Units, in addition to Rencana Pengelolaan Hutan Jangka Pendek (RPHJPd), or Short-Term Forest Management Plan, regulated by Directorate General of Sustainable Production Forest Management Number P.7/PHPL/SET/3/2016 concerning Guidelines for Preparation, Assessment, Ratification, and Reporting of RPHJPd of Protected and Production FMU, the Yogyakarta FMU is obliged to prepare a forest management plan, both Rencana Pengelolaan Hutan Jangka Panjang (RPHJP), or Long-Term Forest Management Plans, and Short-Term Forest Management Plan.

The Yogyakarta FMU RPHJPd was approved in 2014 and is valid for the 2014-2023 periods. RPHJP provides direction and guidance for the implementation of forest management. RPHJP summarizes the management, conservation, and protection of forest resources in Yogyakarta. In addition, RPHJP fulfills local, regional, national, and global interests. After RPHJP ratification, RPHJPd is formed. RPHJPd describes the annual implementation of RPHJP based on land potential, forest inventory, community socio-demographics, public demand, and so forth. RPHJPd adheres to 2014-2023 RPHJP, Regional Budget, and State Budget. In addition, RPHJPd adheres to non-binding funds following laws and regulations—FOR instance, Dana Alokasi Khusus (DAK), or Special Allocation Funds), Yogyakarta privileges fund, and so on.

Ten years after FMU Yogyakarta establishment, FMU Yogyakarta received a budget of IDR 11,916,019,350.00 for operational activities. The operating activities cover forest administrative and technical management. Integrating administrative and technical activities was the initial stage of FMU development. Therefore, Yogyakarta FMU may perform sustainable forest management through economic, social, and ecological aspects.

Forest Utilization in the Yogyakarta Production Forest Management Unit Model

Based on Law Number 41 of 1990 concerning Forestry, the ideal forest management is carried out in the smallest unit on the field level through FMU. FMU visions and missions support forest management by utilizing forest resources in the managed forest area. The Yogyakarta Production Forest Management Unit Model possesses enormous forest potential. The existing forest potential encourages it to conduct forest utilization actively. The forest

utilization adheres to Government Regulation Number 6 of 2007. The Government Regulation describes area utilization activities, environmental service utilization activities, and timber and non-timber utilization. The Yogyakarta Production Forest Management Unit Model conducts the following forest utilization activities:

Area Utilization: Area Utilization is an activity to utilize development space. Area Utilization aims to generate optimal environmental, social, and economic benefits without reducing forests' primary functions. Yogyakarta FMU conducts Pemanfaatan Lahan Dibawah Tegakan (PLDT), or Forest Utilization under Stands. Indonesian forest management uses Tumpangsari (multiple-cropping) as a form of PLDT. The Dutch government first introduced multiple-cropping (taungya). Multiple-cropping allows the community to cultivate crops in state-owned forest areas. However, the community needs to grow staple plants. The community preferred cultivating palawija—for instance, corn, cassava, peanuts, and soybeans. Farmers use multiple-cropping in the teak forests for two years. However, grown teak leaves overshadow the crops. Therefore, farmers tend to cultivate shade-tolerant plants after teak growth—for instance, empon-empon (spice).

Farmers use multiple-cropping in *Melaleuca cajuputi* forests throughout the year. Farmer prune *Melaleuca cajuputi* to deter overshadowing. PLDT provides enormous benefits to the community. PLDT contributes an additional income of ± IDR 30 billion. The production value range is IDR 6 million per hectare. In addition, PLDT generates employment for ± 9000 people. In addition to PLDT, Yogyakarta FMU conducted Jun teak planting.

Jun teak development began in 2010 under the partnership with PT. Surya Silva Mataram. The cooperation agreement between the Forestry Service and PT. Surya Silva Mataram is written in Cooperation Document Number 119/2137 concerning teak plantation development through intensive silviculture and water management. The collaboration last for 35 years. The collaboration aimed to plant teak in an area of 1000 ha. In the first harvest, PT. Surya Silva Mataram received 65% of the profit, the Forestry Service received 25% of the profit, and the community received 10% of the profit. In the second harvest, PT. Surya Silva Mataram received 50% of the profit, the Forestry Service received 30% of the profit, and the community received 20% of the profit. The profit-sharing changed as there was no planting in the second cycle. Menggoro RPH and Kepek RPH produced modified Jun teak used in the second planting. Jun Teak has a life cycle of 8 years. Therefore, the first harvest was done in 2018. Intensive care was done to produce good timber quality. Regarding superior timber potential, Mulo RPH, Kedungwanglu RPH, and Giring RPH will cultivate Jun Teak in the future.

Environmental Services Utilization: Environmental services utilization uses the potential of environmental services without damaging the environment and reducing forests' primary functions. Yogyakarta FMU, Mangunan RPH, and Kulonprogo-Bantul BDH have performed environmental services utilization. The Mangunan tourism development began in 2014. Due to old age and low sap productivity, the untapped pine stands encouraged the development of Mangunan tourism. The pine stands provide a beautiful panorama in the highland region. Therefore, Mangunan possesses potential tourist attractions.

The development of Mangunan tourism uses fundamental concepts of the local culture. Yogyakarta FMU developed Wana Wisata Mataram Grand Design or Mataram Forest Tourism Grand Design based on the regional potential. Grand Design refers to the facility development in the tourist attraction area. Supporting tourism facilities must comply with the regulation as

Mangunan is within protected forest areas. The tourism facilities do not change the landscape, are environmentally friendly, and do not use permanent construction.

The success of tourism development depends on satisfactory performance and cooperation between government and community. The forest community plays a vital role in developing tourism. The tourism development must maintain environmental service and protect forest region. Yogyakarta Regulation Number 7 of 2015 concerning Hutan Perlindungan Hewan Liar (HPHL), or Wildlife Protection Forest Management, further elaborated in Yogyakarta Governor Regulation Number 84 of 2016 concerning cooperation in a protected forest, states that community must be protected under community institutions or cooperatives.

Notonowo Cooperative houses several community groups involved in Mangunan tourism development. The cooperation between government and cooperatives adheres to the Protected Forest Utilization Cooperation Agreement between Yogyakarta Department of Forestry and Plantation and Notonowo Cooperative Number 525/00909. The agreement states that Notonowo Cooperative receives 75% of the profit, and the Government receives 25% of the profit. Environmental service tourism significantly contributes to community welfare and generates regional income. The community receives business opportunities and employment in the tourism area. The government earns income from tourist fees. Mangunan tourism has a gross income of IDR 1,179,055,000 in 2016.

Utilization of timber and non-timber forests: Timber and non-timber forest utilization exploit forest products without damaging the environment and reducing forests' primary functions. Yogyakarta FMU produces timber to meet the increasing demand for timber in Yogyakarta and Java Island. Yogyakarta FMU collects timber forest products in the form of teak, acacia, mahogany, sonokembang, gmelina, and johar. Teak produces superior timber than other types of wood. The total area of teak forest is 6,161 ha (39.2% of total production forest area). Yogyakarta FMU harvests timber annually. Before the harvest period, Yogyakarta FMU performs inventory management to determine the amount of harvested timber. Melaleuca cajuputi is a leading non-timber forest commodity. It is the main ingredient of cajuput oil. Melaleuca cajuputi was planted in RPH Dlingo (Blantul Regency) in 1950. It was also planted in Mount Kidul in 1960. The Melaleuca cajuputi planting aimed to conserve soil and water to address critical soil problems in the region. Melaleuca cajuputi stands are available in Paliyan BDH, Playen BDH, and Karangmojo BDH. The total Melaleuca cajuputi plantation area was 4,118.1 ha. Melaleuca cajuputi has a life cycle of 40 years. Therefore, it is necessary to maintain the stands and oil production.

The Yogyakarta Production Forest Management Unit, specifically Forest Utilization Section and Forest Planning and Protection Section, maintain and protect Melaleuca cajuputi stands. The Forest Utilization Section conducts intensification, re-planting, and fertilization. Forest Planning and Protection Section conducted routine patrol, foster farmer groups, guide PAM Swakarsa, and provide supplies for PAM Swakarsa. The maintenance and protection of Melaleuca cajuputi aim to achieve an average number of stands. The normal number of stands per hectare (N/Ha) is 3,333 with a spacing of 4 meters x 0.75 meters.

The Yogyakarta Production Forest Management Unit, has four Melaleuca cajuputi refineries: Sendangmole Factory, Gelaran Factory, Kediwung Factory, and Dlingo factory. Kediwung and Dlingo factories were terminated due to an inefficient refining process. The

terminated factories used a simple refining process and processed a small number of Melaleuca cajuputi leaves. The terminated factories also required a long time to process Melaleuca cajuputi.

Community Socio-Culture

The Yogyakarta Production Forest Management Unit is available in three regencies: Gunungkidul Regency, Bantul Regency, and Kulon Progo Regency. General description of the community in Yogyakarta FMU is related to Yogyakarta demographic: (a) high density, (b) high struggle of life, (c) high mobility, and (d) high culture. The Yogyakarta community (a) is generally future-oriented since Yogyakarta is a center of education; (b) has a noble view of life by realizing the balance between humans, nature, and environment inspired by “*Hammemayu Hayuning Bawono*” philosophy; and (c) has a high social level indicated by a high spirit of cooperation. The Yogyakarta Production Forest Management Unit is related to the socio-cultural aspect of the surrounding community. Communities collect the non-timber product, utilize forest land in the form of pesanggem, and so forth. Concerning community culture and forestry plants, the community prefers to use teak for housing and infrastructure, which symbolizes the social status of Yogyakarta society.

However, the community has the following limitation. First, it is related to resources endowment (controlled resources). The community of farmers around the forest has limited land (marginal and mostly are earthen stones), capital, low education level, weak technology absorption, and weak ability to take advantage of the limited market. Second, it is related to short-term orientation. Third, it is related to weak partnerships.

Resource endowment is related to poverty. Poverty is a complex problem and could not be solved through one sector. The Yogyakarta Production Forest Management Unit has a vital role in alleviating poverty by creating employment, increasing community income, and increasing food security. It may alleviate poverty through a welfare-based approach—for instance, pesanggem and various forest farming developments.

Based on the Central Bureau Statistics of Yogyakarta data, the poverty rate in Yogyakarta in March 2020 was 12.28%. The poverty rate increased by 0.58% from March 2019. The food poverty line in March 2020 was IDR 334,461 per capita per month. The contribution to the poverty line was 72.16%. The non-food poverty line was IDR 129,019 per capita per month. The contribution to the poverty line was 27.84%. Based on Survey Sosial Ekonomi Nasional (Susenat), or the National Social Economy Survey, in March 2020, the Yogyakarta poverty line was IDR 463,479 per capita per month. The poverty line increased by 3.11% compared to September 2018. The September 2018 poverty line was IDR 449,485 per capita per month. The Poverty Depth Index (P1) and Poverty Severity Index (P2) increased compared to September 2019.

Community Relations with Forests

Agrarian communities live for generations in the state forest region. These communities have a high dependence on natural resources. Therefore, the communities use forest resources for daily activities. Communities use state forest resources to meet daily needs. For instance, the community harvests grass for animal feed and a source of community income. In addition, the

community may harvest firewood to make and sell charcoal. The community uses the short-lived woody plant as charcoal material—for instance, the acacia. Farmers use forest land for farming. The community uses state forests as agricultural land using multiple-cropping or agroforestry systems. The multiple-cropping system increases farmers' income, especially for farmers who do not own land or own a narrow land. Multiple-cropping combines palawija and perennials. Multiple-cropping is beneficial for soil and water conservation in forest areas. Communities reduce erosion by cultivating the land and making simple terraces.

Pengelolaan Hutan Bersama Masyarakat (PHBM), or the Collaborative Forest Management Program, increases community participation in forest conservation. PBHM provides opportunities for farmers. For instance, increasing farmers' income from agricultural products and harvesting perennials yield from state forests adhering to the applicable agreement. The Yogyakarta Production Forest Management Unit applied several PBHM methods in forest management—for instance, agroforestry development and PAM Swakarsa activities. Therefore, community and forest are closely related and provide mutual benefits.

DISCUSSION AND

Research results showed that the village community, as a local institution, can collaborate and interact with external parties to develop the local institution. Policies made to develop collaborative activities do not fully accommodate existing situations and conditions. Therefore, collaborative activities require various strategies and innovations to maintain the sustainability of cooperation. Collaborative activities recognize local institutions in forest management. Empowerment of local community using clear design principles will last long and capable of adapting to environmental changes. The success of community institution management does not rely on the institution's sustainability since community institutions have prevailed through various crises for an extended period.

This research strengthened the stakeholder theory (Keith et al., 2016). The stakeholder theory refers to an approach that empowers stakeholders to influence the decision-making process, such as managing related parties effectively to realize strategic goals. There are dynamics related to the relationship between parties in expressing and responding to maintain strategic resilience and achieve organizational goals. The stakeholders may support or oppose an organization, and they may disrupt the future of an organization.

CONCLUSION

Management institutions make changes and influence forestry policies. Implementing forest management policies in the context of community empowerment needs to provide evidence of sustainable practices. Forest management policies also need to maintain sustainable management. Despite the existing achievement, there has been little development in the field. Community-based forest management requires goodwill and business pattern and encourages long-term changes to the ecosystem.

Cooperatives are the most synchronous form of community institutions. Community institutions overcome overlapping issues, such as property rights, ecological sustainability, recognition of citizen participation rights, and a livelihood source. Institutional change, as forest

management, is a social change (changes in rules, values, and power interaction within the community). Institutional change encourages sustainable management of FMU natural resources. Recognizing community rights is crucial in forest management. Community empowerment initiatives in forest management may be used in FMUs outside Java.

SUGGESTION

Based on the research result, suggestions are presented as follows:

1. FMU and community partnership patterns are the most suitable models to be developed. The models grant access rights to the community.
2. Legal aspects, knowledge, courage, and networking are the main factors driving organizational improvement.
3. The head of FMU should be able to build trust between stakeholders to realize FMU goals.

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