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# The Effect of Green Policy Implementation on Green Entrepreneurship: Evidence from Indonesia's Micro, Small, and Medium Enterprises

Yuwono Kartiko[1], Suwarto[2], Sapja Anantanyu[3] & Kusnandar[4]

**Abstract**

This study investigated the impact of implementing Ngawi Hijau, a regional spatial planning policy adopted by the Ngawi Regency government, on green entrepreneurship behavior of micro, small, and medium enterprise (MSME) actors engaged in the wood processing industry subsector in Ngawi Regency, Indonesia. Using 150 MSME actors as the research sample and the ordinary least squares estimation technique, this study found that green policy, which includes policy targets, MSME group abilities, MSME resources, incentives, and security, has a positive and significant impact on green entrepreneurship in Ngawi Regency. This study proves that clear and relevant public policy objectives are a prerequisite for effective policy implementation. Clear policy targets make the target group of the policy understand the policy implications, thereby lowering the resistance to the policy. Therefore, in contrast to the top-down model, which emphasizes the role of authority institutions, this research empowerment model proves that, as one of the parties most responsible for policy, aspects related to MSME actors have a pivotal role in realizing effective policy implementation. Among the five factors under consideration, the ability and resources of MSMEs and incentives have a relatively more significant contribution than the other factors in encouraging green entrepreneurial behavior in the wood industry business in Ngawi regency. Thus, to strengthen the readiness of the wood industry MSME actors in implementing the green policy, the Ngawi Regency government needs to pay more attention to the condition of MSME resources, which include HR, financial, and technical aspects. Incentives in terms of financial and non-financial assistance can be an instrument for strengthening MSME resources.

***Keywords****: green entrepreneurship, public policy, MSME*

## Introduction

After witnessing a period of high economic growth for several decades, the Indonesian economy finally had to confront the harsh realities (Tambunan, 2016). The Asian financial crisis, which began with a drastic decline in the exchange rate and then peaked in 1998, destroyed the previous feats achieved by economic growth. At the end of 1998, the Indonesian economy contracted by a negative economic growth rate, even reaching double digits, that is, 13.8%. Despite experiencing an intense contraction, Indonesia recovered its economic condition fairly rapidly. One year after

[1]*Dr. Candudate Sebelas Maret University, Surakarta Indonesia; Corresponding author: yuwono.king@yahoo.co.id;*
[2] *Prof. Dr. Sebelas Maret University, Surakarta Indonesia; Email: suwar_uns@yahoo.co.id;*
[3] *Prof. Dr. Sebelas Maret University, Surakarta Indonesia; Email: suwar_uns@yahoo.co.id;*
[4] *Prof. Dr. Sebelas Maret University, Surakarta Indonesia; Email: kusnan_dar@yahoo.com*

the crisis, Indonesia was able to record positive economic growth of 0.8%. Even in 2000, the economic growth rate reached 4.7%. One of the factors driving this noticeably fast recovery of the Indonesian economy is the emergence of strong micro, small, and medium enterprises (World Bank, 2005).

The importance of the role of MSMEs as the locomotive of economic growth can be found in all regions in Indonesia, including Ngawi Regency. Owing to their large number, MSMEs play an essential role in Ngawi Regency's economic development, especially in terms of poverty alleviation because of the large number of workers absorbed by this sector, that is, around 310 thousand workers. One of the business fields in the MSME sector that continues to grow and contributes significantly to the economy of Ngawi Regency is the processing industry, especially the wood goods industry and the like. In the long term, the wood processing industry in Ngawi Regency has good prospects for development to provide more significant economic benefits for the region. This is because Ngawi Regency has sufficient availability of forest resources, that is, 45,428, 60 ha.

Although the activities of the wood processing industry in Ngawi Regency provide a sizeable economic contribution, they also have negative impacts, especially in terms of environmental sustainability. Logging activities in the forest are often carried out irresponsibly, which results in a reduced availability of wood. Ngawi Regency is one of the areas with a relatively high level of illegal cutting in Indonesia. The high level of illegal cutting is supported by the geographical factor of Ngawi Regency, which is directly traversed by Bengawan Solo, which is often used as one of the traffic lanes for transporting wood. In addition, forest utilization activities that are not environmentally sound have resulted in the condition of the forest becoming barren and critical. Another consequence of forest destruction is reducing water catchment areas, making some areas in Ngawi Regency more vulnerable to flooding. The area of land in a critical situation reaches 55.5 thousand ha or about 66% of the total land in Ngawi Regency.

In light of the above issues, this study aimed to investigate the impact of implementing Ngawi Hijau, a regional spatial planning policy adopted by the Ngawi Regency government, on green entrepreneurship behavior of MSME actors engaged in the wood processing industry subsector in Ngawi Regency. The purpose of implementing this policy is to restore the quality of the environment, including forest areas, through conservation efforts and the use of an environment that is more environmentally sound (pro-environment) for the long-term interest.

## Literature Review

### Green Entrepreneurship

Green economy and green entrepreneurship campaigns have started to echo in the last few decades, especially after economic development became the prime focus of countries in the world in the 1960s. This campaign arises because, although the era of economic growth has proven to improve the welfare of the world's population, it also leaves many severe problems, mainly related to environmental sustainability.

Studies in the early periods have found that the rampant natural resource extraction activities increased the accumulation of waste and pollution, which made the carrying capacity of the environment degraded massively. As a result, environmental quality and welfare conditions are lower, even though income levels are nominally increasing (Daly, 1977). In more recent studies, the analysis of the impact of economic growth on the environment is discussed with an emphasis on certain aspects of the environment, such as carbon dioxide and sulfur dioxide emissions (Jenkins et al., 2010; Roberts et al., 1997), urban air quality (Esty et al., 2005), deforestation (Jenkins et al., 2002), and heavy metal contamination (Grossman et al., 1995).

Grossman et al. (1995) have described three channels through which economic growth can affect the environment. First, the channel effect scale (scale effect). Through this channel, it is explained that increased economic activity will encourage environmental damage due to the need for more excellent resources, including natural resources, which are required for production activities.

Second, channel structural effects (structural effect). Through this channel, it is explained that the structural changes that occur in the development of countries have different environmental impacts. The first phase, from agriculture to manufacturing, is marked by increasing environmental degradation. When there is a shift in economic activity from manufacturing to services, environmental damage will be lessened. Third, the technological channel affects economic development that will lead to more environment-friendly technologies (Pilotti & Almubarak. 2021). As a result of economic development, the increasing number of the middle class will encourage policy reforms to ensure the realization of a healthy environmental condition after basic economic needs such as clothing, food, and housing can be met.

The different effects of economic development on the environment for each phase indicate a nonlinear relationship between the two. This gave rise to the environmental Kuznets curve (EKC)

hypothesis. The EKC hypothesis explains that the negative scale effect channel impact will appear in the early phase of economic growth. However, after a certain threshold level of economic development is passed, the negative impact of the scale effect channel will be exceeded by the positive impact of the structural and technological effect channel.

Although the predictions of the EKC hypothesis seem convincing, namely, that in the long term, the impact of environmental damage due to economic growth can be reduced, scholars have expressed doubts about the validity of the arguments of this hypothesis. Ozler et al. (2009), for example, have doubted the generalizability of the EKC hypothesis because, according to them, the decreasing trend of environmental degradation that occurs in rich countries can easily be offset by an increase in environmental damage in poor (developing) countries. Thus, if calculated in aggregate, there is no significant reduction in environmental damage.

This side effect of economic growth then encourages alternative development approaches that emphasize environmental sustainability. This has led to a new approach known as ecological economics, wherein economic growth and environmental sustainability experience convergence, which is then operationalized into the concept of green entrepreneurship.

In recent years, the literature on green entrepreneurship has been growing. Green entrepreneurship refers to individuals (entities) who combine environmental awareness with entrepreneurial activity, which is the key to creating a green economy. Even so, green entrepreneurship is not only meant to do a green business (Zulham, 2022). This is because green entrepreneurship is oriented toward ecological sustainability and changes in economic, ecological, and community relations based on a sustainable approach. Therefore, in the concept of green entrepreneurship, sustainability is meant not only in the context of the environment but also in economic welfare and justice. Being an essential element in the sustainability of society, we require an innovative approach to find solutions that can synergize the interests of the three.

Green entrepreneurship, in this case, has the potential to become a significant force in the transition process toward an era of sustainable business paradigms and social transformation (Schaper, 2002; Isaak, 1998). Green entrepreneurs combine the interests of environmental, economic, and social sustainability more holistically when compared to conventional entrepreneurial models (Dorji, 2021; Tilley & Parrish, 2006). Green entrepreneurship actors use business (business activities) not only to pursue economic benefits but as a means to conserve resources by involving an overall business design that focuses on sustainable growth (Parrish, 2006).

Green entrepreneurship is a driving force for forming a sustainable and holistic social, environmental, and economic system. Wilis et al. (2007), based on the study of Christensen (1997), call green entrepreneurship "disruptive innovators." This concept transforms the established business models, encouraging a radical change in perspective from the previous view that economic development is antithetical to environmental interests. Green entrepreneurship activities, therefore, are believed to play an essential role in determining future market success.

The paradigm breakthrough offered by green entrepreneurship is in line with the spirit of entrepreneurialism and the Schumpeterian vision, which defines entrepreneurial activity as a process of creative destruction. In a sense, an entrepreneur creates new products, processes, and ways of working challenge and even correct the established methods. Innovation is the essence of entrepreneurship. Green entrepreneurial innovation deconstructs conventional production methods, products, market structures, and consumption patterns with products and services that are more environment-friendly, creating market dynamics that lead to environmental development. This contradicts Kirznerian's (1973) classical view regarding entrepreneurship, which beliefs in prices, inputs, outputs, and resource allocation as the main driving factors. Business actors only aim to maximize their profit (self-interested profit-seeking).

On the other hand, green entrepreneurs not only aim to maximize profits, but as social activists, they also wish to rebuild corporate culture and social relations in their business activities through a business strategy that is proactive toward environmental sustainability (Gibbs, 2015). For green entrepreneurs, the primary goal of their business activities is contributing to improving ecological conditions and general welfare. The search for income is seen more as a means of achieving the ultimate goal, namely, environmental sustainability, rather than being an end in itself (Perrish, 2010).

**Public Policy**

Because the government is faced with limited resources on the one hand and increasingly complex public problems on the other, the government cannot solve these problems simultaneously. In this case, the government must determine the priority options for solving these public problems. Thus, public policy can be interpreted as a formal statement about the best choice of various alternative solutions to public problems. Friedrich (2007) has explained public policy as a series of actions with specific goals from an individual, a group, or a government in certain situations with obstacles

and opportunities. Public policy, in this case, is set to overcome obstacles and optimize existing opportunities to achieve goals. Alternatively, realize the desired goal.

Public policymaking cannot be separated from environmental influences. Dunn (2017) has mentioned three policy elements, policy actors/actors, policy environment, and public policy. Public policy is determined because the demands of the environment are transformed into a political system. At the same time, there are limitations and constraints from the environment that will influence policymakers. These environmental factors include, among others, socio-economic characteristics, natural resources, climate, topography, demography, and culture.

The most critical stage after a public policy is established is how the decision is implemented. Policy implementation, in principle, is a way for a policy to achieve its goals. According to Dunn (2017), implementing a public policy is a process inherent in the public policy itself. That is, the implementation of public policy is a process designed in conjunction with the design of the relevant public policy.

In the context of policy implementation, the key terms that must be considered are the "emphasis on actions" and "achieving the goals that have been set in the policy." This action plan is transformed into operational patterns to achieve the expected results and impacts (Van Meter & Van Horn, 1975). In the same framework, Sabatier and Mazmanian (1980) have also explained that policy implementation means understanding what should happen after a program is declared valid or formulated. Based on the description above, it can be stated that policy implementation is intended to achieve policy objectives that bring direct consequences to the people affected by the policy.

It is worth noting that the success of a policy is determined by the quality of the policy itself and how the policy is implemented. Furthermore, the latter factor is closely related to the quality of human resources, institutions, availability of funds, technical capabilities of policy implementers, and so on. As not all formulated policies always end up optimally, in the sense that the overall policy objectives designed can be conveyed to the public, it is necessary to identify further factors that influence the effectiveness of the implementation of public policies from a theoretical perspective.

**SME, Green Policy, and Green Entrepreneurship**

As one of the essential components of economic activities, MSMEs cannot avoid the environmental discourse that has strengthened in recent decades (Szabo, 2017). MSMEs with a considerable number also contribute to the negative impact on the environment. This argument is strengthened by the results of a study by Miller et al. (2012) for the European Union, which shows that around 64% of industrial pollution in Europe is contributed by MSMEs. A study conducted by Heras and Arama (2010) found that MSMEs are responsible for 60–70% of industrial pollution, 40–45% of air emissions, energy, and water consumption, and 70% of industrial production waste in the European Region.

According to Szabo (2013), the relative neglect of environmental sustainability aspects by MSME business actors is caused by three internal obstacles, namely, resources, organizational attitudes and culture, and awareness. MSMEs in Indonesia also show a state of neglect of the environment identical to those in the European region (and several countries) above. For example, a study conducted by Rodhiyah (2015) on Convection MSME activities in Semarang found that, despite its existence, it opened up job opportunities, especially for women. However, at the same time, cloth waste from MSMEs is scattered on the streets, thus damaging the environmental cleanliness. This condition disturbs the comfort of the people around the MSME operating area. Helmi et al.'s (2012) study on the behavior of small-scale fishers found massive ecological damage in the fishing area analyzed, i.e., Pulau Panjang Village, due to various forms of exploitative use of coastal resources. The ecological change in question is the destruction of mangrove forests and coral reefs, which makes the life of the fishing community there increasingly difficult.

The negative impact of MSME economic activity on the environment was also found by Yudhistira et al. (2011), who discussed the impact of environmental damage due to sand mining activities in Keningar Village, Mount Merapi Region. Sand mining activities carried out by MSMEs in the Mount Merapi area resulted in environmental damage in the form of high erosion rates in the area around mining, with hillsides becoming more prone to landslides, reduced surface water discharge, and worsening air pollution.

Anticipating the increasingly widespread negative environmental impact, the Indonesian government has implemented a pro-environment economic management policy. In this regard, one of the green economy policies in Indonesia to have garnered attention is prohibiting the use of

*cantrang* and trawling fishing gear in all water areas in Indonesia, as it has resulted in massive damage to the marine environment (Helmi et al., 2012).

The implementation of this policy has proven to positively impact the condition of the marine environment, such as by restoring the condition of coral reefs (Satria, 2015), controlling fish production (Zamroni, 2015), and reducing conflicts between fishers, especially conflicts caused by differences in production methods (Annisa et al., 2009). However, its application was rejected, especially from MSME actors engaged in the marine and fisheries sector. It is because the green economy policy is considered to have negative consequences for their business activities. The catch of fish and the income of *cantrang* fishers decreased (Zamroni, 2015). As a result, the welfare of fishermen decreases, which impacts increasing crime cases in fishing settlements.

Studies discussing the impact of implementing a policy that emphasizes environmental conservation aspects on economic activities are relevant in this context. Some issues need to be reconsidered, especially those related to the trade-off between environmental sustainability on the one hand and the sustainability of business activities on the other. Unfortunately, in Indonesia, studies that discuss the impact of implementing green policies on economic activities, especially MSMEs, are still relatively minimal.

In contrast to Indonesia, studies discussing the impact of implementing green policies on MSMEs have become subjects studied quite extensively in some countries. A study conducted by Saez-Martinez et al. (2016) discusses applying green policies to MSMEs in 38 countries. The researchers found that only 20% of MSMEs "out of a total sample of 3,647 companies" have a level of corporate environmental responsibility that is better than the minimum conditions required by regulations. Even so, in general, the observed MSMEs have complied with the green policies implemented. The researchers also found that only 3% of MSMEs did not comply with the green policies because they believed that implementing the green policies made their business activities difficult.

Furthermore, Saez-Martinez et al. (2016) also attempted to identify what factors encourage MSMEs to adopt green policies. Several variables have been shown to influence the green behavior of MSME actors, among others, first, the size of MSMEs. The larger the size of MSMEs, the greater their tendency to behave in green. Second, the values adopted by MSMEs. Third, the reasons related to the image of MSMEs. Fourth, business opportunities can be obtained when

offering green products. Interestingly, the researchers found that regulatory aspects, tax incentives, and subsidies did not affect the green behavior of MSME actors.

Meanwhile, in their research, Armas-Cruz et al. (2017) mapped the MSME groups that are the sample into categories based on their adherence to green policies. Using a sample of 459 MSMEs spread across the Canary Islands (Spain), the researchers divided the samples into three categories. In their empirical test, the researchers found a positive relationship between the size of MSMEs and green entrepreneurial behavior. This is because the majority of business units that implement environmental management are medium-scale businesses.

Malesios et al. (2018) analyzed the implementation of green entrepreneurship on MSMEs' performance and economic growth. The researchers sought to build an empirical model connecting the application of green entrepreneurship with the financial performance of MSMEs. Using 119 MSMEs and Bayesian regression, the researchers found that applying green entrepreneurial behavior can improve MSMEs' financial performance, characterized by faster business growth. This is because MSMEs that implement green policies get positive exposure from the public. Therefore, they can create a positive MSME image.

**Research Framework**

Based on the top-down theory, the clarity of policy objectives is essential in encouraging the successful implementation of public policies. According to Van Meter and Van Horn (1975), a clear and relevant public policy target is necessary for effective policy implementation. Clarity of policy objectives is vital so that policy implementers can understand the policy better so that the expected outcome can be achieved. In addition to being transparent, public policy objectives must be relevant because they follow the root of the problem under consideration. Concerning the policies analyzed in this study, the Ngawi Hijau green policy must have clear and appropriate policy objectives, or contextual, with the actual problems faced.

As one of the parties most responsible for policy implementation, the ability of the MSME group has an important role to be considered in realizing effective policy implementation. The better the ability of the MSME group, the greater the possibility that policy implementation can run effectively. Van Meter and Van Horn (1975) found that factors related to the attitude of the implementers, such as personal values, beliefs, and interests, directly influence the results achieved from policy implementation.

It should be realized that no matter how clear the policy objectives are formulated if the implementer lacks the resources needed to carry out the policy, the implementation of the policy will not be effective. Concerning the Ngawi Hijau policy, the availability of resources that support the implementation of the policy must be sufficient. Implementing organizations need to obtain financial support to carry out activities so that policy objectives can be achieved. In addition, for supervisory activities to run well, implementing organizations also require HR support considering the vast area that must be monitored. The importance of the role of resources in the implementation of public policy can be found in the study of Riyanto (2010), which concludes that the availability of sufficient resources has a positive effect on increasing the effectiveness of public policy implementation. The same conclusion was drawn by Sabatier and Mazmanian (1980) and Van Meter and Van Horn (1975), who noted that resources are an absolute requirement for implementing any policy. Thus, it can be said that resources have a vital role in policy implementation.

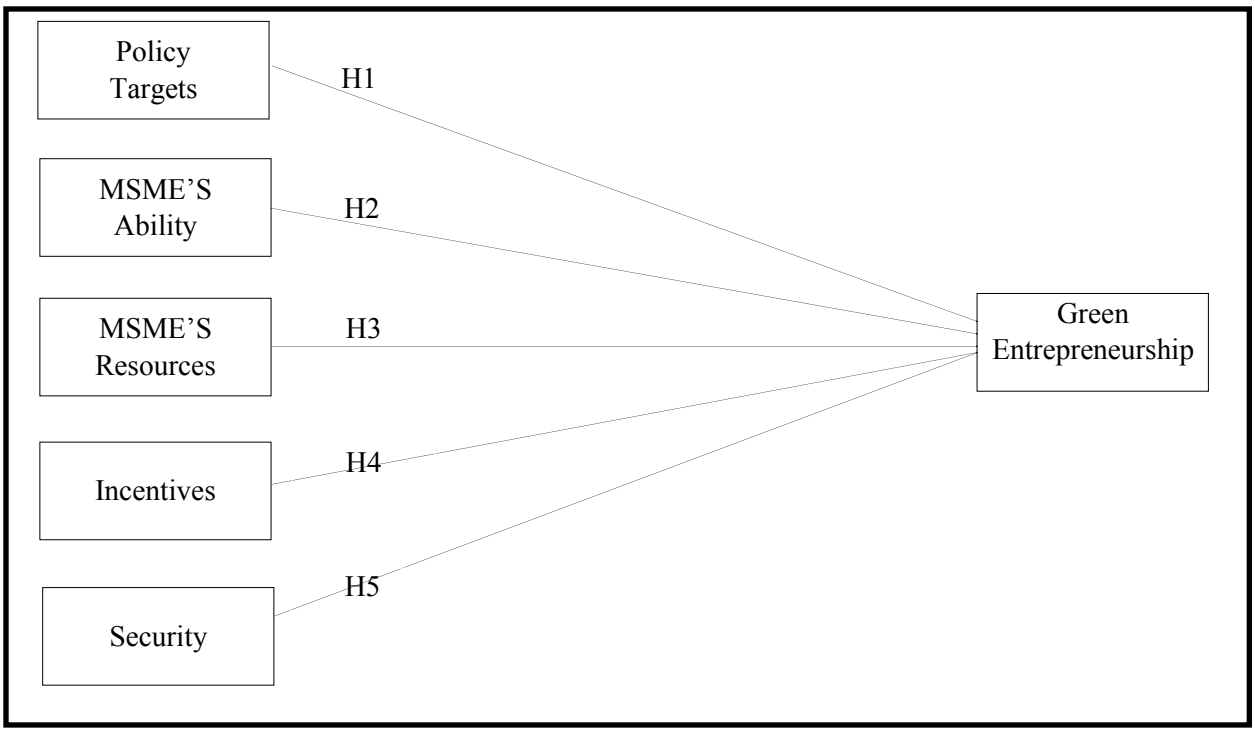
Incentives are usually the most effective means of encouraging policy implementers to be more enthusiastic about achieving satisfactory standards of enforcement and compliance. The availability of an adequate incentives will make policy implementers more willing to comply with policy achievements. Many studies, including Ibrahim et al. (2013) and Siburian (2013), have shown that incentives positively affect organizational commitment. MSME actors who have a high commitment will tend to display positive and beneficial work behaviors for the organization, such as low absenteeism, high work productivity, loyalty, and making the values and ideals of the organization a part of themselves. The emergence of positive work behavior like this ultimately makes the possibility of achieving policy goals more significant. The incentives in question can be monetary or non-monetary.

In this study, the safety factor of policy implementers may influence policy implementation. In the context of policy implementation, MSME actors often receive many threats who accept change (supportive groups) from groups of MSME actors who are not willing to accept change (resistant groups). For this reason, the safety factor in implementing policies needs to be considered to increase the effectiveness of public policy implementation. In a stable and conducive situation, policy implementers can implement policies more efficiently. On the other hand, in an unstable situation, where policy implementers face many threats, the likelihood of policy implementation being effective is less.

Based on the relationship between variables that have been discussed previously, the conceptual framework of this study can be seen in Figure 1.

**Figure 1**

*Green Entrepreneurship*




Based on the conceptual framework created in this study, five research hypotheses were developed and tested. These hypotheses are enumerated as follows:

1. Clear and relevant policy targets positively influence the green entrepreneurial behavior of MSME actors in Ngawi Regency.
2. The ability of a good MSME group positively influences the green entrepreneurial behavior of MSME actors in Ngawi Regency.
3. The availability of sufficient MSME resources has a positive and significant influence on the green entrepreneurial behavior of MSME actors in Ngawi Regency.
4. Sufficient incentives have a positive and significant influence on the green entrepreneurial behavior of MSME actors in Ngawi Regency.

5. The security factor has a positive influence on the green entrepreneurial behavior of MSME actors in Ngawi Regency.

## Methods

### Design

This quantitative research design with a survey approach was adopted in this study. The purpose of this such a research design, in general, study is to explain the tendencies, attitudes, or opinions of a particular population through quantitative or numerical descriptions or explanations. This type of research includes cross-sectional studies that use questionnaires or structured interviews for data collection, with the aim of generalizing attitudes and tendencies to the sample as a representative of the population (Fowler, 2008). The purpose of using this type of survey research in this study was to explain the influence of the Ngawi Hijau policy on the green entrepreneurial behavior of wood craft MSME actors in Ngawi Regency as well as the relationship between green entrepreneurial behavior and the availability of wood.

### Sample

The research population of this study is 186 wood craftsmen of wood industry MSMEs operating in Ngawi Regency, East Java, Indonesia. The researchers divided the sample into two sample groups. First, the sample for the purpose of testing the research instrument amounted to 30 respondents. Second, the sample for the purpose of estimating the research model was 150 respondents, of which 82 (54.7%) are female, while 68 (45.3%) are male.

### Research Instruments

In this study, two kinds of questionnaires were used to collect the data. The first questionnaire is a policy objective that was developed based on the synthesis of the policy implementation model of Van Meter and Van Horn (1975) and Sabatier and Mazmanian (1980). The second questionnaire is the ability of the MSME group, which was developed by referring to Van Meter and Van Horn (1975) and Champucot (2011). The questionnaire to measure MSME's resources, incentives, and security was developed in accordance with the studies of Sabatier and Mazmanian (1980) and Chandrasorn (2009).

Before collecting data, the instrument that was developed was tested on 30 respondents. The aim was to determine the conditions of validity and reliability of the research instrument. The Pearson correlation (validity) and Cronbach's alpha (reliability) tests showed that all research instruments had met the validity and reliability qualifications to proceed to the stage of collecting research data on 150 MSME actors who were respondents.

**Validity and Reliability Test**

The statistical analysis used to test the validity is the Pearson product moment correlation value at a significance level of 5%, also called the r-table value. The value of r-table for n as many as 30 respondents the number of respondents at the trial stage, at a significance level of 5%, is .360. In general, if the calculated r-value on the item is greater than r-table, then the item can be said to be valid. On the other hand, if the calculated r value is less than r-table, then the item is considered invalid and will be deleted. Meanwhile, the Cronbach's alpha value was used as a measure of the reliability of the instrument. High reliability measurement becomes the basis for researchers to believe that each indicator is consistent in measurement. According to Maholtra, a good reliability value for research indicators is .60 or Cronbach's alpha value is greater than .60.

In its operation, the validity and reliability test of this research instrument involved 30 MSME actors who were deliberately separated specifically for the purposes of testing research instruments. MSME actors who are respondents in this validity and reliability test were not included in the research data collection. This analysis was performed to anticipate the potential for bias and false responses from the respondents of the instrument trial if it is included again as a test sample for the empirical research model. Table 1 summarizes the validity and reliability of the research instrument.

**Table 1**

*Summary of Validity and Reliability Tests*

| No | Variable | Total Number Indicator | Number of Items | | Cronbach's Alpha |
|---|---|---|---|---|---|
| | | | Initial | After Calculation | |
| 1 | Availability of wood | 7 | 10 | 9 | .823 |
| 2 | Green entrepreneurial behavior | 10 | 15 | 13 | .741 |
| 3 | Policy goals | 6 | 18 | 14 | .718 |
| 4 | Group ability | 15 | 20 | 17 | .765 |
| 5 | MSME resources | 10 | 18 | 15 | .762 |
| 6 | Incentive | 8 | 16 | 14 | .761 |
| 7 | Security | 4 | 13 | 11 | .735 |

**Data Collection**

The research population includes all wood industry MSMEs operating in Ngawi Regency. The Department of Cooperatives, MSME, and Industry of Ngawi Regency noted that 186 wood craftsmen had business permits. These wood craftsmen were taken as the study sample. These wood craftsmen were divided into two sample groups. First, the sample for testing the research instrument amounted to 30 people. Second, the sample to estimate the research model amounted to 156 people. Data were collected using a questionnaire instrument. The questionnaire is an efficient and fast data collection method if the researcher already knows the variables to be measured and the respondents' expectations. In this study, the researchers used a closed-form questionnaire. To measure the closed questionnaire in this study, the Likert scale, a scale that contains a periodic statement to measure the attitude of respondents to the statement, was used.

**Data Analysis**

For data analysis, the researchers used multivariate analysis to determine the relationship between research variables. This is because, theoretically, the construction of relationships between variables in the analysis of effective public policy implementation is complex. Often, the independent variables (constructed as variables) do not have a direct effect, but through intermediate variables, or are preceded by variables that appear before the independent variables (Purwanto et Al., 2015). The complexity of the relationship between these variables must be considered in analyzing the effectiveness of public policy implementation. To accommodate the complexity of the relationship between these variables, this study applied a path analysis method with indirect-only mediation variants. By using the system method in conditions where there is more than one endogenous variable due to the complex construction of relationships between variables, the model estimation results will be more reliable and more accurate (Gujarati, 2009).

## Findings

**Descriptive Statistics**

After obtaining the data, the first step involved a descriptive statistical analysis to see the overall characteristics of the research respondents, the details of which can be seen in Table 2.

**Table 2**

*Descriptive Statistics*

| No | Variable | Category | Number of Respondents | Percentage (%) |
|---|---|---|---|---|
| 1 | Gender | Male | 111 | 74 |
| | | Female | 39 | 26 |
| 2 | Age (in years) | 21–30 | 8 | 5.3 |
| | | 31–40 | 35 | 23.3 |
| | | 41–50 | 59 | 39.4 |
| | | 51–60 | 36 | 24 |
| | | > 60 | 12 | 8 |
| 3 | Education | Elementary school | 12 | 8 |
| | | Junior high school | 41 | 27.3 |
| | | Senior high school | 65 | 43.3 |
| | | Vocational | 9 | 6 |
| | | university | 23 | 15.4 |
| 4 | Business period (in years) | < 1 Years | - | - |
| | | 1–10 | 6 | 8 |
| | | 11–20 | 37 | 27 |
| | | 21–30 | 68 | 43.7 |
| | | 31–40 | 39 | 15.4 |

Source: Data processed (2021)

In the beginning, all wood industry MSME actors in Ngawi Regency who had business licenses (186 people) were assigned to be research respondents. Many of them were not in place, moved business locations, and even closed when the survey was conducted. In total, 150 MSME actors were successfully surveyed. Even though they failed in getting all business actors, 150 MSME actors (about 80.6%) sufficiently represent a picture of the population of licensed wood industry MSME actors in Ngawi Regency.

Table 2 shows that most of the total respondents, i.e., about 74%, are male, while only 26% are female. This condition is reasonable considering that some jobs in the wood industry are “rough” and require much energy to cut and carve wood raw materials.

**Estimation Results**

To get an estimate using an ordinary least squares, several conditions must be met, including (1) the error has a normal distribution; (2) the error variance is constant, and (3) there are no symptoms of multicollinearity among the research variables. The results of the ordinary least squares estimation requirements test are summarized in Table 3.

**Table 3**

*Normality, Heteroscedasticity, and Multicollinearity Test Results*

| **Normality Test** | **Value** | **Sig** |
|---|---|---|
| Kolmogorov–Smirnov Z | 0.86 | 0.447 |
| **Heteroscedasticity Test** | **Chi-Square** | **Sig** |
| Breusch–Pagan/Cook–Weisberg | 0.34 | 0.562 |
| **Multicollinearity Test** | **VIF** | **1/VIF** |
| Policy targets | 3.54 | 0.282 |
| MSME's ability | 4.18 | 0.239 |
| MSME's resources | 3.65 | 0.274 |
| Incentives | 3.47 | 0.288 |
| Security | 2.77 | 0.361 |
| Mean VIF | | 3.52 |

Source: Data processed (2021)

The use of parametric statistics assumes that the residuals from the analyzed model form a normal distribution. The process of testing the analysis requirements in a study is a requirement that must be met so that the regression techniques, which are included in the parametric statistical group, can be used. From the normality test results, the Kolmogorov–Smirnov significance level is 0.447, so it can be concluded that the standardized residual value usually spreads.

Another parametric statistical prerequisite that must be met is that the research sample must come from a population with homogeneous variance. This study used the Breusch–Pagan test. The test results show a chi-square value of 0.34 and a significance level of 0.562, which means that the data variance is homogeneous or there is no heteroscedasticity constraint.

The multicollinearity test aims to test whether there is a high or perfect correlation between the independent variables in the regression model that is formed. From the multicollinearity test, it was found that the VIF value for each variable and the average value were less than 10. It indicated that there were no symptoms of multicollinearity among the research variables.

**Table 4**

*Regression Estimation Results*

| Hypothesis | Variable | Std Coefficient | Std. Error | Sig | Decision |
|---|---|---|---|---|---|
| 1 | Policy targets | 0.201 | 0.101 | 0.047 | Supported |
| 2 | MSME's ability | 0.253 | 0.089 | 0.005 | Supported |
| 3 | MSME's resources | 0.216 | 0.081 | 0.010 | Supported |
| 4 | Incentives | 0.223 | 0.079 | 0.007 | Supported |
| 5 | Security | 0.172 | 0.070 | 0.019 | Supported |
| | F-Stat | | | 76.56 | |
| | R-Square | | | 0.727 | |

Source: Data processed (2021)

The results of the first hypothesis test show that the policy objectives have a positive and significant effect on the realization of green entrepreneurial behavior of the wood industry MSME actors in Ngawi Regency with a coefficient of 0.201 and a significance value less than 0.05.

The second hypothesis test results show that the MSME group's ability has a positive and significant effect on green entrepreneurial behavior of the wood industry MSME actors in Ngawi Regency with a coefficient of 0.253 and a significance less than 0.01.

The results of the third hypothesis test show that MSME resources, including financial, human, and technical resources, have a positive and significant impact on green entrepreneurial behavior of the wood industry MSME actors in Ngawi Regency with a coefficient value of 0.216 and a significance less than 0.01.

The results of the fourth hypothesis test show that incentive factors, including monetary and non-monetary, have a positive and significant effect on green entrepreneurial behavior of the wood industry MSME actors in Ngawi regency with a coefficient value of 0.222 and a significance less than 0.01.

The results of the fifth hypothesis test show that the security factor has a positive and significant influence on green entrepreneurial behavior of the wood industry MSME actors in Ngawi Regency with a coefficient value of 0.172 and a significance less than 0.05.

The results of the sixth hypothesis test show that the green entrepreneurial behavior of MSME actors has a positive and significant influence on the availability of wood resources in Ngawi Regency, with a value of 0.687 and a significance less than 0.01.

Overall, the empirical model developed in this study is reasonably fit. It is proven by the r-square value of .727. It means that the five selected variables, namely, policy targets, MSME group abilities, MSME resources, incentives, and security, are fairly good at explaining variations in green entrepreneurship.

## Discussion

The study findings prove that clear and relevant public policy objectives are a prerequisite for effective policy implementation. It is because clear policy targets make the target group of the policy understand the policy implications and accept them so that resistance to the policy will be

lower. The target group's approval of the content and relevance of public policies is the key to effective public policy implementation. Many cases show that the ineffectiveness of implementing public policies is due to high resistance from groups that target the policy. In this regard, one of the green economy policies in Indonesia that attracted attention is prohibiting the use of *cantrang* and trawling fishing gear in all water areas in Indonesia. Even though the implementation of this policy has proven to have a positive impact on the restoration of the condition of the marine environment, its application has been rejected, especially from small business actors, namely, MSMEs engaged in the marine and fishery sector.

The second hypothesis test shows that the ability of the MSME group has a positive and significant influence on green entrepreneurial behavior in the wood industry MSME actors in Ngawi Rgency. Among other independent variables tested, the ability of the MSME group has the most significant influence in encouraging green entrepreneurial behavior of the wood industry MSME actors in Ngawi Regency. To strengthen the readiness of the wood industry MSME actors in implementing the Green Ngawi Hijau policy, the Ngawi Regency government needs to pay more attention to the condition of MSME resources, which include HR, financial, and technical aspects.

The third hypothesis test shows that MSME resources positively and significantly influence green entrepreneurial behavior of the wood industry MSME actors in Ngawi Regency. The findings of this study prove that MSME resources are significant for the implementation of effective public policies. No matter how clear the policy objectives are, policy implementation will be ineffective if the implementers lack the necessary resources. Concerning the Ngawi Hijau policy, the availability of resources that support the implementation of the policy must be sufficient. MSMEs need to obtain financial support to carry out activities so that policy objectives can be achieved. The importance of the role of resources in the implementation of public policy can be found in the study of Riyanto (2010), which concludes that the availability of resources has a positive effect on increasing the effectiveness of public policy implementation. Thus, it can be said that resources have a vital role in policy implementation.

The fourth hypothesis test shows that the incentive factor positively influences green entrepreneurial behavior of the wood industry MSME actors in Ngawi Regency. The findings of this study prove that incentives for MSME actors can increase the effectiveness of the implementation of Ngawi Hijau's public policies. Incentives are usually the most effective means of encouraging policy implementers to be more enthusiastic about achieving satisfactory standards

of enforcement and compliance (Champucot, 2011). The emergence of positive work behavior like this ultimately makes the possibility of achieving policy goals more significant.

In the context of public policy implementation, a study by Durst et al. (2006) found that incentives play an important role at the initiation stage, which can increase awareness and speed of adaptation of business actors to plant plantations to increase supply for the growing processing sector in Indonesia. Providing adequate incentives will encourage MSME actors to work better and comply with existing regulations. Thus, cumulatively, this will have an impact on the achievement of policy objectives.

The fifth hypothesis test shows that the security factor positively influences green entrepreneurial behavior of the wood industry MSME actors in Ngawi Regency. The findings of this study prove that security guarantees for MSME actors in carrying out the Ngawi Hijau policy will increase the effectiveness of their achievements in encouraging the formation of green entrepreneurship patterns. According to Chompucot (2011), safety is the main factor influencing the performance of policy implementation. In a stable and conducive situation, policies can be implemented more quickly because no conflicts or threats can cancel policies. Under these conditions, the possibility of implementing the policy to be effective is greater. On the other hand, in an unstable situation, where there are many threats that policy implementers receive in carrying out policies, the possibility of policy implementation being effective is less. For this reason, security factors in implementing policies need to be considered to increase the effectiveness of public policy implementation.

**Implications**

Based on the findings of this study, several implications are offered. First, for the Ngawi Hijau policy to be effective, the local government of Ngawi Regency as the regulator and implementer of the policy must ensure that this policy has clear and relevant targets. Second, wood industry entrepreneurs in Ngawi Regency have different levels of ability in adapting green entrepreneurship practices. Therefore, it is necessary to ensure that all business actors fully understand the Ngawi Hijau policy. Efforts to empower group capabilities through training and mentoring, especially those related to green entrepreneurship practices, must be carried out systematically and sustainably. It is vital to consider that the influence of the ability of the MSME group on the implementation of green entrepreneurship is the largest when compared to other variables. Third,

to further strengthen the readiness of the wood industry MSME actors in implementing the Ngawi Hijau policy, the Ngawi Regency government needs to pay more attention to the condition of MSME resources, which include HR, financial, and technical aspects.

The provision of incentives in financial and non-financial assistance can be instrumental in strengthening MSME resources. Fourth, the adaptation of green entrepreneurship practices will be more effective in the security aspect. Therefore, it is necessary to ensure that MSME actors who accept changes by implementing policies do not get threats, even criminalization from other MSME actors who are unwilling to change (resistant groups). For this reason, the security aspect of implementing the policy needs to be maintained so that the implementation of the policy can run effectively. Fifth, the wood industry MSME actors in Ngawi Regency who are trying to implement green entrepreneurship practices need to receive appreciation in the form of incentives, both fiscal and non-fiscal, in the form of relief from regional tax/retribution payments and ease of licensing in order further to strengthen the formation of environmentally sound business behavior, so that the target conservation and improvement of environmental conditions – as policy outcomes – can be realized.

## Conclusion

This study discusses implementing a green policy on green entrepreneurship among MSMEs in the wood processing industry in Ngawi Regency. Ngawi Regency was chosen because it is currently implementing the Ngawi Hijau policy to overcome the severe environmental damage caused by irresponsible wood industry business practices. Using 150 MSME actors as the research sample and the ordinary least squares estimation technique, this study found that green policy, which includes policy targets, MSME group abilities, MSME resources, incentives, and security, has a positive and significant impact on green entrepreneurship behavior of MSME actors in Ngawi Regency. Of the five factors, the ability and resources of MSMEs and the provision of incentives relatively have a more significant contribution than the other two factors. This study has several limitations. First, this study only focuses on five determinant variables: policy objectives, MSME groups' ability, resources, incentives, and security in discussing green entrepreneurship. Because the issues under consideration are complex, green entrepreneurship behavior is very likely to be influenced by other factors, such as law enforcement, bureaucratic

performance, which have not been included in this study. Second, the data collected are sourced only from the questionnaire. This study did not conduct FGDs or direct interviews, which could further enrich the information for analysis needs. Third, MSME actors who were selected as respondents only come from the wood processing industry. Therefore, information on green entrepreneurship and its relationship with other research variables has not explained other industrial activity sectors. Therefore, in contrast to the top-down model, which emphasizes the role of authority institutions, this research empowerment model proves that, as one of the parties most responsible for policy, aspects related to MSME actors have an essential role in paying attention to realizing effective policy implementation.

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