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## Article

# Greening public policy : the effects of environmentally friendly regulations, public support, sustainability orientation on green governance

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# Greening Public Policy: The Effects of Environmentally Friendly Regulations, Public Support, Sustainability Orientation on Green Governance

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## ABSTRACT

Developments in the public sector continue to increase with the emergence of various types of services that experience changes and demands from the public to public sector reform to pay more attention to green governance and orientation in various public policies. This is because climate change and environmental degradation are increasingly becoming a global concern and are increasingly showing their negative impacts. The public is increasingly aware that environmental protection and sustainability are very important. Therefore, the use of renewable energy is important to implement in supporting green governance. Green policies were largely adopted as the impact of climate change worsening. In public sector, the policies were used as a benchmark for environmentally friendly policies. The purpose of this research is to identify and analyze the effect of regulations related to the environment, public support, and sustainability orientation towards green governance by implementing renewable energy which is mediated by green public procurement. The research was conducted using a quantitative approach. A total of 214 respondents from environmental agencies' employees used a simple random sampling technique. The data analysis technique used is Partial Least Square-Structural Equation Modeling (PLS-SEM). The results of this study indicate that regulations related to the environment, public support, and sustainability orientation have a positive effect on green public procurement and green governance. Furthermore, green public procurement is able to mediate the influence of environmental regulations, public support, and green perceptions on green governance.

**Keywords:** Environmental-related Regulations, Green Policy, Green Governance

**JEL Classifications:** Q15, Q28, Q38

## 1. INTRODUCTION

The occurrence of global warming makes people more careful and alert to various activities by reducing the use of environmentally-unfriendly products (Radzi et al., 2022; Van Vugt et al., 2014). People are more aware about alarming level of global warming which is harmful to the environment (Milfont, 2012; Chowdhury and Hossain, 2021). In addition, along with the magnitude of the negative impact of greenhouse gas emissions caused by non-renewable energy, demands for green policies are also getting stronger in various parts of the world (Goodin, 2013). One of

the causes of global warming is caused by human activities and natural damage that is harmful to environmental sustainability on an ongoing basis. In this context, the public sector also needs to create green policies that are in line with the demands of a wide audience (Brammer and Walker, 2011). More serious efforts are needed by the public sector to implement community attention by applying green orientation to its policies. The deteriorating environmental conditions encourage changes in people's behavior, especially the community to preserve the environment by using renewable energy and more sustainable energy management which has led to the trend of green governance and green policy.

The implementation of the application of renewable energy with green policies by the public sector is carried out because of the public interest in their concern for the environment. These conditions change community behavior which encourages the government to actively implement and enforce a series of green rules based on environmental sustainability (Zhang et al., 2020). The community will always demand policies that are responsible and environmentally friendly. As a consequence, it creates green governance in public sector (Rosol, 2010). Green governance is a continuation of global consumerism which begins with community awareness of the right to obtain appropriate, safe, and environmentally friendly policies. Green governance is a form of governance that reflects the concern of the government or public sector service providers for the environment (Debbarma and Choi, 2022). With the increased environmental awareness of decision makers, this will make green governance a trend that moves into the mainstream of various economic and social policies (Vatn, 2015). Currently, there is a general trend that makes most of the public sector advocate a green orientation to meet public demands on green governance and carry out green policy initiatives by helping the environmentally friendly industrial sector and non-governmental organizations that actively advocate for environmental issues (Weston and Bollier, 2013).

Green policy is the principle and action of the public sector that pays attention to the environment by taking advantage of changes in community awareness in choosing policies that are not only safe for the community but also safe for the environment. Green policy is defined as the consistency of all regulations and laws which facilitate the demands of sustainability and environmental preservation by the global community, by encouraging and initiating activities that have an impact on the natural environment in various sectors (Rosenbaum, 2016). One of the key principles and actions of the public sector in an effort to increase the credibility of green governance is the procurement of green goods in the public sector. Several studies have investigated that green public procurement is observed from public support. In addition, the orientation of policy makers and public service providers is also considered an important antecedent in green public procurement and green governance. In addition, the principles, actions and strategies of public sector service providers, especially from employees who work in the environmental department, are regulations that support and are oriented towards environmental sustainability. This study was carried out with the intention of analyzing the effect of environmental-related regulations, public support, and a sustainability orientation on green governance using the mediating variable of green public procurement.

## 2. LITERATURE REVIEW AND HYPOTHESIS

### 2.1. Green Policy, Green Public Procurement, and Green Governance

Green policy is a part of a policy that brings this budgeting and procurement to an environmentally oriented green policy (Rosenbaum, 2016). The green policy will include the principles,

strategies and actions of the implementation or implementation of a green orientation in the public sector. In this contest, environmental-related regulations are very important as supports of green policies at the lower level to clarify that these policies are environmentally friendly policies (Zhang et al., 2020). Environmental-related regulations will play an important role in assisting policy makers and the community in differentiating environmentally friendly policies from conventional policies (Fullerton and Wu, 1998). In doing so, environmental-related regulations are useful to guide policy makers and the community in identifying policies that are more environmentally friendly than other policies. Environmental-related regulations is defined as a means to make choices for policy makers in making decisions in reducing environmental impacts by providing a set of environmentally friendly policies and enabling the community to know how a policy is made (Lemos and Agrawal, 2006). Environmental-related regulations are also used as a tool to promote environmental governance. Green public policies that involve environmentally friendly regulations, public support, and a sustainability orientation are strongly related to renewable energy and sustainable energy management. Green regulations can include mandatory use of renewable energy and reduced greenhouse gas emissions, while public support can encourage the use of renewable energy through subsidy programs or other incentives. Also, the communities will easily identify environmentally friendly policies rather than conventional policies (Lemos and Agrawal, 2006).

Environmental-related regulations can improve green governance and possibly encourage the behavior of policy makers in the provision of public resources (Brammer and Walker, 2011). Environmental-related regulations can generate a good response in the community to initiate environmentally friendly behavior in general. Environmental-related regulations and the availability of policies that have environmentally friendly will have a positive influence in making policy makers pay more attention to green public procurement (Lăzăroiu et al., 2020). Also, environmental-related regulations have a positive and significant effect on green governance (Wang and Shao, 2019). Zhang et al. (2022) also showed that environmental-related regulations have a positive and significant effect on green governance. On the other hand, when policy makers at lower levels are not fully sensitive to environmentally friendly policies taken, this will hinder the implementation of green orientation. There is a positive and significant influence between environmental-related regulations and green public procurement (Palmujoki et al., 2010). Also, previous studies (e.g Cheng et al., 2018) showed that there is a positive and significant influence between environmental-related regulations and green governance.

H1: Environmental-related regulations have a significant positive effect on green public procurement

H2: Environmental-related regulations have a significant positive effect on green governance.

### 2.2. Public Support, Green Public Procurement, and Green Governance

The public sector is required to have responsibility for green orientation by creating policies that support environmental sustainability and promote it to the community (Adams et al.,

2014). Green policy creation can be used as a basis for determining the sustainability orientation of the community on certain policies. Therefore, green governance will give birth to interactions that arise between the public sector and the wider community in advocating a certain green policy (Fay et al., 2014). Green policies can work effectively with public support (Warren et al., 2005). Green policy can be defined as a set of policies related to environmental commitment and environmental care by policy makers in the public sector (Dolzer, 2001). The main advantage of creating social support is to enable environmental policies to be passed. Previous studies showed that public support positively influences to increase policies that are oriented towards green orientation and is correlated with a decrease in problems related to environmental sustainability and concern for environment (Moran et al., 2007).

Great community support will be more likely to facilitate the implementation and monitoring of environmental criteria compliance by environmental agency employees. In addition, social support will facilitate green budgeting and the procurement of public goods to support a green orientation (Wilkinson et al., 2008; Wong et al., 2016). Getting public support is the first step taken by the public sector to implement more policies that focus on green orientation. Community support has a relationship with green governance. Previous research showed that public support has a positive and significant effect on green public procurement as a mediating variable (Grandia, 2016). Also, it is stated that public support has a positive and significant effect on green public procurement (Ma et al., 2021). Furthermore, public support is considered to have a positive effect on green governance. Moreover, some (e.g. Bernauer and Gampfer, 2013) also found that there is an important influence between public support and green governance.

H3: Public support has a significant positive effect on green public procurement

H4: Public support has a significant positive effect on green governance

### 2.3. Sustainability Orientation, Green Public Procurement, and Green Governance

In public sector, sustainability orientation is a process where managing, translating or selecting inputs for some of these budgeting and procurement as part of an effort to create policies that are oriented towards a green environment. A sustainability orientation can also encourage the development of renewable energy and more sustainable energy management. Sustainability orientation can be defined as an assessment of the overall selection of an environmental policy. In this context, sustainability orientation is the effort of policy makers and employees of environmental agencies to create green policies (DeLoyde and Mabee, 2020). Sustainability orientation is an important factor in community involvement which explains that the higher the policy's sustainability orientation will improve environmental governance (Simpson, 2001). Sustainability orientation is an assessment from the community regarding policies related to environmental aspects. In this regard, sustainability orientation is considered as bottom up assessment in the form of community evaluation of the overall policy based on the performance and responses of the public sector

administration regarding green policies (Adams et al., 2014). In the context of the public sector, this green sustainability orientation is also recognized and helps in maintaining long-term and convincing policy relationships between communities and government and plays an important role in influencing public sector procurement (Walker and Brammer, 2009).

In green governance, sustainable energy management is also very important. Therefore, sustainability orientation will help the government in obtaining environmentally friendly policies and play a positive role in environmental governance. Previous studies showed sustainability orientation has a significant positive effect on green governance. Some also found that sustainability orientation has a positive and significant effect on green governance. Furthermore, previous studies also highlighted that sustainability orientation has a positive and significant effect on green public procurement (Husted and de Sousa-Filho, 2017). As a further consequence, green governance can be seen from the policy perceived by the community and its orientation to the environment. Moreover, some (e.g Wang et al., 2021) found that green public procurement mediates the relationship between sustainability orientation and green governance. Lastly, it is found that green public procurement is influenced by sustainability orientation (Liu et al., 2022).

H5: Sustainability orientation has a significant positive effect on green public procurement

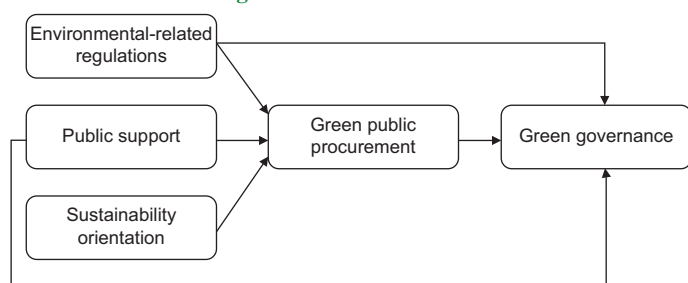
H6: Sustainability orientation has a significant positive effect on green governance

### 2.4. Green Public Procurement dan Green Governance

Green environmental governance is simply defined as the principle of providing environmentally friendly policies (Savage et al., 2020). Green governance shows the principle of pro-environmental behavior in which the government shows concern and concern for policies on the environment (Yusliza et al., 2020). Previous studies also showed that green governance is defined as the government's efforts to provide certain policies that result from people's demands for a green environment as a human right (Weston and Bollier, 2013). Meanwhile, some defines green governance as the government's interest to give preference to environmentally friendly policies compared to conventional policies from its policies.

The trend of green policy principles and actions is not only a new public sector principle and action. Green policy principles and actions can improve green governance in green orientation. Governments that have a level of awareness of environmentally friendly policies will get more public support by allocating more resources and environmental financing. This budgeting and procurement can be useful to foster a sense of sensitivity for the community to support sustainability efforts and support environmentally friendly policies. Thus, efforts to improve community green environmental governance are supported by green governance. According to previous studies, green public procurement has a positive and significant effect on green governance (Rosell, 2021). It is also stated that green public procurement has a positive and significant effect on green governance (Liu et al., 2019).



**Figure 1:** Theoretical model

H7: Green public procurement has a significant positive effect on green governance

### 3. METHODS

This study is performed with a quantitative analysis to determine the empirical effect of environment-related regulations, public support, and sustainability orientation on green governance. The analysis was also conducted to analyze the effect of mediating variable of green public procurement (Figure 1). The research was conducted in West Java with the object is environmental agencies' employees as they are involved in public sector and become policy-makers in public administration regarding green policies and their enactment. The sampling technique used is by using a non-probability sampling technique with the type of simple random sampling.

By using simple random sampling technique, a total of 214 respondents from survey was obtained. The study used questionnaire to obtain response from respondents. Initially, 300 questionnaires were distributed. The returned questionnaires were 219. Thus, the response rate in data collection was 73%. In tabulation stage, it is found that there were 5 incomplete response. This means that eligible questionnaire for further processing was from 214 respondents.

The questionnaire was modeled by 5-point Likert scale, ranging from 1 (strongly disagree), to 5 (strongly agree). The data analysis technique used is Partial Least Square-Structural Equation Modeling (PLS-SEM). Partial Least Square is a structural equation analysis that uses a variance basis simultaneously which can test the model as well as test the structural model.

### 4. RESULTS

The results showed that outer loading for all items used as the measure for each variable was above 0.7. Loading factor was to show the correlation between indicators and latent variables. The loading factor value must be  $>0.7$  indicates that the item was valid. The findings showed that all items were valid. The results are shown in Table 1 and Figure 2.

Table 2 shows that Average Variance Extracted (AVE) of environmental-related regulations is 0.840, public support is 0.818, sustainability orientation is 0.854, green public procurement is 0.846, and green governance is 0.616. This indicates that all variables have fulfilled convergent validity as they have AVE value  $>0.5$ .

Furthermore, to examine AVE root value for each variable shown in Table 3 with discriminant validity. The calculation showed that the correlation coefficient between variables was greater than the root correlation value. This indicates that the measurement tool has discriminant validity. The results were shown in Table 3.

In addition, the test was also carried out a reliability test in addition to the validity test. The values of each construct's Composite Reliability and Cronbach's Alpha were examined in a test to ascertain their reliability in this study (Table 4).

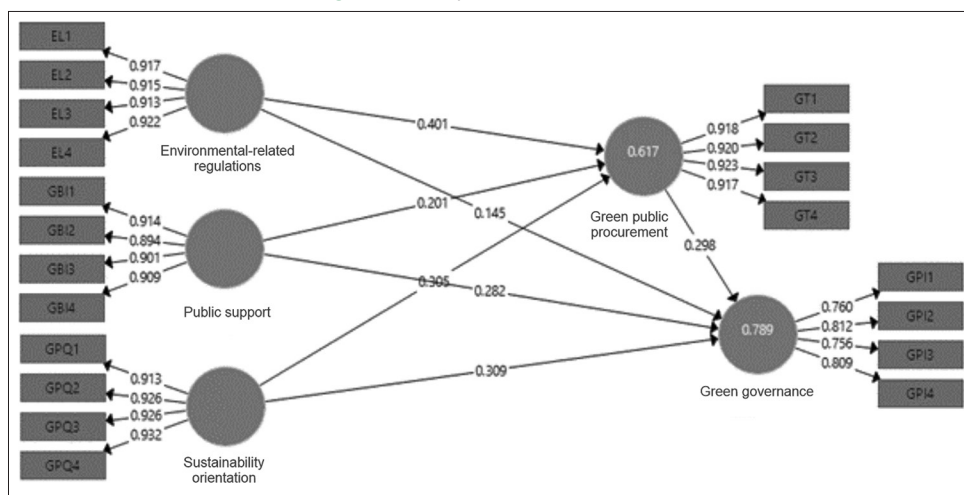
The research variables was declared to be reliable with Cronbach's Alpha  $>0.6$ . As a result, they can be utilized as an instrument for measuring the variables. Moreover, the accuracy of the proposed model in PLS was measured using R-Square ( $R^2$ ) and path coefficient. The  $R^2$  value and the t-value of each exogenous latent variable on the endogenous latent construct were determined from the bootstrapping results for the structural model test (Figure 3).

Table 5 found that the green public procurement r-square value is 0.611, or 69.1%. It implies that the green public acquirement variable can be made sense of by environmental-related regulations, public support, and sustainability orientation variables of 61.1% and the leftover 38.9% is made sense of by different elements not analyzed in this review, because it is below 0.67. Then, green governance has a r-square value of 0.785, or 78.5% thereby allowing for variability of the green governance variable by the environmental-related regulations, public support, sustainability orientation, and green public procurement variables of 78.5%.

Furthermore, the hypothesis testing was examined to determine path coefficient through the T-count value. The path coefficient are useful to analyze the effects of the independent variables and the direction of the relationship. Path coefficients are required to have a T-count value of at least 1.96. The results for direct effects were shown in Table 6.

The results showed that environmental-related regulations will be more likely to affect the feelings and plans of the community in providing environmentally friendly policies. The results showed the path of t-value of 2.655 with P-value of 0.000 in the relations between environmental-related regulations and green public procurement. Thus, the first hypothesis was accepted. This indicates the impact of environmental-related regulations on the implementation principles of green public procurement making stakeholder and policymakers to more selective in choosing policies that are safe for the environment.

The results also showed path coefficient of 6.703 and P-value of 0.000 in the relations between environmental-related regulations and green governance. Thus, the second hypothesis was accepted. This indicates that interest in implementing policies that include environmental-related regulations will provide guarantees and green governance with a sustainability orientation. Moreover, statistical results also showed path coefficient of 3.432 and significant level of 0.001 in the relationship between public support and green public procurement. This confirmed that the

**Figure 2:** Analysis of research model**Table 1: Results of outer loading**

Indicators	Environmental-related regulations	Public support	Sustainability orientation	Green public procurement	Green governance
ER1	0.917				
ER2	0.915				
ER3	0.913				
ER4	0.922				
PSI1		0.914			
PSI2		0.894			
PSI3		0.901			
PSI4		0.909			
SO1			0.913		
SO2			0.926		
SO3			0.926		
SO4			0.932		
GP1				0.760	
GP2				0.812	
GP3				0.756	
GP4				0.809	
GG1					0.918
GG2					0.920
GG3					0.923
GG4					0.917

**Table 2: Convergent validity**

Variable	External loading factors	AVE
Environmental-related regulations	0.913–0.922	0.840
public support	0.894–0.914	0.818
Sustainability orientation	0.913–0.932	0.854
Green public procurement	0.917–0.923	0.846
Green governance	0.756–0.812	0.616

**Table 3: Discriminant validity**

Variable	EL	GBI	GPQ	GPI	GT
EL	0.916				
GBI	0.673	0.905			
GPQ	0.572	0.606	0.924		
GPI	0.723	0.762	0.758	0.785	
GT	0.711	0.656	0.656	0.789	0.920

**Table 4: Composite reliability dan cronbach's alpha**

Variable	Cronbach's Alpha	Composite reliability
Environmental-related regulations	0.936	0.955
Public support	0.926	0.947
Sustainability orientation	0.943	0.959
Green public procurement	0.939	0.956
Green governance	0.793	0.865

**Table 5: R square**

Variable	R Square	R Square adjusted
Green public procurement	0.617	0.611
Green Governance	0.789	0.785

third hypothesis was accepted. This means that green public procurement in environmentally friendly policies that include

public support. The results of this study are in line with previous research which shows that there is a positive and significant influence between public support and green public procurement (Testa et al., 2012).

Figure 3: Bootstrapping's results

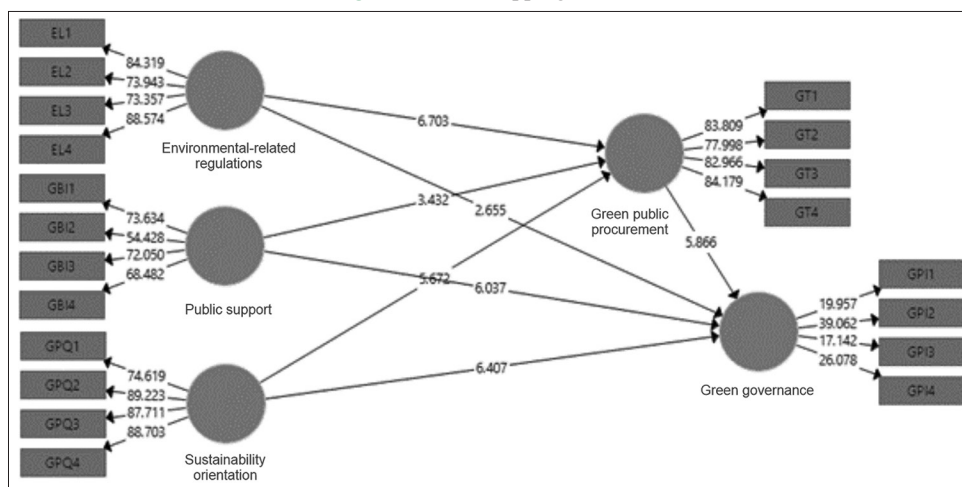


Table 6: Path coefficient

Path	T-value	P-value	Confirmation
H1 Environmental-related regulations -> Green public procurement	2.655	0.000	Accepted
H2 Environmental-related regulations -> Green governance	6.703	0.000	Accepted
H3 Public support -> Green public procurement	3.432	0.001	Accepted
H4 Public support -> Green governance	6.037	0.000	Accepted
H5 Sustainability orientation -> Green public procurement	5.672	0.000	Accepted
H6 Sustainability orientation -> Green governance	6.407	0.000	Accepted
H7 Green public procurement -> Green governance	5.866	0.000	Accepted

The fourth hypothesis stated that public support has a significant effect on green governance, indicated by path coefficient of 6.037 and P-value of 0.000. This means that the fourth hypothesis was accepted. This means that public support is more likely to increase green governance. This is relevant with public sector policy in utilizing public support to promote green orientation. In addition, the results showed the path of t-value of 5.672 with P-value of 0.000 in the relationship between sustainability orientation and green public procurement. Thus, the fifth hypothesis was accepted. This means that environmental-related regulations are a reliable source of budgeting and procurement for the community in evaluating policies.

The findings found that the effect of sustainability orientation on green governance was significant with path coefficient of 6.407 and P-value of 0.000. This showed that the sixth hypothesis was accepted. This means that the higher the sustainability orientation, the higher the green governance. Lastly, the seventh hypothesis states that green public procurement has a significant effect on green governance, indicated by T-count of 5.866 and P-value of 0.000. This means that the seventh hypothesis was accepted. The findings empirically showed the relationship between

environmental-related regulations on green governance through green public procurement. Thus, understanding community behavior in environmentally friendly policies that include environmental-related regulations is a form of budgeting and procurement for the community and can lead to green governance which will affect the public procurement principle.

The findings also confirmed the mediating effect of green public procurement in the relationship between public support and green governance. This implies that stakeholders in regulating environmentally friendly policies were to have a good image in the public perception. The results that will be felt in the long term will be able to make the community sensitive that the environmentally friendly policies offered will always be consistent in providing safe policies, fulfill the promise that the policies protect the environment and lead to environmental governance in environmentally friendly policies. This is evidenced by previous studies confirming that public support has a positive and significant effect on green public procurement. This study is also in line with previous studies showing that public support has a positive and significant influence on green governance through green public procurement (Debbarma and Choi, 2022; Fay et al., 2014). This shows that the stronger the public support, the higher the community's desire to be sensitive to policies by providing beliefs or expectations resulting from the credibility, virtue, and ability of these policies related to their performance environment.

The results of indirect effect were shown in Table 7. More specifically, in the context of effect of sustainability orientation on green public procurement and green governance, the findings indicate that public service actors increasingly develop and provide budgeting and procurement advantages. Thus, public service actors and policy-makers need to determine steps that can be taken to strengthen green governance and sustainability orientation of the community towards environmentally friendly policies such as sustainability orientation of safe raw materials and activities that support green policy and awareness, such as determine green spatial and the adoption of green consumption applied to communities to improve green governance among wider societies. The results of this study are in line with previous studies showing

**Table 7: Specific indirect effect result**

Path	T-value	P-value	Confirmation
Environmental-related regulations -> Green public procurement -> Green governance	4.326	0.000	Accepted
Public support-> Green public procurement -> Green governance	2.868	0.004	Accepted
Sustainability orientation -> Green public procurement -> Green governance	4.643	0.000	Accepted

that sustainability orientation has a positive and significant effect on green public procurement. This implies that green governance that is formed in the community can be determined through the good or bad of the policy that is felt by the community and its orientation to the environment. The findings were also in line with previous research showing that sustainability orientation affects green governance (Lemos and Agrawal, 2006). Some also highlighted that green public procurement mediates the relationship between sustainability orientation and green governance. These studies show the relationship between sustainability orientation to green governance through green public procurement. This means that the higher the green governance will be more likely to improve the sustainability orientation of the policy, and the more public sector procurement of this policy will be more likely to increase.

In the context of the effect of green public procurement on green governance, it proves that green public procurement has a positive and significant influence on green governance. This means that there is an increase or decrease in the implementation of green orientation which has green public procurement which will be followed by an increase or decrease in green governance. The influence of green public procurement in environmentally friendly policies is one of the factors in the environmental governance process, where green governance in policies has community confidence in providing the expected policies. The results of this study are in line with previous studies which shows that green public procurement has a positive and significant influence on green governance (Grandia, 2016). Previous research also stated that green public procurement has a positive and significant influence on green governance. This shows that certain policies to build green governance will be offered. Therefore, the community will be easy to provide green governance where this is a benchmark, by seeing how much interest in implementing green policies. This implies that the community will be more likely to choose policies that they believe the existence benefit the policy for the environment.

## 5. CONCLUSION

This study empirically proves the previous conjectures regarding the positive impact of environmental-related regulations, public support, and sustainability orientation on green public procurement and their implications for green governance. Public green policies involving green regulations, public support, and orientation are strongly related to renewable energy and sustainable energy

management. Green regulations can include rules that incorporate the use of renewable energy and reduce greenhouse gas emissions. A sustainability orientation can also encourage the development of renewable energy and more sustainable energy management. Public green policies that involve environmentally friendly regulations, public support, and a sustainable orientation are closely related to the use of renewable energy and sustainable energy management, so that they can help achieve sustainable development goals. However, this study has limitations. First, in terms of the subjects of the study, which only utilized a relatively small sample of employees of environmental agencies. It is possible to develop a research in the future that uses research subjects from a wider range of professions and has a larger sample size. In order for the research model to be more tested, various possible additions are intended. In addition, the study makes use of antecedent factors in the form of environmental-related regulations, public support, and sustainability orientation. Despite the fact that it is very likely that there are still a number of other significant variables that could have an impact on green governance.

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