
Production Ethics of Muslim Batik Entrepreneurs in Pekalongan

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Abstract

This research aims to find out the influence of ethics in batik (Indonesian traditional dyeing designs in clothing) production of Muslim entrepreneurs with their environment in Pekalongan, Central Java. The urgency is that the production ethics have a close relationship with waste and environment. This study used primary data from questionnaires filled by Muslim batik entrepreneurs. The OLS method was applied to analyze the total of 30 samples using SPSS. In this analysis, there were two things having strong significant correlations to production ethics namely (1) the application of Islamic values of the entrepreneurs on environmental sustainability and (2) the acknowledgement of the entrepreneurs regarding to the counseling of batik waste from local government.

Keywords:

production ethics; environmental conditions; batik entrepreneurs.



1. Introduction

The dilemma of current economic development faced onto two sides. One side of the economic development pursues the welfare of society, and the other is the implications. One of the environmental implications is the unresolved pollution (Karsa, 2008). Pollution issue becomes a grand topic worldwide, including Indonesia called out by National Geographic in 2016 as a state of waste emergency (Suara Merdeka 2017: 5). Even though Indonesia already has a clear regulation on such matter in the constitution No. 32/2009 about Environmental Protection and Management as well as the regulation of Minister of Environment No. 13/2012 about Implementation Guidelines of 3R (Reduce, Reuse and Recycle).

The constitution No. 32/2009 states that the environment is defined by the unity of space with all matters, power, circumstances, and organisms including human beings and their behavior, which affect the nature itself, the survival of life, and the welfare of human beings and other organisms (Article 1). By this understanding, environment has several elements: (1) Human and their behavior, (2) environmental conditions, (3) process of survival and (4) welfare obtained by humans and other creatures. Environment is a vital place in the cycle of human life. Human cannot live without the environment. Therefore, polluting the environment will render direct impact on health, aesthetics, economic losses, and disruption of natural ecosystems (Rahmadi, 2011: 3). In the context of local economic growth, producers are required to be responsible and accountable as in the hadith mentioned "every one of you is a leader and every leader will be held accountable for what he leads" (*Lidwa Pusaka*, Hadith No. 844). From this statement, basic demands for producers are material and moral demands. The material demands will obviously be ruled by existing regulations (Hardjasoemantri, 1992) while the moral demands are from perceptions that generate awareness.

Pekalongan District, Central Java Province is an area with many batik producers. Every day, tens of tons of batik fabric and cloth are exported to other regions in Indonesia. In Pekalongan, Simbangkulon (one of administrative villages in Buaran Sub-district, Pekalongan District) is the object of this research based on three reasons: (1) the religiosity where the majority are educated Muslims, (2) the large size of batik producers where more than 30 batik entrepreneurs take place (Maladzi, July 6, 2017), and (3) the strategic geographical location where the border of the District and the City of Pekalongan located. Therefore, all of sociological phenomenon are often used as reference and sampling parameters of research.

Recently, the sick environmental conditions demand the more established research. To find a solution, the anthropocentric paradigm *ansich* is certainly not enough but requires a pure awareness and spiritual appreciation. Each individual must understand religious values and morality (*Ulumuna*, 2012). The awareness to overcome the crisis is crucial, especially by exploring the spiritual religious values such as values of *ecotheology*. Quddus (2012) contends that integral environmental insights of *ethical-theologic* and *ethical-anthropologic* dimensions can be the guiding principles in nature management. According to him, the relation between the three poles (God, nature and human) must walk in conformable, balance and harmony. The removal of one of these poles will cause imbalance that leads to environmental exploitation and crises. Globally, there is an ecological crisis depicted at least in three forms of environmental degradations: (1) global warming, (2) depletion of the ozone layer, and (3) acid rain (Quddus, 2012). Thus, the religious sensitivity is needed and expected to generate modern ecological solutions holistically. From the perspective of religion, the solution regarding to the issue of environmental reality can be formulated for the benefit and *maslahah* of all people.

This research formulated the perspective of Muslim batik entrepreneurs in Simbangkulon, Pekalongan Regency, related to production ethics with environmental insights. The ethical influence of batik producers on environmental conditions in Pekalongan was analyzed using simple linear regression model. In addition, this study also analyzed the correlation between production ethics and environmental conditions.

2. Research Methods

This study used *Ordinary Least Square* (OLS) from simple linear regression analysis to investigate the effects of production ethics with environmental insights of Muslim businessmen in Simbangkulon, Pekalongan. This method is the mostly employed by researchers in analyzing the relationship between variables. The simple formula of linear regression can be written as follows:

$$y = a + bx + e \quad (1)$$

Where y is the dependent variable, x is the independent variable, a is the constant, b is the regression coefficient (slope), and e is the size of standard error. In practice, this method requires several tests before processing the regression model. Some of classical assumption tests are tests of data validity, data reliability, normality, multicollinearity, heteroscedasticity and autocorrelation.

This study made Muslim batik entrepreneurs located in Simbangkulon, Pekalongan District, as research objects. Data were collected by distributing questionnaires to respondents from May to August 2017. A total of 30 samples were collected for analysis. Variables assigned were ethical production with environmental insight as independent variables and environmental conditions as a dependent variable.

Among the respondents, there were 8 females (26.7%) and 22 males (73.3%). Based on the education level, there was one (3.3%) respondent not graduating elementary school, 6 people (20%) graduated from primary school, 10 people (33.3%) graduated from junior high school, 10 people (33.3%) graduated from senior high school, and the rest of 3 people (10.0%) had a bachelor degree. From marital status, there were 17 people (56.7%) already married, and the rest of 13 people (43.3%) were single. There were 16 respondents (53.3%) not having children, 3 respondents (10%) with one or two children, and 8 respondents (26.7%) with more than three children. Then, in terms of age, 50% of respondents were aged between 21-30 years, 30% were between 31-40 years, and only one respondent was more than 60 years old. Moreover, 8 out of 30 respondents (26.7%) had a background in Islamic boarding school. Based on the motivation, 13 people (43.3%) categorized financial problems as their motivation, 33.3% intended to create employment, and those continuing the family business were 23.3%.

Then, the results of questionnaires from respondents also indicated that the majority of Muslim batik businessmen (73.3%) were not aware of 3R information. This was unfortunate because the knowledge of 3R is substantial to preserve the environment. Also, 70% of respondents said that they did not possess a waste shelter for the residues of the batik production indicating that they did not understand the importance of shelter waste production. Furthermore, 93% of respondents also stated that their batik waste was not reprocessed or reused rather directly dispose it to the river. Then, the majority of respondents (93.3%) mentioned that their batik waste was not made into handcrafts.

Analysis of production ethics applied by Muslim batik entrepreneurs using questionnaires was distributed and collected to attain the answers based on their own perception and to

determine the frequency regarding to the production ethics with environmental awareness and environmental conditions using Likert scale, where the scales weighed as follow:

- a) Answer 1 for stating very bad.
- b) Answer 2 for stating bad.
- c) Answer 3 for stating quite well.
- d) Answer 4 for stating good.
- e) Answer 5 for stating very good.

An overview of variables affecting the ethical production with environmental insight is described as follows. The average Muslim batik entrepreneur stated that the understanding of ethics in producing batik was "good", then the Islamic teachings on environmental sustainability was also "good". Answers to the question of Muslim batik entrepreneurs in terms of application of Islamic teachings on sustainability was also "good". Meanwhile, the understanding of the impact of batik waste, from production process, of Muslim batik entrepreneurs was "quite well". Also, the understanding of Muslim batik entrepreneurs about 3R information was "quite well". Then, the understanding of Muslim batik entrepreneurs associated with the direct disposal of batik waste carelessly to the river was "bad".

Batik entrepreneurs had a "good" understanding on the availability of shelters of batik waste. Their understanding on recycling batik waste was "quite well". The acknowledgement of respondents about the role of local government in handling batik waste was also "quite well" while the understanding of Muslim batik entrepreneurs about the government counseling about batik waste was "good".

3. Results

3.1. Validity Test and Data Reliability

Validity test was performed to determine the accuracy of the instrument representing the purpose or the content of measurements. This study employed standard data validity based on critical value table of Pearson correlation. As commonly known, the number of samples (n) used was 30 thus the degree of freedom is 28 ($n-2$). Then, r_{table} obtained for Pearson correlation coefficient (Product Moment) with significance level 0.05 was equal to 0.361. Therefore, if the correlation of the calculation was more than 0.361 then the conclusion was valid, and vice versa. Table 1 shows the results of data validity test based on answers from respondent.

Table 1. Data Validity Test

Questions	$r_{calculated}$	r_{table}	Sig. value	Explanation
X_1	0.509	0.361	0.00	Valid
X_2	0.548	0.361	0.00	Valid
X_3	0.772	0.361	0.00	Valid
X_4	0.401	0.361	0.03	Valid
X_5	0.481	0.361	0.01	Valid
X_6	0.737	0.361	0.00	Valid
X_7	0.693	0.361	0.00	Valid
X_8	0.574	0.361	0.00	Valid

X ₉	0.509	0.361	0.00	Valid
X ₁₀	0.751	0.361	0.00	Valid
Y ₁	0.716	0.361	0.00	Valid
Y ₂	0.650	0.361	0.00	Valid
Y ₃	0.610	0.361	0.00	Valid
Y ₄	0.796	0.361	0.00	Valid
Y ₅	0.455	0.361	0.01	Valid
Y ₆	0.855	0.361	0.00	Valid
Y ₇	0.675	0.361	0.00	Valid

From Table 1, it can be seen that on the significance level of 0.05 the validity test indicated the value of $r_{\text{calculated}} > r_{\text{table}}$ for all items specified that the all research items were valid. Then, this study utilized the Cronbach Alpha test to see whether the measurements yield consistent results by using SPSS. Reliability test was done by comparing the actual and minimum values (0.6) of Cronbach Alpha. In other words, if the Cronbach Alpha value calculated from SPSS was greater than 0.6 then it is concluded that the questionnaire was reliable, and vice versa. Table 2 shows the Cronbach Alpha test output from SPSS.

Table 2. Data Reliability Test

Variables	Cronbach's Alpha	Explanation
Production Ethics	0.783	Reliable
Environmental Condition	0.793	Reliable

Based on the results of reliability test in Table 2, it is recognized that the Cronbach's Alpha was equal to 0.783, hence it can be concluded that the research instruments measuring the variable of production ethics with environmental awareness were reliable. Table 2 above also describes the value of Cronbach Alpha of 0.793 for environmental condition measurement variable, thus the variable was reliable as well.

3.2. Items Affecting Production Ethics

Based on Table 1 above, it is clearly presented that there were 10 instruments in production ethics variables. The relationship strength between each instrument and production ethics (X) is explained as follow:

- 1) The correlation coefficient between X₁ (understanding of production ethics) and production ethics was 0.509 indicating that the understanding of production ethics had a strong positive correlation with the production ethics.
- 2) The improvement in Islamic teachings related to sustainability (X₂) had a strong significant correlation to production ethics with a coefficient of 0.548.
- 3) Application of Islamic teachings (X₃) had a strong significant correlation as well to production ethics with a coefficient of 0.772.
- 4) The understanding of the Muslim entrepreneurs on dire impact of waste (X₄) had a fairly strong, significant correlation with production ethics with a coefficient of 0.401.

- 5) The understanding of Muslim businessmen on 3R information (X_5) had a strong, significant correlation with production ethics with a coefficient of 0.481.
- 6) The understanding of Muslim entrepreneurs on disposing batik waste into the river (X_6) had a strong, significant correlation with production ethics with a coefficient of 0.737.
- 7) The understanding of Muslim entrepreneurs on batik waste shelters (X_7) had a strong, significant correlation with production ethics with a coefficient of 0.693.
- 8) The understanding of Muslim entrepreneurs on recycling batik waste (X_8) had a insignificant correlation with production ethics with a coefficient of 0.574.
- 9) The understanding of Muslim entrepreneurs on local government responsible in handling batik waste (X_9) had a strong, significant correlation with production ethics with a coefficient of 0.509.
- 10) The understanding of Muslim entrepreneurs on the local government counseling about batik waste (X_{10}) had an insignificant correlation with production ethics with a coefficient of 0.751.

From the explanation above, the conclusion is that the indicators of production ethics (items affecting production ethics) were correlated positively and significantly to production ethics. In addition, the items influencing production ethics did not have weak correlations with production ethics. The items correlating the lowest to production ethics were the comprehension of Muslim batik entrepreneurs (1) on the dire impact of batik waste and (2) on 3R information. Then, there were two items with strong and significant correlation to production ethics: (1) the application of Islamic values of environmental sustainability and (2) the understanding of Muslim batik entrepreneurs on the counseling of batik waste management held by local government.

3.3. Items Affecting Environmental Conditions

Meanwhile, the relationship of instruments on environmental conditions (Y) can be explained as follows:

- 1) Increasing the role of Muslim entrepreneurs in preserving environment (Y_1) was associated strongly and significantly with environmental conditions (coeff. = 0.716).
- 2) The increase of dire impact of batik waste on the environment (Y_2) was correlated strongly and significantly with environmental conditions (coeff. = 0.650).
- 3) The sense of justice from batik waste production (Y_4) was associated very strongly and significantly with environmental conditions (coeff. = 0.796).
- 4) The surrounding environmental conditions (Y_5) had a strong and significant correlation with environmental conditions (coeff. = 0.455).
- 5) The water condition of the river in surrounding environment (Y_6) was associated very strongly and significantly with environmental conditions (coeff. = 0.855).
- 6) The condition of the well water in the neighborhood (Y_7) was associated very strongly and significantly with environmental conditions coeff. = (0.675).

From the explanation above, it can be concluded that all independent variables (items affecting environmental conditions) were correlated positively and significantly with environmental conditions. Furthermore, conditions of river water had the highest correlation to environmental conditions which is equal to 0.855.

3.4. The Effect of Production Ethics on Environmental Conditions

This section discusses the implications of production ethics on environmental conditions. Regression analysis is commonly used to determine the effect of independent variables (X) on the dependent variable (Y). The independent variable X was the production ethic including ten (10) questions mentioned above while the dependent variable Y represented the environmental conditions including seven (7) questions. Meanwhile, the method commonly used to estimate the regression model is the ordinary least square (OLS). In practice, this method requires several tests before applying regression model. Some of the usual classical assumptions are as follows:

1) Normality Test

The normality test aims to test whether in the regression model, residual variable has a normal distribution. This study used Kolmogorov-Smirnov test to conduct normality test. Table 3 shows the SPSS output from the Kolmogorov-Smirnov test.

Table 3. Normality Test

		Unstandardized Predicted Value
N		30
Normal Parameters ^a	Mean	23.4333333
	Std. Deviation	1.83808530
	Absolute	.124
Most Extreme Differences	Positive	.124
	Negative	-.092
Kolmogorov-Smirnov Z		.677
Asymp. Sig. (2-tailed)		.750

Based on Table 3, the Kolmogorov-Smirnov Z value was 0.677, and Asymp. Sig. (2-tailed) was 0.750 greater than 0.05 so it can be concluded that the data was normally distributed.

2) Multicollinearity test

Multicollinearity test is performed to test whether the independent variables are correlated each other. If there is a correlation, Multicollinearity problem exists in the model. In a proper regression model, independent variables should not be correlated each other. Multicollinearity can be seen from (1) the value of tolerance and its opposite (2) variance inflation factor (VIF). The cutoff value used to indicate the presence of multicollinearity is when (1) tolerance problem is equal or less than 0.10 and (2) VIF more than 10. If not violating the criteria of tolerance level and VIF, it can be concluded that there is no Multicollinearities between independent variables in the model regression (Santosa, 2005).

Table 4. Multicollinearity Test

Model		Unstandardized Coefficients		Collinearity Statistics	
		B	Std. Error	Tolerance	VIF
1	(Constant)	1.022	2.276		
	Production Ethics	.657	.066	1.000	1.000

a. Dependent Variable: Environmental Conditions

From Table 4, the tolerance value was equal to 1.00 while the VIF value equal to 1.00. So it can be said there was no multicollinearity problem between variables of production ethics and environmental condition.

3) Heteroscedasticity Test

The heteroscedasticity test aims to test whether in the regression model there is a variance inequality of residuals from one to another observation. To test heteroscedasticity, this study used Glejser test.

Table 5. Heteroscedasticity Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.802	4.244		1.131	.267
	Production Ethics	-.079	.116	-.127	-.680	.502

a. Dependent Variable: RES2

Based on Table 5, it is known that the significance value was 0.502 greater than 0.05. Therefore, it can be concluded that there was no heteroscedasticity.

4) Autocorrelation Test

The autocorrelation test aims to test whether in the linear regression model, there is an autocorrelation between the sample error in period t with the sample error in period t_{-1} . This study used Durbin Watson test for autocorrelation test.

Table 6. Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.882 ^a	.779	.771	1.528	1.668

a. Predictors: (Constant), Production Ethics

b. Dependent Variable: Environmental Conditions

To know the existence of correlation can be explained as follows. If the Durbin Watson number is below -2 then there is a positive autocorrelation, if the Durbin Watson number is between -2 to +2 then there is no autocorrelation, and if the Durbin Watson number is above +2 then there is negative autocorrelation (Santosa, 2005). From Table 6, the value of Durbin-Watson was 1.668 stating that there was no autocorrelation problem.

SPSS output showed that the classical assumption test of least squares method to analyze the regression model. In Table 7, the regression had been successfully performed, thus conclusion presented was accountable. Table 7 below shows the estimation coefficients of the regression model to analyze the effect of ethics owned by Moslem batik producers on environmental conditions.

Table 7. Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.022	2.276		.449	.657
	Production Ethics	.657	.066	.882	9.924	.000

a. Dependent Variable: Environmental Conditions

From Table 7, it can be identified that the regression coefficient B shows an effect of ethical production on environmental condition. The linear regression equation based on the result above can be written as follows:

$$y = 1.022 + 0.657X_1 + \varepsilon \quad (2)$$

Where e is the error term. From the linear regression model in equation (2), conclusions are explained as follow. The production ethics had a regression coefficient of 0.657 stating that for a unit increase in this variable, it was predicted to increase the environmental condition by 0.66 units when other variables were constant. In other words, production ethics of Muslim batik entrepreneurs in Simbangkulon, Buaran, Pekalongan had a positive influence on the environmental condition as much as 0.66 points. Using 0.05 significant level, it is concluded that the coefficients of the ethical variables of production differed significantly from zero because the p -value was equal to 0.000. Table 8 below shows the determinant coefficient.

Table 8. Determinant Coefficient

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.882 ^a	.779	.771	1.528

a. Predictors: (Constant), Production Ethics

b. Dependent Variable: Environmental Conditions

Table 8 shows that the R-square value was 0.779 meaning that 77.9% of production ethics of Muslim batik entrepreneurs can be explained by environmental conditions in Pekalongan. Meanwhile, the remaining 22.1% of the production ethics of Muslim batik entrepreneurs was influenced by other variables.

4. Discussion

Environmental problem, from time to time, always brings us fascinating ideas, from classical to transcendental ideas. The classical idea is that environmental problems are the results of human actions (Surah Arrum [41]: 40). In America, this discussion surfaced in the 1960s. Rachel Carson (1962), Lynn White (1967), and Garrett Hardins (1968) have addressed the issue of environmental crises and analyzed some of the causes of the global environmental crisis. One of the causes was

the anthropocentric paradigm, placing human as center of the universe where the dominant and significant causes were rooted from exploitative and consumptive behavior of mankind (Walker, 2009). Meanwhile, the transcendental idea invited humans to re-preserve, put and take care into the nature. This view raised ethics and religion as solutions to environmental crisis currently occurring. Akhtar (1996), Marsuki (2012) mentioned that the future religious agenda urgently needed is to establish sustainable development. Where religion has a vital role to persuade humans to preserve the nature they occupy (Marsuki, 2012: 28).

Indonesian intellectuals capture the term of environmental crisis in several terms of discussions, (1) *Islamic Ecoethics*, is a term to explain how the Islamic economic views the environment. The function of *Islamic Ecoethics* is the role of environmental ethics influencing ecological economics, which leads to the inspiration of green economy (Amhar, 2013), (2) *Ecotheology*, is an understanding of Islam against the environmental crisis derived from *the dalil of naqliyah* (argument based on the Quranic texts/verses). Sacred cosmology *dalil of naqliyah* can contribute positively as guiding principles of nature management. Contributions of religion are based on several *ecotheology* principles i.e. the principles of *taukhīd* (unity of all creation), *amānah-khalīfah* (trustworthiness-moral leadership), and *ākhirah* (responsibility) (Quddus, 2012), and (3) Environmental Ethics, this word is used as a basis for scope differentiation between term of *ecology* in *ecological economics* and the term of *environment* in *environmental economics*. From such perspective, research on environmental crisis still continues since it has influences on environmental condition of human.

5. Conclusion

From the description above, this study generates following conclusions. The production ethics with environmental insights applied by Muslim batik entrepreneurs in Simbangkulon, Buaran, Pekalongan were as follows. The majority of Muslim batik entrepreneurs were unaware of basic knowledge of production ethics including 3R information, the availability of waste shelters, the processing of waste, and batik waste turned into handcrafts. Then, there were five indicators of production ethics depicting the good understanding of Muslim batik entrepreneurs i.e. the understanding of ethics in producing batik (X_1), the understanding of Islamic teachings on environmental sustainability (X_2), the application of Islamic values of environmental sustainability (X_3), the understanding of waste shelters (X_7) and the understanding of the existing counselling about batik waste held by local government (X_{10}). Furthermore, Muslim batik entrepreneurs had a poor understanding of batik waste dumped to the river (X_6).

Items affecting the ethics of Muslim batik producers in Simbangkulon, Buaran, Pekalongan were indicated by a positive and significant correlations between the indicators of production ethics and the ethics of the entrepreneurs. It was known that two indicators had a very strong significant correlation to production ethics i.e. the producers' application of Islamic values to environmental sustainability and the understanding of the entrepreneurs upon the batik waste counselling from local government. Then, there were two things also strongly correlated with environmental conditions i.e. the community justice regarding to batik waste (Y_4) and the understanding of surrounding river water conditions (Y_6).

The implications of production ethics of Muslim batik entrepreneurs in Simbangkulon, Buaran, Pekalongan can be elaborated as follows. Production ethics variable had a very strong positive significant correlation on the environmental condition variable that was equal to 0.779 (77.9%). Then, for every unit increase on the variable of production ethics was expected to improve the environmental condition variable value by 0.66. In other words, the increase of the comprehension of Muslim batik entrepreneurs on production ethics was directly positively proportional with the improvement of the surrounding environmental conditions.

The limitation of this study was the small size of sample used, where only 30 respondents answered the questionnaire correctly. Another limitation was that the variables included is limited, thus not generating maximum analysis. Hence, for further research it is recommended to use larger sample size and more independent variables (X).

Meanwhile, based on the results of this research, some suggestions can be given related to the ethics of Moslem batik producer production and environmental conditions in Simbangkulon administrative village, Buaran Sub-district, Pekalongan District: (a) It is required to increase the basic knowledge of production ethics, especially the insight on how waste can impact the surrounding nature, (b) it is substantial for local government to provide information on 3R (Reduce, Reuse, and Recycle) to batik entrepreneurs in Pekalongan, and (c) it is prominent for government to conduct socialization or counselling in order to educate batik producers on how to manage their batik waste properly, and (d) it is vital for government to put more attention on river water conditions in Pekalongan.

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