

MINIMIZATION OF POLLUTION FROM PADDY FIELDS ACTIVITIES IN KEDAH: MUDA AGRICULTURAL DEVELOPMENT AUTHORITY (MADA) PERSPECTIVE

Nurul Fatini Yaacob¹ and Nurul Azita Salleh²

¹⁻²*School of Technology Management & Logistics, College of Business, Universiti Utara
Malaysia, 06010 Sintok, Kedah*

nurul_fatini@stml.uum.edu.my¹, azyta@uum.edu.my²

Abstract: Each sector has its problems. Haze is a common problem in sectors such as the manufacturing sector, and the agricultural sector. The excessive haze will cause problems for the environment and will, in the long run, affect the existing ecosystem. Not only haze becomes a problem for each sector but sometimes air, soil and noise pollution also happen in each sector. Therefore, this study aims to minimize pollution in the paddy field. Agriculture industry benefits in economic growth. However, it contributes to the negative impact on the environment. Thus, this study focused on identifying the types, factors, and solutions to pollution in the agriculture industry based on the pollution from paddy field activity in Kedah. This study conducted qualitative research methods. The respondents are top management from the Muda Agricultural Development Authority (MADA) which located in Kedah. The result showed that activity from the paddy field has various types of pollution such as water, air, and soil. Meanwhile, the pollution caused by the open burning, the use of inorganic fertilizers, less use of the latest technology and the technology available is very limited and inadequate due to high demand. The results of this study provide a solution to the pollution caused by activities in paddy fields such as using the 'Jerami Gulung' Method, reduce the use of chemical fertilizers, using the incinerator, makes it a compost, turning straw into livestock and using the straw grinding machine. As implications, this study of raising farmers' awareness to reduce excessive use of chemical fertilizers, not burning straw and raising awareness among MADA and Environment Agency on smart ways to conserving and preserving the environment.

Keywords: Paddy field activities, pollution, type, factor, Kedah

1. INTRODUCTION

Pollution often occurs in industrial sectors, leaving a negative impact on the local environment. This pollution is due to the activities of the industry. However, the agriculture sector is also exempt from pollution caused by activities in paddy fields. Activities in the paddy fields have caused pollution. This problem will bring negative consequences to social, and the environment. In the agricultural industry also happen the pollution such as at paddy fields, an activity that farmers do give an effect to the environment like haze. According to Rosmiza Mohd Zainol, Amriah Buang, Rosniza Aznie Che Rose, Jabil Map Jabil, and Mazdi Marzuki (2015) simultaneous combustion of straw has caused haze symptoms. This condition has caused related diseases such as respiratory problems and has affected public health. Continued haze conditions hit the country causing respiratory problems in affected areas with the problem increasing. Monitoring by the Ministry of Health at 31 sentinel haze clinics found that asthma and conjunctivitis were on the rise. Asthma recorded an increase of 15.8 percent (1,187 to 1,375 cases) in the 37th (ME) week 37 (8 to 14 Sept 2019) compared to the average ME 27 to ME 36 (30 June to 7 Sept 2019). This is a statistic of health in Malaysia. Thus, Noriza, Hayazi and Faizatul Halina (2015) stated pollution is because of burning the straw. Besides, using the straw grinding machine and rice straw recycling such as making a

composing are the methods that help to minimize the pollution from paddy fields by past research.

2. METHODOLOGY

This qualitative research included secondary data. Moreover, the semi-structured interview which two respondents from MADA, Kedah to acquire data with voice recording (primary data). After that, the collected data will be analyzed by NVIVO 9.

3. RESULT AND DISCUSSION

Based on the results show that the most frequent pollution caused by activities in the paddy fields is air, soil, and air pollution. The results for the factors of pollution from paddy field activities is the use of chemical fertilizers in large quantities and open burning straw. While the solution to this problem is to make straw as a compost, feed to livestock, and use the 'Jerami Gulung' method.

In this study, the findings obtained suggest that the types of pollution caused by activities in rice fields are water, air and soil pollution. The results of this study show that it's is similar to previous researchers. Erry (2018) stated that pollution that happens because of activities in paddy fields is air pollution. However, Rosmiza *et al.* (2015) stated activities occurring in the agricultural industry, manufacturing, and related industries will cause thermal pollution as these activities will stimulate the increase in local temperature.

Further, the contributing factor to the pollution caused by the MADA was due to the burning of open straw on a large scale and the use of large amounts of chemical fertilizers. The result is parallel with previous researcher Khairi, Chery, Rizal, Sharifah, and Kadir (2018) and Alamah, Arbain and Faridatul (2014) stated the use of chemical fertilizers in agricultural areas is a major contributor to pollution. Also, Noriza *et al.* (2015) stated that activities in paddy fields such as burning straw will cause pollution in the area as burning straw on a large scale will produce thick smoke until air pollution occurs.

There are many ways by the MADA to solve the problem caused by open burning and using inorganic poison. Where the result of this study is parallel with the previous researcher. Rosmiza *et al.* (2015) stated that farmers are encouraged to use the 'Jerami Gulung' method to prevent contamination and this method is very successful and shows positive signs to the environment.

As implications, this study will raise farmers' awareness to reduce excessive use of chemical fertilizers, not burning straw and raising awareness among MADA and Environment Agency on smart ways to conserving and preserving the environment.

4. CONCLUSION

As a conclusion, it provides much information to the farmers and Environment Agency. This study can increase their knowledge about the smart way to pollution minimization from paddy field activity, likely using the 'Jerami Gulung' method because our environment will get the advantages as not open burning will occur so thick smoke will not be in the air. It can reduce and overcome the problem of emission of harmful gases such as monoxide gas. This study can raise the awareness of farmers for reducing the use of hazardous materials in every activity at paddy fields.

5. REFERENCES

- Alamah Misni, Muhammad Arbain Md Zaki, & Faridatul Akma Abdul Latif. (2014). Pendekatan permakultur bagi mewujudkan gunatanah pertanian lestari di Malaysia: Kajian kes di Kuala Ping, Terengganu (Permaculture for sustainable agricultural landuse in Malaysia: A case study of Kuala Ping, Terengganu). Retrieved August 28, 2019, from <http://ejournal.ukm.my/gmjss/article/view/18745>
- Erry Ika Rhofika (2018). Kajian pemanfaatan limbah jerami padi di bagian hulu. Retrieved April 2, 2019, from https://www.researchgate.net/publication/329007852_Kajian_Pemanfaatan_Limbah_Jerami_Padi_di_Bagian_Hulu
- Muhammad Khairil, Cheryl Stephen Jeganathan, Muhammad Rizal Razman, Sharifah Zarina Syed Zakaria, & Kadir Arifin. (2018). The communication on enforcement of open burning cases in Malaysia. Retrieved August 23, 2019, from https://www.researchgate.net/publication/329223109_The_Communication_on_Enforcement_of_Open_Burning_Cases_in_Malaysia
- Noriza, Hayazi & Faizatul Halina. (2015). Perbandingan di antara penggunaan baja subsidi dan enzim sampah terhadap kualiti air di tapak penanaman padi. Retrieved April 1, 2019, from http://upikpolimas.edu.my/conference/index.php/icomplex/icomplex_2018/paper/view
- Rosmiza Mohd Zainol, Amriah Buang, Rosniza Aznie Che Rose, Jabil Map Jabil, & Mazdi Marzuki. (2015). Penilaian faktor institusi dalam menentukan kemampanan usahawan jerami padi. Retrieved April 1, 2019, from https://www.researchgate.net/publication/305470004_Penilaian_faktor_institusi_dalam_menentukan_kemampanan_usahawan_jerami_padi