

# Environmental Health Risk (ehra) Study in Batu Putih Village, Baturaja Barat District, Ogan Komering Ulu Regency

E K Sari<sup>1\*</sup>, E Yulistia<sup>2</sup>, Y E Putri<sup>3</sup>, Y Ermawati<sup>4</sup>  
{endaunbara@gmail.com}

<sup>1</sup>Doctoral Student of Environmental Science, Postgraduate Sriwijaya University, South Sumatera – 30139, Indonesia

<sup>2</sup>Environmental Engineering Study Program, Baturaja University, South Sumatera – 32100, Indonesia

<sup>1,3,4</sup>Civil Engineering Study Program, Baturaja University, South Sumatera – 32100, Indonesia

**Abstract.** Environmental health risk assessment (EHRA) is conducted in Batu Putih village, Baturaja Barat. Based on the 2018 EHRA data, Batu Putih village, Baturaja Barat district, is classified as a very high risk environmental health village. Very high risk villages are Kelurahan/villages that have high environmental health risk due to poor sanitation in the area. The EHRA conducted in Batu Putih village is based on the latest practical guidelines, the 2014 guidelines for conducting EHRA. the 2014 guidelines are different from the previous guidelines and cover waste management, sanitation, environmental drainage, drinking water management, and hygienic and sanitary behavior. The objective of this study was to determine the quality of environmental health and community behavior in Batu Putih village, Baturaja Barat district, Ogan Komering Ulu regency, using EHRA 2014. The results showed that household waste was not disposed properly and most of the waste was disposed by burning. No less than 73 percent of the respondents do not have private latrines and 47 percent of the respondents do not have sanitation facilities (SPAL). 100 percent of the respondents behave in a hygienic and sanitary manner by washing their hands with soap. The questions in the questionnaire and observation forms were guided by the five pillars of community-based sanitation (STBM) developed by the Indonesian Ministry of Health, and clean and healthy living behaviors (PHBS), including the practice of hand washing with soap (CTPS).

**Keyword:** Ehra Study, Batu Putih Village, Baturaja Barat District

## 1. Introduction

Under the Sustainable Development Goals (SGD Goal 6), many international policy documents and global commitments have emphasized improved sanitation and good hygiene practices to achieve sustainable economic growth for a better future. The importance of promoting good sanitation and hygiene practices is confirmed [1]

Environmental Health Risk Assessment (EHRA) is a participatory study in districts to understand the state of sanitation and hygiene and community behaviors at the household

level. The data generated from this study can be used to develop sanitation programs, including advocacy at the district/city level down to the village/village level [2]

High-risk villages are villages that have a high environmental health risk due to poor sanitation conditions in the region. Based on available information, high-risk villages have a high potential for disease occurrence.

Environmental risk analysis involves assessing the possibility of a risk occurring from an activity and determining the impact of the activity. In this study, qualitative and semi-quantitative methods were used in the analysis.

According to Nastiti et al (2020), the analysis of environmental health risks must be carried out for the environment that is polluted by human activities. People who are in a polluted environment are exposed to chemical pollutants that enter their bodies. The absorption of chemical compounds that are harmful to the environment into the human body can lead to health problems. To investigate how much potential harm is caused by chemical pollutants, an analysis of environmental health risks was conducted.

Batu Putih village, one of the three most populous wards in Ogan Komering Ulu district, is classified as a village with a very high environmental health risk based on 2018 Environmental Health Risk Assessment (EHRA) data

The Environmental Health Risk Assessment (EHRA) was conducted in Batu Putih village based on the latest EHRA implementation practice guidelines, i.e., the 2014 guidelines, which are different from the previous guidelines and cover household waste management, sanitation, environmental drainage, hygiene behavior, and sanitation facilities

The purpose of this study is to examine the quality of environmental health and community behavior in Batu Putih village using the 2014 Environmental Health Risk Assessment (EHRA) practical guidelines.

## **2. Research method**

The method used in this study was field survey or direct observation. The data required are primary and secondary data. The primary data is obtained through the distribution of EHRA questionnaires to the public and in-depth interviews. The questionnaire given to the respondents refers to the Ministry of Health of the Republic of Indonesia's Practical Environmental Health Risk Assessment Questionnaire of 2014. The data requested in the questionnaire are related to household waste handling, water disposal/sewage, environmental drainage, hygiene and sanitation behaviors of the respondents at the study site. Secondary data were obtained from BPS OKU (2019), OKU District Health Office and other official sources related to the research

The method of determining the target area of the survey is done geographically and demographically through a process called clustering. The results of this clustering can also be used as an early indication of a high-risk environment. Sampling is done randomly so that it conforms to the "probability sampling" rule, where all members of the population have an equal chance of being included in the sample. The sampling method used is "cluster random sampling". This technique is very suitable considering that the area of the data source under study is very large. The sampling is based on a predefined population area. The population is 729 heads of families (KK) and the number of samples to be studied is 258 heads of families. Data processing and analysis are described using tables and charts.

### 3. Result and discussion

#### 3.1. Respondent information

The respondents in this study live in Batu Putih village RT 01 and RT 02. The respondents are housewives or married daughters. From the survey, the largest percentage of respondents is between 36 and 40 years old, 24 percent. This indicates that the age of the respondents is sufficient to perform various household and sanitation activities. The data also show that the highest percentage of respondents has a high school degree (26.4%). The data of the two groups, age and education, are shown in Figure 1.

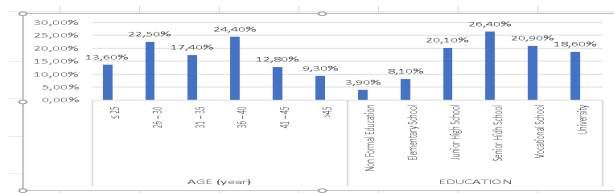


Figure 1. Group Data of Age and Education

The status of land and land ownership of the respondents are mostly owned, which is 53.10 percent, 29 percent are leased, 14.70 percent are under contract, and 17.80 percent are owned by parents/children/siblings (Figure 2). This shows that the house owned by the respondent is his own house, which must be maintained environment cleanliness and hygiene.



Figure 2. Status of Landownership

#### 3.2. Household waste management

Garbage is the remains of materials that are thrown away because they have no use. Good waste management prevents disease and damage to health, and the environment is protected. Poorly managed households can pose several risks to public health and the environment, including groundwater pollution, soil contamination with heavy metals, and the generation of greenhouse gas emissions and volatile organic compounds (VOCs) [5]. Most households dispose of their waste by burning it (54%), 14% throw it on undeveloped land, and 16% throw it in the river. Most people in the study site did not separate waste, estimated at 73%. The garbage found in the community is lumped together without further sorting.

The habit of littering is evidence that public awareness of its own health and environmental problems is still low. Polling places in inadequate regions make it difficult for residents to remove trash. As a result, garbage can accumulate. A small percentage of residents rely only on polling stations near Temple Market, which have limited capacity. Access to distant polling stations also results in residents being unwilling to dispose of their garbage at polling stations [6].

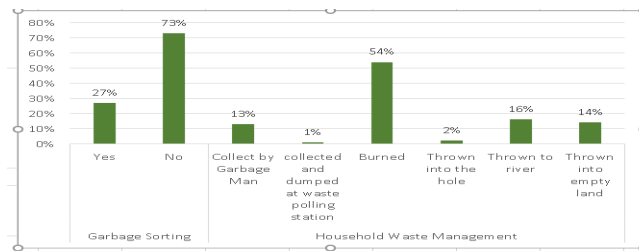


Figure 3. Household Waste Management

### 3.3. Disposal of dirty water/human fecal waste and drainage/sewage around homes

At the study site, sanitation infrastructure is not very good; only 27 percent of respondents have a private latrine, while 51 percent use public toilets. Although the respondents' residence is located on the banks of the Ogan River, only 21 percent of the respondents defecated into the river (see Figure 4)

According to the data, the condition of drainage and sewage disposal at the study site was quite good; only 47 percent of respondents had no sewers or drainage around the house, and 55 percent had good drainage. Environmental drainage and sewage disposal facilities (SPAL) can be seen in Figure 4. Respondents immediately discharge household wastewater into the yard, so the water immediately seeps into the soil. This situation causes the soil to become infertile because the soil texture has been polluted by household waste. The respondents also do not have a means of sewage disposal (SPAL). Wastewater from household activities such as bathing, cooking, and washing is thrown directly onto the ground, and the water usually seeps away immediately. Although most of the respondents did not have sewers, the settlements rarely flooded. Respondent settlements on the riverbank flood only once a year when the river floods, but the floodwater does not reach the residents' homes.

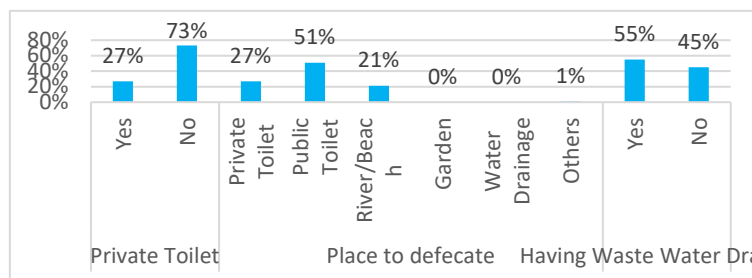


Figure 4. Water Disposal Management

### 3.4. Clean water source

To meet drinking water needs and for household activities such as cooking, respondents used well water and refilled water, representing 48%. Some used river water (32%). For cooking, most respondents used well water (52%), as shown in Figure 5. The condition of well water at the study site was not affected by drought. People can enjoy well water with abundant and good water quality. However, there are still people who use river water for drinking

needs. The poor condition of river water is very dangerous when it is used for drinking water needs. Good quality water is required for drinking and cooking, both in terms of physical and chemical quality of water [7].

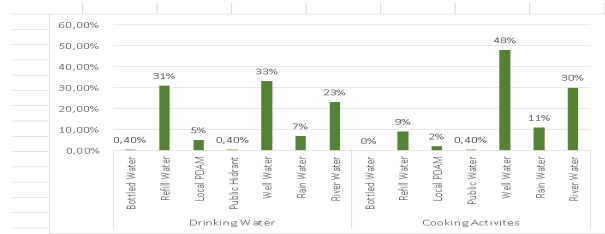


Figure 5. Water Source

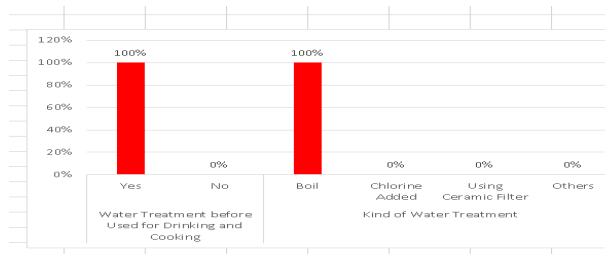


Figure 6. Water Treatment for Drinking and Cooking

Respondents' awareness of treating water before it is used for drinking and cooking is very good. 100% of the respondents treated the water first before using it for drinking and cooking, as shown in Figure 6. The respondents treated the water by boiling it. As many as 61 percent of the respondents keep the water in a closed barrel or container. Meanwhile, the water boiled by the respondents is put into a closed pot. The respondents use a dry ladle where their hands do not come in contact with the water when they want to draw water [8].

### 3.5. Hiegiene and sanitary behavior

According to Eksekutif et al (2013), Hiegiene is an effort to prevent the occurrence of diseases due to environmental conditions and to design environmental conditions to maintain environmental health. Sanitation is a culture of clean living that prevents people from direct contact with feces and other harmful substances in order to improve human health. Hygiene and sanitation are closely related to the effort to prevent disease in the community, which is the goal of public health and the environment [10].

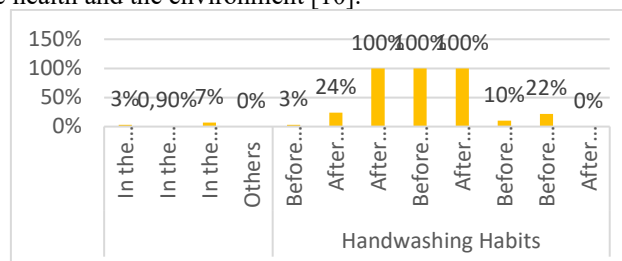


Figure 7. Place and Handwashing Habits

The Handwashing Program is a government program to change hygiene and sanitation behavior through a community-based approach, namely the Community-Based Total Sanitation approach. As shown in Figure 16, 100 percent of the respondents use soap in every activity in their daily lives. Soap is used by respondents for bathing, washing hands after daily chores, washing dishes and glasses, washing clothes, etc. The habit of washing hands with soap is practiced by 100 percent of respondents after defecation, before and after eating and before preparing food, as shown in Figure 7.

#### 4. Conclusion

The Environmental Health Risk Assessment (EHRA) is a participatory survey conducted at the district/town level to assess the condition of sanitation facilities and hygiene and community behavior at the household level. The results of the survey show that household waste is not disposed of properly, with most households burning their waste. 73 percent of respondents do not have personal latrines and 45 percent of respondents do not have a sanitation and wastewater disposal (SPAL) facility. 100 percent of respondents behave in a hygienic and sanitary manner by washing their hands with soap (CTPS). The content of the questions in the questionnaires and observation sheets is guided by the five pillars of community-based sanitation (STBM) developed by the Ministry of Health and clean and healthy living behaviors (PHBS), including the practice of hand washing with soap (CTPS).

#### References

- [1] A. Joshi and C. Amadi, "Impact of water, sanitation, and hygiene interventions on improving health outcomes among school children," *J. Environ. Public Health*, vol. 2013, 2013, doi: 10.1155/2013/984626.
- [2] R. Rauf, N. Nurdiana, M. Maryata, R. Rusiyati, and S. Suwandi, "Gambaran Pengelolaan Sampah Rumah Tangga Di Kabupaten Kudus Tahun 2016: Studi Ehra I," *J. Kesehat.*, vol. 9, no. 2, p. 1, 2017, doi: 10.23917/jurkes.v9i2.4595.
- [3] A. Nastiti, S. W. D. Kusumah, M. Marselina, K. Nursyafira, A. Monica, and D. Phan, "Environmental and Health Risk Assessment (Ehra) Approaches in the Strategic Environmental Risk Assessment (Sea): a Metaanalysis," *Indones. J. Urban Environ. Technol.*, vol. 4, no. 1, pp. 60–79, 2020, doi: 10.25105/urbanenvirotech.v4i1.7191.
- [4] B. P. Statistik, *OKU Dalam Angka*. 2019.
- [5] dan L. Sari, E. K., "Evaluasi Instalasi Pengolahan Air Lindi Komerling Ulu," *J. Deform.*, vol. 6, no. 1, pp. 33–41, 2021.
- [6] T. Alfiah and E. Yuliawati, "Analisis Resiko Kesehatan Lingkungan Udara Ambien Terhadap Pengguna Jalan Dan Masyarakat Sekitar Pada Ruas Jalan Ir. Sukarno Surabaya," *Infomatek*, vol. 20, no. 1, p. 27, 2018, doi: 10.23969/infomatek.v20i1.878.
- [7] E. Yulistia, S. Fauziyah, and H. Hermansyah, "Assessment of Ogan River Water Quality Kabupaten OKU SUMSEL by NSFQI Method," *Indones. J. Fundam. Appl. Chem.*, 2018, doi: 10.24845/ijfac.v3.i2.54.
- [8] C. D. Nounkeu et al., "Limited water access is associated with food insecurity and diarrheal episodes among children suffering from moderate acute malnutrition in Far-North Cameroon," *J. Water Sanit. Hyg. Dev.*, vol. 12, no. 1, pp. 68–79, 2022, doi: 10.2166/washdev.2021.171.
- [9] R. Eksekutif, M. Dan, and L. Studi, "Laporan Studi Environmental Health Risk Assessment ( Ehra )," pp. 1–42, 2013.
- [10] A. Wahyudi, "Page 310 of 6," *Penilai. Risiko Kesehat. Lingkung. Dengan Menggunakan Pendekatan Environ. Heal. Risk Assess. Di Kelurahan Kertapati*, vol. 8, no. September, pp. 310–

315, 2021, [Online].  
<http://ejournalmalahayati.ac.id/index.php/kesehatan/article/view/4294>.

Available: