

CHAPTER I

INTRODUCTION

1. 1. Background of the Problem

Law of the Republic of Indonesia number 24 of 2007 concerning Disaster Management explains that disasters are events that can endanger and disrupt people's lives and livelihoods. Disasters can be caused by nature, human factors, or other causes, and can result in casualties, environmental damage, property losses, and psychological impacts for victims affected by disasters.¹

Indonesia is a country that is prone to various types of natural disasters,. One of the disasters that needs serious attention is fires, because their impact can be felt very quickly. Fires can be divided into two main categories, namely natural disasters and disasters that occur in residential areas. Fires caused by natural factors, such as forest fires due to drought or volcanic eruptions, fall under the category of natural disasters. Meanwhile, fires in residential areas, buildings, means of transportation, and other facilities are included in the category of disasters that occur in residential areas. Fire is one of the disasters that has the potential to cause great losses, both material and fatal. Therefore, proper handling and serious disaster mitigation efforts are essential to minimize their impact. Fire prevention and management efforts need to be carried out by involving various parties, including the community, government, and related institutions, to reduce the risk of fires and their impacts.²

The National Fire Protection Association's (*NFPA*) *World Fire Statistics report* states that about 7 to 8 million people in the world have experienced

¹ "LAW OF THE REPUBLIC OF INDONESIA NUMBER 24 OF 2007,"

² Imtihan Syafi'i Ma'arif and Anjar Nurrohmah, "OVERVIEW OF KNOWLEDGE AND PREPAREDNESS OF STUDENTS IN DEALING WITH FIRE DISASTERS AT THE MTA GEMOLONG JUNIOR HIGH SCHOOL BOARDING SCHOOL," *Imlih Journal of Health Sciences* 1, no. 4 (2023).

fires, and 5 to 8 million people have had accidents due to fires. In 2023, there were 1,389,000 cases of fires in the United States that caused 3,670 deaths, 13,350 injuries, and significant property damage. According to data from the Indonesian Central Statistics Agency in 2023, there were 2,051 fire incidents.³⁴

The incidence of fires in East Java has increased in recent times. Based on data received by the SIGAP Satpol PP Command Center of East Java Province, from January to August 2023 there were 2,502 fires recorded in 38 districts/cities in East Java. A significant increase occurred in August, with the number of incidents reaching 913 cases, an increase of 70% compared to July which only recorded 537 incidents. Most of these fires are caused by human negligence, such as LPG cylinder leaks (12.3%), electrical short circuits (17.1%), and other factors such as cigarette butts, lightning strikes, and other flammable materials (70.6%).⁵

Islamic boarding schools are educational institutions that have a potential fire risk, because activities there use various tools and materials to support the teaching and learning process, as well as energy sources that can be dangerous. Energy sources such as electricity, LPG gas, and flammable scout equipment such as tents and scout sticks can cause fires if not properly arranged and managed.⁶

³ <https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports/fire-loss-in-the-united-states>

⁴ <https://www.bps.go.id/id/statistics-table/3/TUZaMGVteFVjSEJ4T1RCMIlyRjRTazVvVDJocVFUMDkjMw==/jumlah-kejadian-bencana-alam-menurut-provinsi--2023.html?year=2023>

⁵ East Java Update, "Beware of Fires in East Java, Throughout 2023 Has Exceeded 2022," East Java Update, December 1, 2024, <https://jatimupdate.id/baca-5276-waspada-kebakaran-di-jatim-sepanjang-2023-sudah-melebihi-2022..>

⁶ Nuraida and Prajayanti, Overview of the Level of Preparedness of Students in Dealing with Fire Disasters at the Bina Insani Islamic Boarding School in Salatiga City 2024

⁷Some of the cases that occurred at the pesantren include a fire case that occurred at the al iman putra Islamic boarding school in 2017 which was caused by a gas leak that burned the students' kitchen. The fire that occurred at the Darussalam Gontor 2 modern pond occurred in 2020, which burned down the scout equipment storage warehouse. And the fire that occurred at the central Darussalam Gontor modern boarding school that occurred in 2024 which burned the student canteen building. There were no casualties in this case but the loss reached Rp 300 million.⁸⁹

The emergency response system is an important thing for every building, especially for buildings used for learning such as those in Islamic boarding schools. If the pesantren does not have an emergency response system, it tends to be vulnerable to various potential risks that can endanger the safety of students and pesantren managers. Without a good emergency response system, Islamic boarding schools may find it difficult to respond quickly and effectively when a disaster occurs, especially for fires.

Law No. 1 of 1970 concerning Occupational Safety regulates the obligation of employers to provide safety signs to protect people from potential dangers. Employers are required to put up clear and easy-to-understand safety signs, such as warnings, prohibitions, or mandatory instructions, so that others can follow safety procedures appropriately. In addition, students are also required to comply with existing safety signs in order to reduce the risk of accidents and ensure safety in the work environment. This law also emphasizes that employers must provide safety training, including how to understand and respond to safety signs, in order to create a safe workplace and according to

⁷ "Ponorogo Fire: Gas Stove Explodes, Al-Iman Islamic Boarding School Burns," Espos, December 1, 2024, <https://regional.espos.id/kebakaran-ponorogo-kompas-gas-meledak-ponpes-al-iman-terbakar-833495>.

⁸ Espos, "Pondok Gontor Ponorogo Burned," Espos, December 1, 2024, <https://regional.espos.id/pondok-gontor-ponorogo-terbakar-1042886>.

⁹ RRI, "Gontor Ponorogo Boarding School Canteen Burns, Suspected of Electrical Short Circuit," RRI, December 1, 2024, <https://www.rri.co.id/daerah/876102/kantin-ponpes-gontor-ponorogo-terbakar-diduga-korsleting-listrik>.

applicable safety standards. (Law No. 1 of 1970)¹⁰

Pondok Modern Darussalam Gontor 2 is located in Madusari village, Siman district, Ponorogo regency, East Java. which occupies a land area of \pm 10 hectares is an educational institution which requires its students to live in the dormitory as a way to educate its students, and for the residents themselves there are around \pm 300 while after making initial observations the safety sign at this boarding school is somewhat inadequate and it is necessary to design a safety sign at the modern boarding school gontor 2.

Because of the importance of emergency response in the Islamic boarding school and remembering that there was a fire at the Gontor 2 Islamic boarding school. This study aims to research the emergency response system in Pondok Modern Darussalam Gontor and design a safety sign using *safety sign assessment* at Pondok Modern Darussalam Gontor 2.

1. 2. Problem Formulation

How is the design of Safety Signs (Assembly Point, Exit sign and Evacuation Route) based on the assessment in PMDG Madusari Ponorogo?

1. 3. Research Objectives

Designing a safety sign at Pondok Modern Darussalam Gontor 2
Ponorogo

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¹⁰ "LAW OF THE REPUBLIC OF INDONESIA NUMBER 24 OF 2007,"

1. 4. Research Benefits

1. Theoretical Benefits

Through this scientific writing, it is hoped that it will contribute ideas to the development of science and insight into the emergency response system and its application.

2. Practical Benefits

Increase students' awareness of the importance of the emergency response system and increase knowledge about emergency response in order to minimize or even eliminate casualties in the event of a disaster.



1.5. Originality of Research

Research related to safety signs in Islamic boarding schools has been carried out with different purposes and intentions, such as the following studies:

Table 1 Previous Research

It	Research Title	Research Methods	Variable	Result	Research Differences
1	Evaluation of the Implementation of Evacuation Routes and Assembly Points in the Multi-storey Building of Roudlotul Mubtadiin Balekambang Vocational High School (SMK) Achmad Faruk 2018 ¹¹	Descriptive	Evacuation routes and assembly points.	The evacuation route has been completed but there are still those that have not been adjusted	The researcher discussed the safety sign, the location of the researcher at the Islamic boarding school. And designing safety signs
2	Designing Safety Signs Using Safety Signs Assessment t to Control Occupational Safety and Health Risks at PT. XYZ Hamidi S 2022 ¹²	Descriptive.	Safety sign asesment Quality fungtium deployment	Designing multiple emergency response systems	The researcher discussed the safety sign, the location of the researcher at the Islamic boarding school.

¹¹ Achmat Faruk, Evaluation of the Implementation of Evacuation Routes and Assembly Points in the Multi-Storey Building of Roudlotul Mubtadiin Balekambang Vocational High School (SMK)," 2018.

¹² Shakila Hamidi, Heriyono Lalu, and Sheila Amalia Salma, "Designing Safety Signs Using Safety Signs Assessment and Quality Function Deployment Approach to Control Occupational Safety and Health Risks at PT. XYZ," Scientific Journal of Wahana Pendidikan 8, no. 17 (2022): 449–64, <https://doi.org/10.5281/zenodo.7080469>.

It	Research Title	Research Methods	Variable	Result	Research Differences
3	Installation of Safety Signs and Safety Education in Elementary Schools as an Effort to Prepare for Emergency Conditions	Qualitative descriptive	Student knowledge and safety signs	Some points have been fulfilled well by the company and there are some that are still not	Without using quality function deployment This research discusses safety signs only. And there are outputs in the form of evacuation route plans and posters instructing what to do

Wahyuni I 2023¹³

¹³ Risa Milanis and Bandung State Polytechnic, "MAKING AN EMERGENCY RESPONSE PLAN MANUAL IN THE HANGAR ENVIRONMENT OF THE AERONAUTICAL ENGINEERING STUDY PROGRAM," 2022, <https://www.researchgate.net/publication/362067456>.