



Management and Environmental Safety from Fire Disasters in a Fire Response Village Model

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<http://dx.doi.org/10.18415/ijmmu.v7i10.2220>

Abstract

One of the causes of the fire disaster is the density of the population which causes social and economic damage. For this reason, studies are needed to detect potential disasters from an early age. Disaster management models and systems need to be created and developed to overcome the fire disaster in the village of Jambangan Surabaya. This study focuses on how the regulation and community awareness model against fire disasters can create a good environment. The method used is descriptive analytical method and a multi-disciplinary approach by applying a comparative legal approach and case studies as well as appropriate technology based on social engineering designs that are used to analyze all the implementation of environmental structuring policies and public awareness by maximizing the potential of human and natural resources. The results of the study found that the community awareness model with the title fire response village was able to make the community adaptive and responsive in facing potential fires, disaster management and post-fire recovery.

Keywords: *Social Engineering; Responsive Village; Fire Education*

Introduction

Fire disasters have a bad impact on life not only for humans but also property and damage to the ecosystem that has occurred in Jambangan Village, Surabaya City. Fire disaster can occur in industrial environments, offices, and densely populated settlements.[1] Awareness of a disaster should be had from an early age. So that education is needed about disaster response. In this study, fire disaster can cause panic, causing both adults and children to die. Everything happened because of very low readiness in facing disasters.[2] This will be different if from an early age they are given education on how to deal with emergency situations. So that children are better prepared and able to do things that can be done for early prevention.[3]

Several regulations are very important because to ensure certainty and regulate a life, rules are needed to be orderly and orderly. Law of the Republic of Indonesia Number 32 of 2009 concerning Environmental Protection and Management is of course the basis that the environment needs to be

preserved for the survival and welfare of humans and other living things. Survival is also closely correlated with activities to harmonize the relationship of values outlined in the law itself.[4] Other statutory regulations besides Law of the Republic of Indonesia Number 32 of 2009 concerning Protection and Management of the Environment are Law of the Republic of Indonesia Number 1 of 2011 concerning Housing and Settlement Areas where Article 2 states that housing and settlements must be carried out on the basis of welfare, harmony, balance safety and so on. Of course the mission is contained in this law so that community residential areas are truly feasible and safe for human life.[5] However, due to greed and lack of awareness, the environment has become damage[6] and it has even resulted in several secondary disasters which all occur due to human activity, one of which is the frequent fire disasters. Fire disasters are of global concern as an environmental and economic problem.[7] Apart from things that cannot be done sustainably to stop fires.[8]

Fires in residential areas often occur in densely populated settlements. The problem of population density, especially in big cities, is a problem that cannot be easily resolved.[9] In addition, the problem of population density which has various human characteristics is also a problem that cannot be easily resolved because the arrival of residents with various backgrounds sometimes creates a village condition that seems irregular (wild) so that it's difficult to regulate and the level of concern for the environment is very low. The entire backgrounds has catastrophic consequences. The attitude of the community that doesn't care about the environment has an impact if a disaster occurs.[9]

The role of social media is very decisive in providing correct information including information on natural disasters that don't provide information so as to provide good legal accountability.[10] Provision of information is often mixed with incompatible information and provides a biased legal interpretation.[11] Disaster management organizational problems will determine the achievement of a good environment. Many models are used in making environmental-based legal organizations, but these organizations are often ignored and ignored by the government.[12]

This study discusses the idea of a fire response village model. By working with the villages in Jambangan Village which are densely populated and have the potential for human and natural resources. This fire response village involves community leaders and maximizes the potential of river water to be used in fire fighting. The implementation of social engineering is that the people of Jambangan Village can be adaptive to fire disasters, both understanding the potential for fires, when they occur and after fires to minimize the impact of fires.[13]

Research Method

The method used in this study is a descriptive analytical method[14] and a multi-disciplinary approach by applying a comparative legal approach[15] and case studies and appropriate technology based on social engineering,[16] all of these methods are used to analyze and measure the implementation of environmental structuring policy models[17] and public awareness in overcoming fire disaster[18].

Research Results and Discussion

This study makes a concept of thinking that a disaster management program needs to be developed and structured systematically so that fire disaster management can achieve maximum results. The location of the area was selected and several respondents were interviewed in order to achieve a model that is good and suitable for use as fire disaster management that can be used to repair damaged environments environmental management and fire response models were chosen to overcome fire disasters which of course can be changed in a new model in environmental management it can even become a bid / strategy to become a pilot village or a tourism village.[19]

Fire Response Village Strategies and Models

Profil Jambangan Village is located at Jl. Jambangan Gg X, RT 05, RW 03, Jambangan Village, Jambangan District Surabaya City (Fire occurred during the fasting year of 2019).



Figure 1: Fire in the Village of Jambangan

From the results of the survey and interviews with the RT Head, the problems faced were the lack of knowledge of the community members before the fire occurred (efforts to minimize the possibility of a fire), at the time of fire (what to do when a fire occurred so as to minimize the impact) and after a fire (recovery efforts from various fields). Then, the second result is the lack of infrastructure to extinguish the fire so that when a fire occurs the residents extinguish the fire with makeshift equipment while waiting for help from the fire department.[20] Starting from these problems, various attempts were made to create a fire response village model:

1. Increase the knowledge and skills of the community to become a pre-fire response community through education activities and book creation[21].



Figure 2: Educational Activities for the Community and Making a Fire Response Pocket Book

2. Maximizing the potential in the location and supporting facilities and infrastructure by procuring megaphones, kentongan and whatsapp groups for fire response villages as a medium of communication as well as nozzle hoses, fire extinguishers and portable pumps to suck river water to extinguish fires. With the potential of the Jambangan Village area which is on the riverbank, it has free water access to extinguish fires. So that the response to fire fighting is faster before the losses get bigger.



Figure 3: Procurement of Supporting Facilities and Infrastructure

3. Making partner villages as pillot villages with disaster themes in Surabaya, namely Fire Response Villages



Figure 4: Establishment of Fire Response Villages Arrangement of Environment Areas Is Not Only Beneficial for the Environment But Also Brings Economic Value[22]

Fire Respon Village Challenges

The challenge faced is that people don't have the skills to use APAR and portable pumps.[23] Collaboration with universities in Jambangan village is felt to be very important considering that cooperation and partnership in developing cooperation cannot be done alone but involves all aspects and must include all elements and stakeholders of the private sector in the government sector because the application of the collaboration concept will certainly support the achievement of a disaster management model.[24] So that in collaboration with the Jambangan Fire Service and Kopana Pertamina Surabaya as sources in the fire simulation.



Figure 5: Fire Simulation Activities by Resource Persons and Residents

Environmental sustainability is also the social responsibility of private companies that are part of corporate legal responsibility, which of course can help improve the environment, especially in densely populated and poor areas.[25] This is in line with the meaning of law enforcement in the context of settlement law where open space will increase the potential for safety.[26]

Result of Field Finding

After the education was held, the measurement of the success of education was through filling out a questionnaire. From the results of the questionnaire filled in by the Jambangan village community, the results are as in the following diagram.

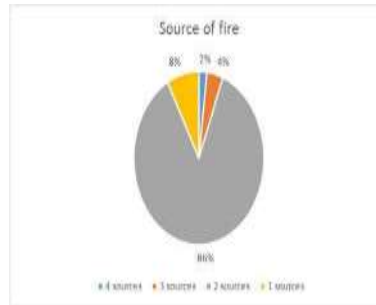


Figure 6: Before to Education on the Causes of Fire

In the questionnaire, questions were given in the form of essays on what causes the fire, before the education was carried out the most people answered 4 causes, namely 2% and 2 causes, 86%.

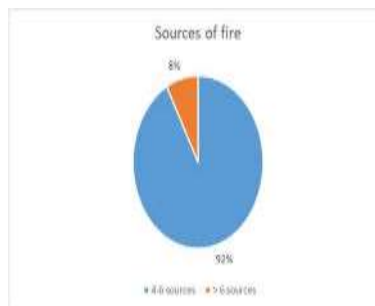


Figure 7: After to Education on the Causes of Fire

After education, 92% of the people were able to explain more than 6 causes of fires. This shows that there is an increase in community knowledge of the source of the fire. On average they don't realize trivial things such as taking too long to charge their cellphones, not turning off cigarette butts when throwing away, improper placement of mosquito repellents which can cause a potential fire. Regulation of the Government of the Republic of Indonesia Number 109 of 2012 concerning Safeguarding of Materials Containing Addictive Substances in Tobacco Products for Health are related to the provisions of a Health Warning (pictorial health warning) which requires the installation of a health warning image of 40% of the cigarette packaging area which isn't very significant in controlling production and cigarette consumption.[27]

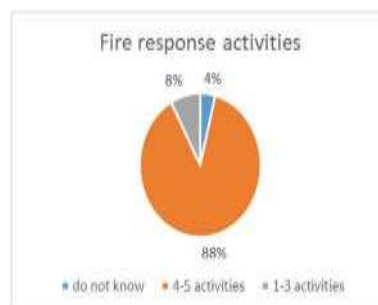


Figure 8: Prior to Education on Fire Response Activities

Before the fire response education was carried out, 4% of respondents couldn't answer while 88% of respondents could explain 4-5 what activities were carried out to minimize the risks caused by a fire.

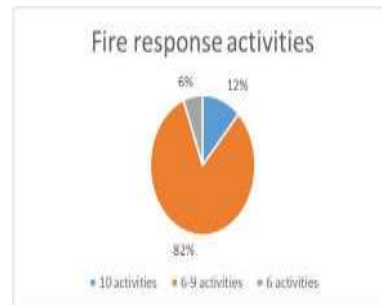


Figure 9: After Education on fire Response Activities

However, after being given education, the majority of 82% were able to answer 6-9 activities. Some even answered 10 activities, reaching 12%. This shows an increase in community knowledge of fire response activities, namely what they must do to accelerate fire fighting efforts and minimize the risks they cause.

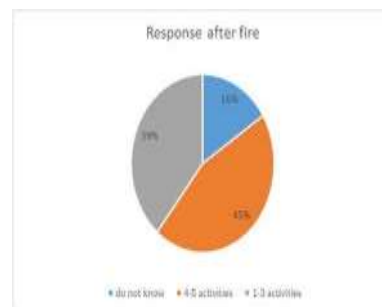


Figure 10: After Education on Post-Fire Response Activities

Post fire response activities are activities that aren't widely known by respondents. This is shown by the pre-education questionnaire that 45% could only answer 1 activity, namely providing assistance, while 39% could only answer 1-2 activities, namely providing assistance and rescuing victims. The remaining 16% don't know.

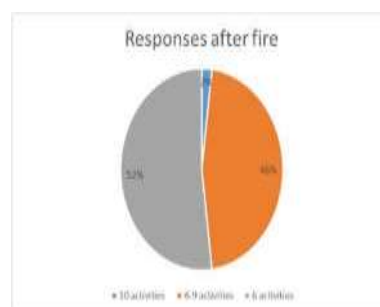


Figure 11: After Education on Post-Fire Response Activities

However, in the post-education questionnaire there was an increase of 46% answering 6-9 activities and 52% answering 3-5 activities. Some even answered 2% of the response activities after the fire. This indicates an increase in community knowledge of post-fire response activities, namely what they should do after an incident to be maximized in post-disaster recovery. Legal education is also achieved because of the accountability of every legal subject in society.[28] Protection of legal subjects also makes the existence of Law of the Republic of Indonesia Number 1 of 2011 concerning Housing and Settlement Areas to be applied properly.[29] So it is necessary to develop a legal system for environmental

protection and management that is clear, firm, and comprehensive in order to guarantee legal certainty. [30] Noting also the Law of the Republic of Indonesia Number 29 of 2014 concerning Inquiry and Assistance, which states that the state is responsible for carrying out search and rescue.[31]

Community skills for fire response cannot be measured through questionnaires, so direct observations and interviews are carried out in the field of community representatives who participate in fire simulations.[32] Field observations show that the public can check the condition of LPG before use, can check and operate the regulator properly, can extinguish a fire when a fire occurs in the hose / regulator, can extinguish a fire that burns furniture (simulated on a drum) and can use a fire extinguisher Light. So that in terms of knowledge and skills, the people of Jambangan Village have experienced an increase in dealing with fire disasters.[33]

Conclusion

Public perception and public awareness of fire disasters are highly correlated with environmental sustainability and reducing the impact of large losses. From the results of the questionnaire there was an increase in public awareness. The increase in knowledge was marked by the increase in answers to the questions in the Post questionnaire compared to the PRA questionnaire related to fire disasters, causes of fire disasters and pre-fire response, fire response and post-fire response. Skills improvement is indicated by six things that can be done by the community, as previously discussed, starting from checking LPG to extinguishing the fire using a fire pump.

Acknowledgement

Researchers would like to express their deepest gratitude to LLDIKTI for providing support and granting of funds through the Directorate of Research and Community Service (DRPM) Budget for 2019-2020.

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