



## Research Article

# Management Of Personal Protective Equipment (PPE) Fire Extinguisher In Fire Fighting Officials In Jember Regency

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## ABSTRACT

In their work, firefighters have a great risk of danger and require PPE in their work. However, the reality in the field of PPE management is still not well implemented. This happens because the facilities provided by the local government of Kabupaten Jember are not maximal and the availability of PPE is not in accordance with the standard. The purpose of this study was to assess the management of personal protective equipment for fire fighters at the Fire Department Jember. This research is descriptive and used a qualitative approach. This research conducted at the fire fighter department Jember Regency with the informants are the head of potential development of Satpol PP, members of the fire team, and the head of the fire fighter team. The results showed that PPE management is still not running optimally. The PPE identification process carried out only when a fire incident occurs; some of the PPE they have is still not up to standard; PPE training has never been conducted by the Ministry of Home Affairs; PPE storage is still not suitable; does not carry out the PPE disposal and destruction process; PPE guidance is only carried out orally; the implementation of PPE inspections by the Satpol PP is held regularly and suddenly; as well as in the evaluation process carried out informally. Suggestion that can be recommended is that it is necessary to carry out a comprehensive PPE management processing in accordance with the aspects inside.

**Keywords:** Fire Fighter, management, PPE

## INTRODUCTION

Fire is a chemical reaction between fuel and oxygen from the air with the help of a heat source. The three elements of fire are known as the fire triangle. In handling fires, officers are needed to save lives, property and all threats of fire that occur. The profession in charge of dealing with fires in each area is firefighters. According to Suma'mur (1995:105) the number of firefighter accidents occurs very high. Accidents can occur during firefighting moments, when leaving for the fire scene, or returning home from the task of extinguishing the fire.



Based on data from the International Labour Organization (ILO) in 2018, the number of deaths of workers who die due to work accidents or occupational diseases is around 2.4 million deaths per year and work accidents 0.38 million deaths per year and there are around 374 million cases of injuries and diseases due to accidents According to BPJS *Ketenagakerjaan* in 2015-2018 the number of work accident cases in Indonesia in order is 110,285 cases, 101,367, 123,041, and 173,105 cases. Based on data from the East Java Disnakertrans in 2017, the number of work accident cases was recorded at 21,631 cases and an increase of around 200 cases compared to 2016.

There are five control hierarchies in occupational Health and Safety management, including: Elimination, substitution, technical control, administrative control, and personal protective equipment (Djatkiko, 2016: 62). Companies rarely do not even use elimination control, substitution and engineering control due to cost factors and technical factors (Tarwaka, 2017:102). Similarly, administrative control is highly dependent on workers and requires continuous supervision activities, this is what causes this fourth stage of control hierarchy to be less desirable (Tarsial, 2015:55). Therefore, a final level of hazard control hierarchy is needed, namely the provision of personal protective equipment to workers. Based on the Regulation of the Minister of Manpower and Transmigration of the Republic of Indonesia number 08 / MEN / VII / 2010 concerning PPE, PPE is a protective equipment whose function is to isolate part or all of the body from potential hazards in the workplace. PPE management must be carried out by the company and used as the focus of attention in its implementation. Evaluation of PPE management is carried out as one aspect of occupational Health and Safety management in knowing and assessing the extent of the process of implementing PPE management in the workplace. However, the results of research from Rizky (2019: 74) stated the reason why workers in the coal handing section of PT PJB Paiton Generation Unit do not use Personal Protective Equipment in the form of glasses and ear protection (safety goggles and ear plugs) because the PPE can interfere with communication while working and can reduce the level of hearing sensitivity.

The Technical Implementation Unit of the Jember Regency Fire Department is a firefighting agency that has the task of enforcing government regulations in its working area as prevention, emergency response, management and rescue of fire disasters in Jember Regency. According to the results of observations made on November 13, 2019, the Jember Regency fire department still does not have a PPE storage rack. All PPE is only stored in a simple and irregular storefront. In addition, firefighters have so far only carried out reporting related to the amount of PPE availability and evaluation of the performance of firefighters. Based on the background description above, this research needs to be carried out so that there is no impact of work accidents or occupational diseases that occur to firefighters. This is in accordance with Suma'mur 1995 the types of accidents that occur to firefighters in the form of muscle sprain, fatigue, shaved wounds, burns, and so on. Another danger that can occur is cardiovascular and respiratory diseases. This often happens because the air state at work is very full of smoke. The causes of firefighters' work accidents include the incorrect use of extinguishers, unsafe fire objects, improper and incomplete use of PPE, and other causes. The general purpose of this study is to examine the management of personal protective equipment in Firefighters in the Jember Regency Fire Department.

## **METHODS**

This type of research was descriptive and used a qualitative approach. The data collected in this study was in the form of fire data from Jember regency; the number of fire fighter

personnel; availability of PPE and aspects in PPE management used by fire fighters. This research conducted at the Fire Department of Jember Regency.

This study involved several informants including, key informants (totaling 1), main (numbering 12), and additional (numbering 2). For the key informant is the Head of civil service police, the main informant is a member of the Jember Regency fire fighter squad, and for additional informants was the head of the Jember Regency fire fighter squad. The focus of research were on 8 aspects in PPE Management in accordance with the Regulation of the Minister of Manpower and Transmigration of the Republic of Indonesia Number 8 of 2010

The primary data in this study are observation and interview data related to eight aspects of management ranging from identifying PPE needs and requirements to evaluation and reporting. Data on fire cases in Jember regency, the number of firefighting personnel and the availability of PPE at the Jember Regency Fire Department Unit were secondary data needed in this study.

This research conducted in October 2019 - June 2020. The stages of analysis to process the data were data transfer, data *coding*, data reduction, data presentation, as well as drawing conclusions and verification.

## **RESULTS AND DISCUSSION**

### **Identification of PPE Needs and Requirements**

#### **a. Identify Potential Hazards**

According to Tarwaka (2017: 267) the identification of potential hazards is something that can be done in the process of recognizing all circumstances or events that have the potential to cause accidents and occupational diseases that may arise in the workplace. The first step in eliminating, reducing, and controlling hazards is to identify potential hazards that exist in the workplace. Identification of potential hazards is carried out in advance to adjust the needs of PPE to the type of hazard and the type of work. The process of identifying potential hazards in the Jember Regency Fire Department Unit first began when the position of firefighters was still in the mako (command headquarters) and after getting news from the whistleblower of the fire and reports of disasters. This identification is carried out aimed at knowing potential hazards, for example, building fires, the potential dangers that may occur are the fall of foreign objects, the condition of the room surrounded by smoke, and so on so that firefighters must adjust the potential fire hazard to the needs of PPE. PPE that must be used in the case of such fires is the presence of SCBA and extinguishing masks.

The process of identifying potential hazards carried out at the Fire Department of Jember Regency is only carried out at the time of a fire incident. This process is not included in the entire process of identifying potential hazards in the workplace, but only enters into part of one of the processes of identifying potential hazards in the workplace. So, no identification of potential hazards will be carried out if there is no fire

#### **b. Identification of PPE Needs**

According to Dwiastuti (2015: 655) Several things need to be considered in identifying PPE in terms of: the type and form of PPE, the quality and quantity of PPE, and the amount of PPE adjusted to the number of officers. identification of the amount of PPE in the Jember Regency Fire Department Unit is to adjust the number of firefighters. In each squad there are about 9-10 members. Every member of the firefighters starting from the head of the squad, members and even drivers are required to use PPE that has been arranged by the Ministry of Home Affairs No. 122

of 2018. Among them are: heat-resistant jackets, fireproof jackets, rescue workers' helmets, firefighters' helmets, firefighting goggles, firefighting masks, head hoods, firefighter gloves, personnel camps, and fire shoes.

Identifying the need for PPE in the Jember Regency Fire Department Unit is to look at the number of firefighter personnel. However, the existing number does not match the number of personnel due to budget constraints from the party in charge of this department, namely the Civil Service Police Unit. The reason for the unfulfilled availability of PPE is because the Fire Department does not stand as its own institution.

### **c. Identification of PPE Requirements**

Fire Department uses the PPE requirements listed in the Ministry of Home Affairs Regulation No. 13 of 2019. The regulation contains the requirements and uses of PPE used by firefighters. However, the state of PPE in the Fire Department is still not in accordance with these regulations. Each personal protective equipment has requirements that are set according to its type and function. The PPE selected must be in accordance with the type of hazard or type of work activity carried out, so that the PPE used can maximally protect workers from exposure in the workplace. Based on the occupational Health and Safety operational guidelines, the PPE requirements used in the Jember Regency Fire Department Unit have not met the PPE requirements according to their type and function in accordance with the Indonesian Permenakertrans no. 8 of 2010, but for the suitability of the number of workers and the amount of PPE available is still not fulfilled optimally.

PPE in the form of *fire jackets*, SCBA, rescue helmets, and extinguishing goggles is not in accordance with the specified conditions due to the state of PPE that is not up to standard. According to Astuti (2016: 655) the impact caused by the use of PPE that is not up to standard will cause the accident rate in the workplace to be higher and interfere with the health of workers.

## **2. PPE Selection**

### **a. Establishment of PPE Standards**

According to Tarwaka (2017: 286) one of the aspects that must be considered in the selection of PPE is the psychological aspect. This aspect is related to the convenience of using PPE and does not pose additional danger to the wearer. Use according to applicable regulations (standart), not disturbing the course of work, protecting workers from potential dangers faced in the workplace are some examples of criteria that must be met in the workplace. If it is not implemented, it will have an impact on users, for example, it can harm the workforce and pose a high risk. The impact has been experienced by firefighters because the PPE used is not appropriate.

Jember Regency Fire Department the application of PPE *fire jacket* is still not up to standard. This is due to budget constraints and the realization of submissions that are not in line with expectations. The availability of PPE other than *fire jackets* is also still insufficient according to the number of personnel in the mako and the standardization of each PPE as much as 75% of the existing PPE has met the standards. Personnel from firefighters still put safety first at work, although non-standard still wear rather than not wearing protective gear at all. This agency also purchases PPE in a place that is usually used as a PPE purchase center by other firefighting agencies.

### **b. PPE Quality Check**

The *crosscheck* process by comparing the conditions and criteria of PPE according to the requested standards is the PPE quality inspection process. The PPE quality inspection process is carried out by the squad commander and is carried out when the goods have arrived at the office. If

the PPE is not in accordance with the standards and the original agreement, the PPE will be returned to the *supplier*. This tool must be able to provide strong protection against physical hazards as well as hazards faced by workers. The tool also does not cause excessive discomfort, must be flexible to wear, does not pose additional hazards to the wearer due to improper or incorrect shape in use, must comply with existing standards, and does not restrict the wearer's movements.

Jember Regency Fire Department conducted a PPE quality check when the goods first arrived at the head of the squad. As one example, the *brand* of heat-resistant clothing commonly used by Fire Department is "Nomex IKA 6 or". This is so that the PPE used is in accordance with standards and comfortable if used. These results are supported by Diana's research, 2003 that the quality and quality of PPE determines the severity of an accident and occupational disease, the lower the quality of personal protective equipment, the higher the severity of accidents or occupational diseases that occur.

### **3. PPE Training**

Training is a learning process that deepens knowledge, abilities, regulations or changes behavior to improve work performance. This aims to be aware of the importance of using PPE, so that it is effective and correct in its use. Special training on PPE has been conducted at the Jember Regency Fire Department Unit personally from the instasni itself, wrapped in basic training. This training is held by the Fire Department itself upon acceptance of new workers. In attending the training, it must be in accordance with the agreed terms. This is because the Fire Department is still under the auspices of the PP police, where all policies and rules must comply with the PP police. This policy has been agreed upon by all parties of satpol PP and firefighters throughout Indonesia under the guidance of the Ministry of Home Affairs According to satpol PP, there are several procedures that must be followed when attending a training, including training must be held by the Minister of Home Affairs and then the invitation letter is delegated to the Provincial level. The part responsible in this case is the Director General of Regional Administration. Next after receiving a letter from the Minister of Home Affairs, the province distributes it to firefighting agencies in each regency/city, and the last every agency responsible for the scope of the fire (Satpol PP) has received, it will be dispatched and a special budget has been provided for this training .

This is supported by Dwiastuti's research, 2015 that the urgency of training carried out in PPE management to train new workers, but also for the development of performance and work environment according to the development of new technology and science, it is necessary to update the training needed.

### **4. Use, Care, and Storage of PPE**

The availability of PPE is still inadequate, not in accordance with the number of firefighter personnel, and the lack of budget causes the use of PPE in the Jember Regency Fire Department to use alternating systems. This can be done because the work system at the Jember Regency Fire Department Unit uses a 2-squad *shift* system. Each squad has to work for 24 hours and have a day off for 24 hours. This is done continuously. The condition of the cupboard at the Fire Department is still not in accordance with the standards, because one mako only has 2 cupboards made of iron. This cupboard is intended for each squad, yaitru of team A and squad B. In addition, the use of PPE is also adjusted to the potential dangers that exist.

In addition to the use of PPE, PPE care is also very important to pay attention to. This is because personal protective equipment can experience a gradual decline in function caused by daily

use or due to extreme conditions in the field, therefore maintenance must be carried out carefully. Personal protective equipment must receive regular care, meaning that all PPE must be maintained to be durable because it will be used continuously during work or in a work environment (Light, 2019: 98).

Regarding PPE maintenance at the Fire Department, there are still no specific guidelines on how to properly care for PPE. The way PPE treatment is done so far is the same as the way the treatment is done on ordinary clothes. For other PPE, treatment is carried out by checking every day to see the condition of the PPE before it is used to extinguish the fire.

According to Dwiastuti (2015:658) good and correct storage should be stored in a special place that avoids dust, dirt, toxic gases, and animal bites, a storage place that is dry and easy to pick up. However, in the Jember Regency Fire Department, it is still not in accordance with a good storage area. A good and correct storage standard is that each personnel is required to have 1 locker or cupboard to store 13 types of PPE. Based on the results of observations that have been carried out by oeh penliti, the PPE storage area at the Jember Regency Fire Department Unit is still not good. This is because the *fire jacket* storage area is still made into one in the blue cupboard with placement on each crackle. For *safety helmets*, HT, masks, gloves are made into one in the display case with an untidy arrangement. As for the SCBA, it is located under the operator's table.

## **5. Administration, Disposal, and Destruction of PPE**

Disposal and destruction of PPE is carried out if the PPE has been damaged, cracked or cannot function properly. Personal protective equipment that has expired and contains hazardous materials must be destroyed and equipped with news of the ppe destruction event. Criteria for PPE that has been damaged and unfit for use include PPE that is torn, translucent, broken, cracked, and broken ropes. If the PPE is damaged and is no longer suitable for use, the worker immediately applies for the replacement of the new PPE to the OCCUPATIONAL HEALTH AND SAFETY. The Jember Regency Fire Department has never carried out the destruction or disposal of PPE. During this time, it was only stacked and placed in cupboards and warehouses.

The Jember Regency Fire Department did not destroy PPE. There are several things that are done in handling PPE that has been damaged, including, stacked in cupboards and warehouses then used as evidence to the PP police as well as submission of new PPE procurement submission files and reused by personnel due to unmet availability of PPE.

## **6. PPE Coaching**

One form of occupational safety services is to carry out guidance and monitoring of compliance with the use of safety equipment and personal protective equipment. PPE coaching is an effort made to increase awareness and insight of workers / employees regarding the importance of using PPE. Types of coaching vary, for example, counseling training, technical guidance, consultation meetings, and others. Coaching is carried out by experts and can be carried out by the head of the fire agency or the squad commander within the agency.

In the Jember Regency Fire Department, there has been no socialization in any form about PPE for communication media. In addition to the type of training, coaching is more often carried out by the squad chief through verbal appeals, for example related to the use of PPE to firefighter personnel.

## 7. PPE Inspection

An effective OCCUPATIONAL HEALTH AND SAFETY inspection program is a program that aims to ensure that the work environment is always safe, healthy, and safe. According to Tarwaka (2017:206) the inspection system must be planned and discussed jointly between the management and the workers' representatives. Thus the inspection system will be able to run effectively because it is supported by both parties. Inspection itself is divided into 2, namely general and special inspections. General inspections are inspections that are carried out regularly. PPE inspections at the Jember Regency Fire Department are carried out through routine visits made by Satpol PP to find out existing PPE problems and sudden inspections to the scene of the fire.

The inspection process carried out is conditional and periodic, the time given for every 3 months has been agreed by the PP police with the commander and members of the Fire Department Jember Regency squad. This is done in the form of monitoring the PPE in the mako, collecting data on PPE shortages and sharing related to PPE needs. The results of this inspection will be followed up by the PP police with the squad chief.

During the research to key informants as the Satpol PP of Jember Regency, researchers also carried out a process of expressing opinions and advocacy related to the state of Personal Protective Equipment. The result obtained is that the highest policy holder is the Head of Satpol PP and is adjusted to the existing budget. This is in accordance with previous research, conducted by Dwiastuti, 2015 that inspections or supervision are directly carried out by the section head.

## 8. PPE Evaluation and Reporting

The function of evaluation is as a source of information on the success and failure rate of an activity and provides solutions to overcome problems that arise. This report must be made effectively, that is, it is properly compiled, well structured, displays the information that logic can receive, and is concise and complete. This report is used as a message delivery to the recipient so that they can know what is happening without having to go into the field. Reporting related to PPE must be carried out, for example reporting related to the procurement of new PPE, reports related to PPE damage, and so on. This is so that administrators can find out about PPE in the workplace. Evaluation and reporting are closely related and interconnected.

Jember Regency Fire Department itself carries out the reporting and evaluation process in an informal way and without being planned in advance. This is because there is no sole SOP. Using the method of discussion makes the squad chiefs and firefighting personnel not ashamed and open. For evaluation at the Jember Regency Fire Department, it is carried out informally and unsystematically. The evaluation was carried out after a fire incident at the command headquarters. The topics discussed in the evaluation are *random* or not must focus on one discussion. Regarding the evaluation of PPE, the Jember Regency Fire Department has carried out, for example, submitting complaints because the PPE used is uncomfortable and not in accordance with the potential danger.

The reporting process involves the entire element of the fire department. Among them are the PP police, the Administrative party, the squad chief and firefighting personnel. This reporting process starts from several stages, including:

1. Firefighting personnel report to the squad chief regarding PPE. for example, the presence of damaged PPE, replacement of PPE, and others
2. The head of the squad reports to the PP police with the discussion method first

3. After discussion, the head of the team coordinates with the Administration to make a file to be handed over to the PP police, for example regarding the submission of new PPE procurement
4. When finished, the file can be submitted to satpol PP for follow up

## **CONCLUSION AND SUGGESTION**

### **Conclusion**

Some of the stages of PPE management that have been carried out include: the process of identifying potential hazards is carried out at the Command Headquarters and at the scene of danger. Identification of potential hazards is carried out incidentally only. The need for PPE is still lacking and has not matched the number of firefighter personnel. The expiration period of PPE ranges from 4-5 years. Special training related to PPE has never been carried out, the availability of PPE is still inadequate, it is not in accordance with the number of firefighter personnel, and the lack of budget causes the use of PPE in the Jember Regency Fire Department to use an alternating system. PPE care has no specific care. For heat-resistant jackets washed as usual. In addition, shoe helmets are dried in the sun to eliminate bacteria that stick to the PPE. As well as for HT, personnel camps, SCBA, and fire masks are returned to the storage cabinet neatly. The existing PPE storage at the Fire Department is still not suitable. This can be seen from the absence of each personnel's personal cupboard and the mixing of all PPE used by firefighters. The Jember Regency Fire Department did not destroy PPE. PPE guidance is only carried out orally in the form of appeals, directions and reprimands. PPE inspections by the PP police are held regularly and suddenly. The inspection process is carried out by the PP police every 3 months visiting the Fire Department. Jember Regency Fire Department carries out evaluations non-formally, for example by the discussion method. This is due to the absence of structured rules from the party responsible to the Fire Department. The output of this evaluation result will later be reported to the PP police with an estimated time of 1 year to get new PPE. Process reporting involves the entire element of the fire department.

### **Suggestion**

It is necessary to conduct further identification related to the need for PPE, follow up on the process of removing PPE that is no longer used by the PP police and firefighting personnel, make an inspection form and format a report on the results of the evaluation so that it can be well structured the results of these activities. Furthermore, researchers are expected to go deeper to explore information related to financing and budget to hold PPE at the Jember Regency Fire Department Unit.

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