

The Monitoring Environmental noise in Coffee Production, CCT/NCBA Companies in Bidau Lesidere Villige, Dili District Dili City Timor Leste

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ABSTRACT

Noise-induced hearing loss is hearing loss caused by exposure to quite loud noise over a long period of time and is usually caused by noise in the work environment, in this case the company environment. Working environment noise is a major problem in occupational health which is a standard of OSH in various companies, the relationship between excessive noise exposure and hearing loss has been known since ancient times. Various epidemiological studies of noise-induced hearing loss have explored the relationship or risk factors between work, exposure to noise levels and the degree of hearing loss. The purpose of this study was to determine and survey the noise of electronic machines on hearing loss. The research method used is a quantitative, observational method using a cross observational study design. Observation at the coffee processing factory which can cause noise, visiting the factory location and conducting observations and interviews with the workforce and also variable interviews, namely direct observation of the community around the company and also employees in the company. Based on the results of the observation that there are several communities around the company, namely the community also has an impact on employees. The results of the study showed that: There were hearing impairments of 75% of all 149 workers and 25% had a hearing impact on the community around the company.

Keywords: companies, monitoring, noise

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BACKGROUND

The environment is one of the gifts of God Almighty whose ability must be preserved and developed so that it can still be a source of life support for humans and other living things for the sake of continuity and improvement of the quality of life itself (Ministry of Environment, 2004: 29).

The environment is also a space or place inhabited by humans along with other living things, humans and other living things certainly have their own attachment to the process of life, interact with each other, and need one another. Life, which is characterized by regular interaction and interdependence, is an ecosystem order that contains important things, where the environment as an inseparable unit, environmental problems are getting bigger and bigger, widespread and serious, but they are already regional, national, transnational and global. The impacts that occur on environmental problems are not only related to one or two aspects, but are interrelated in accordance with the nature of the environment which has broad relationships and influences each other as a whole, then various other aspects will experience.

In essence, the environmental issue itself is what steps must be implemented to guarantee and make the earth and the surrounding nature a livable space for a peaceful, peaceful and prosperous life. Therefore, actions that pollute the environment, including noise in a person's environment, are synonymous with killing life itself, as well as in the environment of other people.

Therefore the author made an observation at a company in Timor Leste where processing activities were carried out using machines so that it could cause noise to employees or labor and also the impact of noise on the community around the company, so that as a public health master's student carry out their duties to make observations in terms of using the research methodology is observational cross-sectional on the workforce and the community around the coffee processing company in the CCT / NCBA, which can find out how big the impact of noise is on the workforce and the surrounding community,

METHODS

Various types of research are used in research on environmental noise observations in coffee processing companies, so the authors use the research methods are; The quantitative research method used is the observational method using a cross observational study design. Observation, and conducting surveys at coffee processing factories where it can cause noise visiting the factory location and observing the workforce and also variable interviews, namely direct observation of the community around the company and also employees in the company.

RESULTS

Various sources of articles were obtained, from other articles and various previous studies, therefore the authors obtained various reference sources and other articles to assist the process of writing environmental health journals, in this case, environmental impacts due to noise.

Table, 1 Research article

AKTORS	TITLE	METHOD	RESULTS
Lira Mufti Azzahri Isnaeri Etigustrinda (2021)	Noise in companies and workplaces	This research is a quantitative analytic study with a cross sectional study design	The results of the study found that out of 59 respondents, 40 people (67.8%) experienced non-standard noise intensity,

40The results showed that out of 59 respondents, 40 people (67.8%) experienced non-standard noise intensity, 40 people (67.8%) experienced heavy workloads, and as many as 41 people (69.5%) experienced work fatigue. which is high and the results of statistical tests show that there is a significant relationship between the noise intensity factor and complaints of work fatigue. The results showed that there was no relationship between age (p-value 0.301), gender (p-value 0.909), history of illness (p-value 0.909), years of service (p-value 0.305), length of exposure (p-value 0.198)

Leli Hesti Indri-yanti DKK (2019)	Noise is one of the physical hazards that can affect blood pressure	A cross-sectional study was conducted to determine the relationship between noise exposure level, length of work, and use of PPE	Respondents exposed to noise of more than 85 decibels (dB) had a 19.8 greater risk of hypertension compared to those exposed to noise <85 dB. There was a significant (P = 0.001) response-exposure pattern between hypertension risks. Vibration and noise significantly affect work fatigue by 42.2% and 57.8% are influenced by other factors not examined. Noise measurements with 4 measurement points at different locations yielded noise intensity results of 73.29 dB–89.81dB, which in this study the noise obtained during testing exceeded the NAV (85 dB). However, the noise factor is not the only factor that can cause hearing loss.
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Amira and Hasna (2020)	Jihan Luteiya Characteristics Factors age, gender relationship with noise	This research is an analytic type with a cross sectional design	The results showed that there was no relationship between the variables age (p-value 0.301), gender (p-value 0.909), history of disease (p-value 0.909), years of service (p-value 0.305), length of exposure (p-value 0.198)
Monilisa Manuputty (2021)	Vibration and noise affect the working environment	This research is a cross-sectional research design	Vibration and noise significantly affect work fatigue by 42.2% and 57.8% are influenced by other factors not examined. Noise measurements with 4 measurement points at different locations yielded noise intensity results of 73.29 dB–89.81dB, which in this study the noise obtained during testing exceeded the NAV (85 dB). However, the noise factor is not the only factor that can cause hearing loss.

Based on the results of the observations made, the most important observations of confusion in CCT / NCBA companies as coffee processing are: The workers for the selection of coffee beans / wholesalers conveyed their problem, namely the lack of PPE (masks, gloves, helmets, aprons, including ear plugs). Employees who work in administrative systems say that there is a lack of awareness of the benefits of PPE so that employees do not use it. The impact on guards/security guards in the company submitting various complaints is: not so big impact because the distance between the machine and the security guard's place is still within normal limits.

Therefore, as for the impact of noise that occurs on humans, especially the impact on service users from coffee bean production companies, the impacts that occur are, Physiological disorders. Increasing blood pressure, pulse, basal metabolism, and muscle tension (increased excitability of the autonomic nervous system) so as to increase anxiety. Communication breakdown, Masking effect (workers have to shout while communicating during work, thereby increasing the risk of work accidents and also having difficulty communicating well between employees and other employees and having difficulty communicating with superiors, Health problems, Floating feelings, dizziness, nausea, headaches, can also cause fatigue, especially in workers who are directly involved with work, Psychological disorders:

The emphasis on psychology in this case is stress, fatigue, and can cause emotional and also communication disorders or can cause a lack of concentration, Effect on hearing:

- Temporary increase in hearing threshold, in this case giving temporary hearing difficulties
- Permanent increase in hearing threshold, can cause permanent or persistent interference z
- Noise-induced Deafness, can cause permanent ear disease or permanent deafness

Therefore environmental noise is unwanted sound and can interfere with human health and comfort in the work environment and other natural environments.

From the above observations it is convincing that environmental noise is an aspect that needs attention because of its impact on public health, both directly and indirectly. According to a report published by the WHO Regional Office for Europe in 2009 entitled "Night Noise Guidelines for Europe", noise at night can cause insomnia, changes in sleep patterns, changes in cardiovascular activity, awakening at night or early in the morning and other effects that can be detrimental to health.

It is from these changes that noise can indirectly cause morning fatigue, decreased cognitive abilities, increased risk of heart attack and others.

DISCUSSION

In general, the noise environment also has a very fatal and dangerous hearing impact, in this case prolonged hearing loss that causes permanent deafness. physical factors and chemical factors in the workplace states that noise is all unwanted sounds originating from production process tools and/or work tools which at a certain level can cause hearing loss. Another definition is that sounds are heard as stimulations to the ear by vibrations through an elastic medium, and when these sounds are unwanted, they are expressed as noise (Suma'mur, 1984). Noise is sound that is unwanted by human hearing, noise is sound that has multiple frequencies and multiple amplitudes and usually occurs at high frequencies. The nature of noise consists of various kinds, including constant, fluctuation, continuous, intermittent, impulsive, random and impact noise. According to Siswanto (2002) in Ramdan (2013), noise is the occurrence of loud sounds that disturb and or endanger health. Meanwhile, according to Gabriel (1996) in Ramdan (2013), noise is defined as unwanted sound which is a natural and man-made activity. Noise is defined as unwanted sound. Noise causes various disturbances to the workforce such as physiological disorders, psychological disorders, communication disorders and deafness or some classify the disturbances as hearing disorders, for example hearing disorders and hearing disorders such as disturbed communication, threats to safety, decreased work performance, fatigue and stress . Types of work that involve exposure to noise include mining, tunneling, heavy machinery, excavation (bombing, blasting), textile machinery, and testing jet engines. Noise can be defined as unwanted sound, annoying sound or annoying sound. Noise is something that is avoided by anyone, especially in carrying out a job, because the concentration of workers will be disrupted. With the disruption of this concentration, the work done will result in a lot of errors or damage that will cause losses to society and individuals.

In various sources written in the book Fundamentals of Industrial Hygiene 5th Edition, noise in the workplace can be grouped into 3 types, namely according to (Standard, 2002):

1. Continuous Noise.

Continuous noise is a type of noise that has a constant frequency level and spectrum, this type of noise displays workers with a time period of 8 hours per day or 40 hours per week.

2. Intermittent Noise.

Intermittent noise is a type of noise that exposes workers only at certain times during working hours. Examples of workers who experience this type of noise exposure are inspectors or plant supervisors who periodically leave their relatively quiet work area to a noisy work area.

3. Impact Noise.

Impact noise is also called impulsive noise, which is noise with a loud and intermittent beat of less than 1 second. An example of this type of noise is the sound of explosions and blows on an object exploding or hitting an object.

4. Normal threshold value at noise level

As for the table of threshold values determined in accordance with the government law of the Minister of Environment of Indonesia Number 48 of 1996 concerning standard noise levels.

Table: 2. Limit value of noise level

For the activity area	Level of noise (dBA)
Housing and settlements	55
Trade and Services	70
Office and trade	65
Open room	50
Industry	70
Government and Public Facilities	60
Recreation	70
Seaports	70
Hospital and health facility	55
Schools and the like	55
Worship place	55

The impact of one of the uses of increasingly sophisticated technology is noise. The atmosphere in the work environment both in offices and factories will not be separated from the noise of production activities and socialization between workers, a work environment that is too noisy can result in counter-productive situations, unhealthy, and annoying. so that a person's performance or performance will decrease and have an impact on the progress of the company.

Sounds that cause noise are caused by a vibrating sound source, the vibration of this sound source disturbs the balance of the air molecules around it so that the air molecules vibrate along with it. The vibration of this source causes waves of mechanical energy propagation in the air medium according to the pattern of longitudinal propagation and wave propagation in the air.

According to various regulations applied in Timor Leste in this regard, decisions regarding environmental cleanliness and environmental impacts have been socialized in this case local government regulations regarding environmental health including environmental noise, and also in accordance with Indonesian Minister of Manpower regulation No. 5 of 2018 concerning Safety, Health and Work Environment, noise is all unwanted sounds originating from production process tools and/or work tools which at a certain level can cause hearing loss.

Based on various material sources regarding the impact of noise, noise can cause various disturbances to humans, the impact of noise on human health in general includes:

Physiological disorders:

1. Increasing blood pressure, pulse, basal metabolism, and muscle tension (increased excitability of the autonomic nervous system) so as to increase anxiety.
2. Communication disorder:
Despite the hearing effect, workers must shout to communicate during work, thereby increasing the risk of work accidents and also having difficulty communicating well between employees and other employees and having difficulty communicating with superiors.
3. Health problems:
Feelings, dizziness, nausea, headaches, can also cause fatigue, especially in workers who are directly related to machine work.

4. Psychological disorders:
Psychological emphasis in this case is stress, fatigue, and can cause emotional and also communication disorders or can cause a lack of concentration and discomfort in doing work, in this case the selection of coffee beans and other employees
5. Effect on hearing:
 - Temporary Threshold Shift (TTS) increase
 - Permanent Threshold Shift (PTS) increase
 - Deaf due to noise or Noise Induced Hearing Loss (NIHL)

The Company's Efforts in Handling the Noise Environment

As for the things that are done for the seriousness of handling problems related to noise in coffee production companies which are in accordance with the existing problems are as follows:

1. The sound filtering process, in this case adjusting the funnel or sound flow so that it cannot have a noise impact on the surrounding community. Using ear protection devices (Ear Plugs) to cover the ears to protect the noise level that enters the ears, in this case all workers or employees carry out coffee selection and supervisors are required to use ear protection devices and also other PPE.
2. Providing social security and health insurance services by providing basic health services, in this case establishing 1 unit of health facilities and equipped with health workers including 1 general practitioner.
3. In an effort to control noise in the human environment, there are various things that can be done so that noise control in the environment can take place effectively and efficiently.
4. These things include measurement, monitoring, calculation and design that takes noise into account in the process.

CONCLUSION

At the end of this writing, I, as a writer, do not forget to give many thanks to God Almighty, because it is for his protection and nature that I can complete this scientific writing task in a timely manner, also on this occasion I can also give many thanks to those who have support and assist in carrying out observations of noise in coffee production companies at CCT/NCBA. So that as for the party is;

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