OCCUPATIONAL HAZARDS AND SAFETY PRACTICES OF REFUSE COLLECTORS IN OBIO/AKPOR LOCAL GOVERNMENT AREA OF RIVERS STATE

ABSTRACT

Background: Municipal solid waste management particularly in developing countries involve manual or semi-automated handling of the waste materials. This exposes the waste collectors to physical, biological and chemical hazards[(1)] that could easily lead to injuries and diseases where adequate safety precautions and practices are not put in place. Solid waste collection and disposal in Port Harcourt metropolis is undertaken by the Rivers State Waste Management Authority with the use of contractors that employ predominantly manual procedures in their work that exposes the staff to hazards. This study was undertaken to identify the occupational hazards and safety practices among refuse collectors in Obio/Akpor Local Government Area of Rivers State.

Methodology: A descriptive cross sectional study design was employed for this study using a sample of 310 refuse collectors who were selected by a multistage sampling procedure. An interviewer-administered questionnaire was used to collect data from the respondents. Additionally, a walk-through was conducted at 10 different sites of refuse collection. The data collected was analysed using Epi-info version 7.

Results: The findings from this study revealed that refuse collectors are exposed to physical, chemical & biological, psychosocial and ergonomics hazards in proportions of 72.08%, 94.9%, 39.32% and 48.65% respectively. On safety practices, 24.0% had good safety practices while a majority of 75.93% had bad safety practices. Some of the safety measures identified from the study included provision of clean water and soap, maintenance of equipment, job rotation and traffic control amongst others.

Conclusion: This study revealed that refuse collectors in Obio/Akpor Local Government Area are at risk of exposure to many occupational hazards which is a big problem because the workers generally lack any form of safety protection against these hazards. Majority of them have not engaged in any safety training. It is

necessary that adequate personal protective equipment is provided for them to reduce their exposure to these hazards and quality safety training also provided for them to improve their knowledge of the dangers they are exposed to and teach them ways to keep themselves protected.

Keywords: Occupational hazards, safety, knowledge, Refuse collectors, Rivers State Waste Management Authority, Obio/Akpor.

INTRODUCTION

A waste or refuse collector is anyone who is employed by a private or public organization for collection, removal and recycling wastes from residential, industrial, commercial or other collection site for further processing and eventual disposal[(2)]. Waste collectors are also known as garbage or trash collectors[(3)]. The responsibilities of waste collectors include emptying of refuse containers into a truck using either hydraulic lift or their physical strength and describing the criterion for appropriate disposal to customers[(3)].

The increase in municipal solid waste is a result of urbanization, and its handling and disposal has become an environmental and public health concern[(4)]. Growth in population and advancement of the society have brought increasing amounts of solid waste to urban areas[(5)]. Solid waste management combines a lot of activities including collection, sorting recyclable materials and on very few occasions, burning. Risks occur at every step in the process from point of collection, during transportation and at disposal sites[(5)]. Solid waste collectors are exposed to dangers and accident risks related to the composition of the materials they handle, emissions from these materials, and the equipment being used[(1)]. These dangers can include many types of hazards such as chemical hazards which result from exposure to substances like solvents or gases, biological hazards from contacts with products of living organisms or bacteria, psychosocial hazards resulting from stress and lastly, physical hazards which is the most common type of hazard and include slips and falls[(6)]. As a result of their exposure to multiple risk factors, solid waste collectors suffer high rates of occupational health problems[(7)].

There is an estimation by the International Labour Organization (ILO) that about 270 million occupational accidents occur each year resulting in around 2.3 million deaths[8]. It is not certain how many of these accidents are attributed to solid waste collectors. However, the hazards associated with refuse collection are enormous[9]. This is because most of the workers involved have the task of manually shoveling refuse from the collection points into baskets before emptying into the trucks. Such a process exposes them to lots of dangers resulting from composition of these wastes to sharps and even decaying matter with its harmful pathogens. The workers are often improperly clothed to suit the hazards they face daily[10].

MATERIALS AND METHOD

Study Area

This study was conducted in Obio/Akpor Local Government Area in Rivers State, which is one of the centres of economic activities in the state. With its headquarters in Rumuodomya, it covers an area of 260km square with a population of approximately 649,600 persons from city population estimates(2016), spread across its 17 wards and communities[11]. Obio/Akpor is a lowland region with mean elevation below 30 metres above sea level. Its geology comprises basically an alluvial sedimentary basin and basement complex. It is mainly inhabited by civil servants and traders. Ikwerre is the indigenous language of the people, but English is widely spoken as a result of the commercial nature of the area. Farming is the major occupation of the people although majority of the farming land has been lost due to urban development[12].

Study Design and Population

This study employed a descriptive cross-sectional design with a study population comprising of 960 male refuse collectors who are employed by 80 contractors working for the Rivers State Waste Management Authority. Each contractor has two refuse collecting trucks, each of which is manned by a gang of 6 staff: a driver, a

conductor and 4 evacuators, all of whom are actively involved in the waste collection process.

Sample Size Determination

Sample size was obtained using the descriptive studies sample size formula with the following assumptions; a prevalence of occupational hazards among refuse collectors of 76% obtained from a study[11]. Using 5% margin error at 95% confidence interval and after considering a 10% non-response rate, the sample size used was 310.

Sampling Method

A multi-staged sampling technique was employed for this study.

Stage 1: This involved the identification of the 80 refuse contractors who were assigned by the Rivers State Waste Management Authority to collect refuse in Obio/Akpor Local Government Area.

Stage 2: This stage involved the collection of the list of the 12 staff of each of the 80 contractors from the Rivers State Waste Management Authority

Stage 3: In this stage, simple random sampling method of balloting was used to select 4 refuse collectors from each of the 80 contractors using the list obtained from the Rivers State Waste Management Authority as a sampling frame. The selected refuse collectors totaled 320 (i.e four from each contractor). These refuse collectors were subsequently administered with the questionnaire after obtaining informed consent from them.

Study Instruments

A semi structured, interviewer–administered questionnaire was used to collect information from respondents. Interviewers prior to commencement of data collection were duly trained. The questionnaire was divided into five sections: Section A probed the sociodemographic data of the respondents. Section B elicited data on the occupational history of the respondents. Section C was used to identify hazards associated with refuse collection services in Obio/Akpor. Section D accessed the safety practices against occupational hazards among refuse collectors and consisted of 10 safety practice questions assessed on a 10 point scale, (≥5 Poor Practice and 6-10 Good Practice). A total of 10 collection sites were visited. The safety measures listed on the checklist were assessed on a 10 point scale. Any safety measure with checks for 8-10 sites was termed excellent, checks for 5-7 sites was termed good, checks for 3-4 sites was termed moderate while ≥3 was termed poor.

Data Management

Data collected were extracted from the questionnaires and entered into Microsoft excel, cleaned and analysed using Epi info version 7. Frequencies and percentages were produced in tables, and a chi square test was employed to determine the association between independent variables such as age and educational status with knowledge of occupational hazards and safety practices.

Ethical Considerations

Before undertaking this study, ethical clearance was obtained from the Research and Ethics Committee of the University of Port Harcourt. Permission to undertake this

study was acquired from the authorities of the Rivers State Waste Management Authority where the participants were recruited for the study. A consent form was attached to the questionnaire where participants had the choice to willingly give their consent or decline. Confidentiality was assured as names of respondents were not included in the questionnaire. No harm to the subjects was ensured in the entire recruitment.

RESULTS

Table 4.1: Distribution of age, marital status, level of education and religion of respondents

Variable	Frequency (n=295)	Percent (%)
Age(years)		
16-20	32	10.8
21-25	64	21.9
26-30	120	40.7
31-35	55	18.6
≥ 36	24	8.1
Marital status		
Single	234	79.3
Married	60	20.3
Widowed	1	0.3
Religion		
Christian	270	91.5
Islam	23	7.8
Traditionalist	2	0.7
Level of Education		
No formal	45	15.3
Primary	40	13.6
Secondary	186	63.1
Tertiary	24	8.1

Table 4.1 represents the age, marital status, level of education and religion of respondents. Majority of the respondents accounting for ~40.7% were within the age bracket of 26-30, followed by the age bracket of 21-25 with ~21.9%. The age brackets of 31-35 and 16-25 had percentages of ~18.6% and ~10.8% respectively followed by those above 36 which had the lowest percentage of ~8.1%. Among the respondents, singles accounted for ~79.3%, while those married were ~20.3%. Only 1 person was reported to be widowed. On religion, a large proportion of the respondents were Christians, accounting for ~91.5% .This was followed by Islamic respondents with ~7.8%. With respect to level of education, secondary education had the highest percentage of ~63.1%, primary education had ~13.6% and ~15.5% was recorded for workers who had never completed any formal education. Respondents who had attained the tertiary education accounted for ~ 8.1%,

Table 4.2: Distribution of years of experience, history of job related illness, safety and occupational hazard training and duration of training

Variable	Frequency (n=295)	Percent (%)
Experience		
6months - 1year	140	47.6
≥ 1year	155	52.5
History of job related illness		
Been ill	182	61.7
Never been ill	113	38.3
Trained in safety		
Trained	26	8.8
Untrained	269	91.2
Duration of training		

Once	26	100

Table 4.2 represents the experience, history of job related illness, occupational/safety training received and frequency of trainings of respondents. Analysis showed that ~47.6% had worked from the period of 6 months - 1 year while ~52.5% had work experience of over 1 year. On history of job related illness, ~61.7% reported to have been ill while ~38.3% reported to have never been ill. In terms of training, ~8.8% of respondents had been trained on safety while a majority of ~91.2 reported to have never been trained. On the frequency of training, the ~8.8% of respondents that reported to have been trained all admitted to having been trained only once.

Table 4.3: Exposure to physical hazards reported by respondents

Variable	Frequency (n=295)	Percent (%)
Noise		
Yes	251	85.1
No	44	14.9
Vibrations		
Yes	219	74.2
No	76	25.8
Sharps		
Yes	295	100
No	0	0
Harsh weather		
Yes	212	71.9
No	83	28.1
Radiation		
Yes	16	5.4
No	279	94.6
Vehicular traffic		
Yes	283	95.9
No	12	4.1

Table 4.3 is a breakdown of the responses of respondents concerning their exposure to different kinds of physical hazards. From the table, it shows that 85.1%, 74.2%, 100%, 71.9%, 5.4% and 95.9% of the respondents stated that they had been exposed to noise, vibration, sharps, harsh weather, radiation and vehicular traffic respectively.

Table 4.4: Exposure to chemical and biological hazards reported by respondents

Variable	Frequency (n=295)	Percent (%)
Exposure to inhalable substances		
Yes	278	94.2
No	17	5.8
Exposure to absorbable substances		
Yes	255	86.4
No	40	13.6
Exposure to rodents/creeping insects/reptiles		
Yes	290	98.3
No	5	1.7
Choking smells		
Yes	291	98.6
No	4	1.4
Exposure to skin irritants		
Yes	287	97.3
No	8	2.7

On exposure to chemical and biological hazards, 94.2%, 86.4%, 98.3%, 98.6% and 97.3% of respondents also stated that they had been exposed to inhaleable substances, absorbable substances, creeping rodents and reptiles, choking smells and skin irritants respectively. As shown in the table, few of the respondents were not exposed to these various hazards.

Table 4.5: Exposure to ergonomics and psychosocial hazards reported by respondents

Variable	Frequency (295)	Percent (%)
Lifting heavy objects		
Yes	228	77.9
No	67	22.7
Prolonged raising of arm		
Yes	70	23.7
No	225	76.3
Overly bending the lower back		
Yes	243	82.4
No	71	24.1
Eye Strain		
Yes	52	17.6
No	243	82.4
Threats or violent public attacks		
Yes	65	22.0
No	230	77.9
Bullying from other		

employees		
Yes	38	12.9
No	257	87.1
Work Overload		
Yes	245	83.0
No	50	16.9

On ergonomics related hazards, ~77.3% stated to lifting heavy objects versus ~22.7% who did not. Also, ~23.7% stated that the work requires prolonged raising of the arm while a high percentage of ~76.3% did not. ~82.4% and ~17.6% admitted to overly bending of the back and having eye strain respectively as frequent encounters while working, while ~24.1% and ~82.4% respectively did not. On psychosocial related hazards ~22.0% stated that they were exposed to threats or violent public attacks versus ~77.9% who did not. Also, ~12.9% stated to bullying from other employees versus ~87.1 who did not and ~83.0% stated to work overload versus ~16.9% who did not.

Table 4.6: Exposure to hazards among respondents

Variable	**Frequency (295)**	**Percent (%)**
Physical Hazards	212	72.1
Chemical & Biological Hazards	280	94.9
Psychosocial Hazards	116	39.3
Ergonomics	148	48.7

Table 4.6 is a summary table, which shows the percentages of the different types of hazards for which respondents are being exposed to. The category of chemical and biological hazards has the highest percentage of exposure at ~94.9%, followed by physical hazards with ~72.1%. Psychosocial hazards and ergonomics had smaller percentages of ~39.3% and ~48.7% respectively. This shows that the respondents are

more likely to be exposed to chemical, biological and physical hazards on a typical work day and less likely to be exposed to psychosocial hazards and ergonomics related hazards.

Table 4.7: Safety practice reported by respondents

Variable	Frequency (295)	Percentage (%)
Wears protective clothing		
Yes	41	13.9
No	254	86.1
Wears safety shoes		
Yes	52	17.6
No	243	82.4
Wears mask		
Yes	42	14.2
No	253	85.8
Wears safety goggles		
Yes	15	5.1
No	280	94.9
Works with lights at night		
Yes	98	33.2
No	197	66.8
Wears reflective jackets		
Yes	54	18.3
No	241	81.7
Washes with soap and water after work		
Yes	140	47.5
No	155	52.5
Showers at least twice a day		
Yes	110	37.3
No	185	62.7
Inspects conditions of tools daily		
Yes	31	10.5

No	264	89.5
Hangs on moving trucks		
Yes	127	43.1
No	168	56.9

Table 4.7 shows the responses from the respondents on their safety practices assessed with a set of 10 questions. Only ~13.9% agreed to wearing protective clothing, ~17.6% agreed to wearing safety shoes while working, while ~14.2% and ~5.1% agreed to wearing of masks and safety goggles respectively as a safety measure. Responses were also poor for working with lights at night, wearing reflective jackets and daily inspection of working tools with ~33.2% ,~18.3% and ~10.5% respectively.

Table 4.8: Distribution of safety practices among respondents

Safety Practices (Score)	Frequency (n=295)	Percent (%)
Good practice(6-10)	71	24.1
Poor practice(≤5)	224	75.9

In Table 4.8, as stated earlier in the study instrument (questionnaire), the workers' safety practice was assessed and scored on a 10 point scale (≤ 5 Poor practice, 6-10 Good practice). A total of 71(~24.1%) of respondents had shown to practice good safety, while majority of respondents 224(~75.9%) had poor safety practices. Therefore, we can say that a higher percentage of the workers had poor practice of safety to prevent themselves from occupational hazards.

Table 4.9: Safety measures against occupational hazards

Safety Measures	Rating
Provision of protective clothing	Poor
Provision of nose masks	Moderate
Equipment maintenance	Good
Provision of clean water & soap	Excellent
Provision of reflective jackets	Poor
Traffic control	Moderate
Job Rotation	Excellent

Table 4:9 shows the various safety measures put in place against occupational hazards. A total of 10 collection sites were visited, the safety measures listed on the checklist were assessed on a 10-point scale. Any safety measure with checks in 8-10 sites was termed excellent, checks in 5-7 sites was termed good, checks in 3-4 sites was termed moderate while ≥3 was termed poor. The data show that provision of clean water and soap as well as job rotation were the most available safety measures, followed by equipment maintenance which was carried out to an extent. Traffic control and provision of nose masks were employed in few cases, although almost all respondents who covered their noses did so with ordinary handkerchief. Provision of protective clothing accounted for the least available measures provided.

DISCUSSION

The study identified four major types of hazards for refuse collectors with exposure levels at different rates. These included: physical hazards at 72.08%, chemical and biological hazards at 94.9%, psychosocial hazards at 39.32% and ergonomics at 48.46%. The exposure rate of physical hazard was similar to that found in a study which revealed 72% physical hazard exposure rate among waste workers in China[13] and also close to the study done in Zimbabwe and in Ethiopia which recorded rates of 65% and 63% respectively[10,14]. It is slightly lower than the findings of Carvalho in Brazil[15] and Ohajinwa[16] which recorded exposure rates of 82.4% and 82% respectively. However, there was a sharp disparity with the findings of Ravindra in India[17] and Ziaei in Iran[18] which recorded rates of 44.4% and 39% respectively.

This could be a result of the fact that the wastes were sorted and bagged before disposal thereby reducing the exposure of waste collectors to the contents. Chemical and biological hazards which had exposure rate of 94.9% is higher compared to the findings in a study done by Hifinawy & Arafa in Egypt[19] which recorded a rate of 80% and that of Darboe & Tsai in The Gambia[20] which was 85%. It was in huge disparity with that in Chikombe's study which recorded a rate of just 6.82%[10] and also that of Ravindra which was 48.9%[17]. This could be attributed to the narrow scope of their studies, which focused on health implications of these hazards.

This study's exposure rate to psychosocial hazards with exposure rate of 39.32% is almost similar to that of Ziaei in Iran which was 36.5%[18] but significantly higher than that in Chikombe's study which was 4.55%[10], attributable to the scope of the study which focused more on physical health conditions. Exposure to ergonomics hazards with a rate of 48.65% is higher than that of Chikombe which revealed rates of 22.73%[10].

On safety practices, findings revealed that a total of 71(24.06%) had good safety practices while 224(75.93%) had bad safety practices. The findings of this study is similar to that of Bogale & Tefara[21] in their study which revealed only 22% good safety practices in the use of personal protective equipment among waste collectors in Addis Ababa. It is slightly lower than Chikombe's in his study among refuse collectors in Zimbabwe, which showed 30% exhibited good safety practices[10]. He also revealed that out of the 30%, 70% reported that they felt more comfortable wearing their casual cloths and using their locally made equipments which offered little safety to them. The findings, however, are in disparity with that of Kretchy in Ghana, which revealed 72.6% good safety practices[22]. According to Kretchy, this was as a result of the enforcement by the state authorities and close supervision to ensure certain laid down standards are obeyed. It is also different from the report of Wahab & Ogunlolo which revealed 60% good practices of safety among waste collectors in Ekiti state which was also linked to the enforcement of such standards by the authorities[23]. The safety practice among refuse collectors in Obio/Akpor is low because there has been no effective education to the workers about the need for the

practices and in few cases where the workers are willing to improve their practices, there is no support from the relevant authorities in terms of provision of certain kits.

This study also identified some safety measures put in place to protect refuse collectors from certain occupational hazards. These measures include; provision of clean water and soap, equipment maintenance, reflective jackets, traffic control, job rotation, protective clothing and use of nose masks. Provision of clean water was the most available measure in place from responses and also reports from walk through survey. This finding is similar to the report of Battaglia & Tefara[21]. Carvalho in a separate study in Brazil on safety measures in waste management also reported provision of clean water and soap as a safety measure against infections[15]. Regular medical check up and training were the least provided measures which would have been an effective measure to protect these workers from hazards as reported by Hamid[25] and lui[13] in separate studies. Job rotation as a safety measure was also discovered by Leider in a Swedish study among waste collectors. This practice was used effectively to reduce the exposure time of workers to hazardous substances thereby reducing their chances of coming down with occupational related illnesses[26]. Provision of reflective jackets to guard against road accidents is a similar measure revealed by Wahab & Ogunlolo in a study done in Ekiti state[23]. This measure was put in place to limit the occurrences of road accidents by making the workers more visible to motorists while working in hours of low visibility. Adequate protective clothing and approved nose masks were not used by majority of the workers. However, some had handkerchiefs across their noses while others had ordinary clothing which obviously was not effective enough to prevent microbes from been inhaled.

CONCLUSION

This study showed that efforts need to be made to guarantee the safety of refuse collectors from hazards that they encounter while carrying out their duties. It revealed that this group of people is exposed to many dangers having potentials to cause serious health effects and even death in the worst case scenario.

It is necessary that adequate personal protective equipments be provided for them to reduce their exposure to these hazards and that quality and repeated safety training be offered to them to improve their knowledge of the dangers they are exposed to and teach them ways to keep themselves protected.

Ethical Approval:

As per international standard or university standard written ethical approval has been collected and preserved by the authors.

Consent Disclaimer:

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

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CONSENT FORM FOR QUESTIONNAIRE

Name of Principal researcher: ELI, PRECIOUS MIWANO

If you are happy to participate please place your initial in each of the boxes below, and then sign, date this form.

Please initial the box

1. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without me or my organisation's involvement in the project being affected in any way ☐

2. I consent to responding to the questions contained in the questionnaire. ☐

3. I agree to the use of findings being reported in research reports, journal articles and presentations. ☐

4. I understand that data collected during the study may be looked at by individuals from the University of Port Harcourt and from regulatory authorities where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records. ☐

5. I agree to take part in the above study ☐

_____ _____ _____

Initials of Participant Date Signature

_____ _____ _____

Researcher Date Signature

INSTRUCTIONS: *Please tick the box that best suits your answer to each question in all the sections.*

SECTION A: **SOCIO DEMOGRAPHIC DATA**

1. Age? ……..

2. Sex? Male ☐ Female ☐

3. Highest level of education? No Formal ☐ Primary ☐ Secondary ☐ Tertiary ☐

4. What is your Marital Status? Single ☐ Married ☐ Divorced ☐ Widowed ☐

5. Religion? Christianity ☐ Islam ☐ Others (please specify)……..

6. State Of Origin…….. Tribe…….

SECTION B: **OCCUPATIONAL HISTORY**

1. How many months/years have you worked as a refuse collector? Less than 6 months ☐

6 months - 1 year ☐ 1 year and above ☐

2. Have you ever been sick in the course of working as a refuse collector? Yes ☐ No ☐

3. Have you received any training on occupational hazards? Yes ☐ No ☐

4. Have you received any training on safety? Yes ☐ No ☐

5. What was the duration of the training? Once ☐ Weekly ☐ Monthly ☐ Yearly ☐

SECTION C: **TYPES OF HAZARDS**

PHYSICAL HAZARDS

1. Is there any noise in the workplace? Yes ☐ No ☐

2. Are you exposed to vibrations? Yes ☐ No ☐

3. Do you use sharp objects that could cause injury? Yes ☐ No ☐

4. Do you often encounter broken bottles and tin cans Yes ☐ No ☐

5. Do you work in cold or hot hours of the day? Yes ☐ No ☐

6. Are you exposed to any radiation? Yes ☐ No ☐

7. Do you work at times of the day when its dark? Yes ☐ No ☐

8. Do you work on the road while traffic flows? Yes ☐ No ☐

CHEMICAL & BIOLOGICAL HAZARDS

9. Are you exposed to anything that can be inhaled ? Yes ☐ No ☐

10. Are you exposed to living things or substances produced by living things that can cause illness; through inhalation, ingestion or absorption?
Yes ☐ No ☐

11. Are you exposed to mosquito bites while working? Yes ☐ No ☐

12. Do you encounter rodents and creeping insects/reptiles while working? Yes ☐ No ☐

13. Do you perceive any choking smell while working? Yes ☐ No ☐

14. Do you get skin irritations during and after working? Yes ☐ No ☐

ERGONOMICS HAZARDS

15. Do you lift any heavy objects that could cause sprain? Yes ☐ No ☐

16. Does the task require prolonged raising of the arms? Yes ☐ No ☐

17. Can the work be done without twisting or overly bending the lower back? Yes ☐ No ☐

18. Are there pressure points on any parts of the body (wrists, forearms, back)? Yes ☐ No ☐

19. Can the work be performed without eye-strain? Yes ☐ No ☐

PSHYCOSOCIAL HAZARDS

20. Have you ever experienced threats or violent attacks from the public? Yes ☐ No ☐

21. Experienced bullying or aggression from other employees within the company? Yes ☐ No ☐

22. Do you experience work overload? Yes ☐ No ☐

SECTION D: **KNOWLEDGE**

Please tick the box that best suites your choice

1. Have you heard of occupational hazards? Yes ☐ No ☐

2. Are you aware of occupational hazards exposure in your line of duty? Yes ☐ No ☐

3. Are you aware of the types of hazard you may be exposed to while working? Yes ☐ No ☐

4. Do you feel you are at risk of any form of health challenge due to your work? Yes ☐ No ☐

5. Broken bottles and sharp equipments are physical hazards? Yes ☐ No ☐

6. Creeping insects and human wastes are have potential to cause harm? Yes ☐ No ☐

7. Working with PPE is necessary to prevent hazards? Yes ☐ No ☐

8. Unidentifiable liquids with choking odour are a problem? Yes ☐ No ☐

9. Workplace stress is a form of psychosocial hazard? Yes ☐ No ☐

10. Abuse from the public while working is a form of psychosocial hazard? Yes ☐ No ☐

11. Lifting Heavy load has the potential to cause harm to me? Yes ☐ No ☐

12. Muscle pains sometimes experienced after work is harmful? Yes ☐ No ☐

13. Poor lighting in work place can cause harm to me? Yes ☐ No ☐

14. Hanging on moving trucks can cause harm to me? Yes ☐ No ☐

15. Skin irritations is caused by biological and chemical hazards? Yes ☐ No ☐

16. Shower immediately after work can prevent skin irritations? Yes ☐ No ☐

SECTION E: **SAFETY PRACTICES**

1. Do you wear protective cloths while working? Yes ☐ No ☐

2. Do you put on safety shoes before going out for work? Yes ☐ No ☐

3. Do you wear any nose mask while on the field? Yes ☐ No ☐

4. Do you use safety goggles while working? Yes ☐ No ☐

5. Do you use lights while working at nights? Yes ☐ No ☐

6. While working early in the morning, do you wear reflective jackets? Yes ☐ No ☐

7. Do you wash with soap and water immediately after working? Yes ☐ No ☐

8. Do you bath at least 2 times in a day? Yes ☐ No ☐

9. Do you inspect the conditions of your working tools daily? Yes ☐ No ☐

10. Do you sit inside the truck as it moves from one site to the other? Yes ☐ No ☐

THANK YOU FOR YOUR COOPERATION