

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study identified the following health and safety management issues in road construction projects. Exposure of workers to high risks in operation of quarries, borrow pits, metal crushers etc. where workers are exposed to hazards of frequent and heavy lifting, noise and vibration, hazardous substances such as oil, gas, hydraulic fluid, welding fumes, heavy vehicle operation, working in blasting faces, clearing operations, slips, trips and falls, struck by, being struck by falling objects, hand-arm-whole body vibration, dust, sources of noise, electrical hazards etc. In asphaltting areas workers are exposed to high temperatures and Polycyclic Aromatic Hydro Carbons (PAHC) which are carcinogenic and could lead in to eye irritation, nasal and throat irritation, lower respiratory tract symptoms, pulmonary function changes and bronchitis. Working in excavated areas is prone to collapse of slopes. Workers are also prone to ergonomic issues caused due to manual handling and awkward postures. Among the injuries identified are sprains/strains leading in to back injuries, cuts, contusions, eye injury, fractures and burns. Main causes of accidents have been identified as fall from height, fall of objects, struck on stationary objects, struck by moving objects, struck on moving objects, caught in between, exposure to heat, exposure to electricity and exposure to harmful substances.

Questionnaire survey conducted with 250 employees of seven contract packages involved in road construction projects located in the Northern and North Central Provinces of Sri Lanka revealed a high positive response in overall health and safety management practices. Five of the six criteria concerned, namely, training and supervision, safe work procedures, reporting safety, management commitment and injury and return to work showed a high positive response of greater than 78 percent. Communication recorded the lowest positive response and it was revealed that there is a drawback in involvement of employees in health and safety matters and response

of management. Safety Committees were not formed in all contract packages except (P2).


Project Wise comparison shows that P3 and P4 had a low positive response in the criteria concerned other than management commitment. The main reasons for the lower positive response could be attributed to, not having a qualified Safety Officer to address the safety issues and communication gap due to language barrier as the projects concerned were located in Jaffna Peninsula.


Interviews conducted with Project Managers revealed that a high commitment is made on health and safety management in work sites. All contract packages had relevant Safety Policies, budgetary allocations for safety management practices within the project, separate unit for safety management, effective workers insurance scheme, provision of PPE for workers, accident record keeping system, accident investigation and reporting system etc. It was also revealed that orientation programmes for new workers and safety and health training programmes are conducted in all contract packages concerned. Awareness training programmes on HIV/AIDS and STD have been conducted in all packages. All packages had Safety Plans while regular safety inspections are being conducted in all packages. Regular toolbox meetings are conducted in all packages. All packages except one (P6) had fulltime Safety Officer. One of the negative factors revealed in the discussions was that Safety Committees were nonexistent in six of the seven packages except (P2).

Concerning provision of PPE it was revealed that except safety harness, ear plugs and face shields all the others namely, dust masks, safety goggles, hand gloves, safety helmets, reflective jackets, safety shoes etc. are provided by all concerned parties. It was revealed that three of the seven packages have not provided ear plugs and one package has not provided face shields.

5.2 Recommendations

Table 5.1 Issues identified and recommendations

Issues Identified	Recommendations
<p>Low response on communication</p>	<ul style="list-style-type: none"> • Communications with Managers needs to be improved • Employees should be encouraged to get involved in matters related to safety • Safety Committees headed by Project Managers should be formed and frequently meet to discuss matters related to safety • Awareness must be created among all employees about the functioning of Safety Committee and encourage them to report on any safety related issues • Effective induction training programmes should be conducted for the new recruits.
<p>Working under unsafe conditions</p> 	<ul style="list-style-type: none"> • Hazard Identification and Risk Assessments (HIRA) should be conducted for all work sites. • Measures should be taken to eradicate hazards in work sites. • Safe work procedures should be established for all workers. • Work procedures should be reviewed periodically • Regular toolbox meetings should be conducted and relevant safety issues should be discussed and ensure that workers are aware of the dangers and take precautionary measures to avoid them. • Warning signs should be erected at appropriate locations
<p>Working without PPE</p>	<ul style="list-style-type: none"> • Awareness on the importance of PPE should be emphasized • Site Supervisors should emphasize that all the workers are equipped with PPE and wear them while on duty.
<p>Unsafe Heavy Machinery Operation</p>	<ul style="list-style-type: none"> • Strict measures should be taken to deploy trained flagmen to guide heavy machinery operators.

Issues Identified	Recommendations
	<ul style="list-style-type: none"> • Machinery should be equipped with audible reverse horns. • Heavy machinery operating area should be properly demarcated with warning sign boards and measures should be taken to prevent workers and public entering in to the work zone.
Incapacity of Safety Officers	<ul style="list-style-type: none"> • Well qualified experienced Safety Officers should be employed • Appropriate training on safety management should be provided for the Safety Officers to strengthen their capacities • Safety Officers should develop their capacities to identify hazards and conduct appropriate tool box meetings and ensure that safe work zones are provided for workers before deploying them.
Management commitment 	<ul style="list-style-type: none"> • Managers must pay more attention to health and safety management issues within his command area. • Safety must be given a high priority in worksites • Managers must get involved in all matters relevant to safety.
Safety Violations	<ul style="list-style-type: none"> • Random visits to work sites should be conducted to identify the shortcomings and measures should be taken to rectify them. • Officials from the Labour Department should visit the construction sites randomly to check the compliance.

- Further research on Health and Safety Management in road construction projects are suggested to improve the health and safety of the workers engaged in road construction work.

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Appendices

Appendix – A Sample Questionnaire

Analysis of Health and Safety Management Practices in Road Construction Projects in Northern and North Central Provinces of Sri Lanka - Questionnaire

Aim of the study:

The aim of the study is to investigate the major health and safety management issues prevalent in road construction projects that are being implemented in the Northern and North Central Provinces of Sri Lanka and to propose recommendations that would enhance the health and safety management standards in road construction sites.

Objectives of the study:

- Identify the health and safety issues prevailing in road construction projects
- Inspect health and safety management practices of road construction projects in Northern and North Central Provinces of Sri Lanka
- Determine reasons for prevailing issues in health and safety management in road construction projects.
- To propose recommendations to enhance safety management in road construction sites.

Scope:

The study will be confined to seven construction projects currently being implemented under the Northern Road Connectivity Project (Additional Financing) that are based in Northern and North Central Provinces of Sri Lanka.

Questionnaire:

Focus of the questionnaire is to assess the Health and Safety Management status of road construction projects in Sri Lanka. Your cooperation in completing this questionnaire is greatly appreciated and your response will be treated confidentially and used for academic purpose only.

Date: _____ Name of Company: _____
 Name of the Project: _____ Location: _____
 Name of Respondent: _____ Gender: _____
 Age: _____
 Occupation: _____

Training and Supervision

1. Do you all get induction training when you join your company?

Yes	No

2. Were you given training on safe work procedures for your job?

Yes	No

3. Does your Manager/Supervisor check or make sure that you can do the work safely?

Yes	No

4. Are you all made aware of the safety issues related to your job?

Yes	No

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5. Does your company work out all the job/tasks that have safety risks?

Yes	No

6. Does your company have safe working procedures for all task based activities in your area that have safety risks?

Yes	No

7. Do you follow the safe work procedures?

Yes	No

8. Does your company review and update your safe work procedures?

Yes	No

9. Do you have enough time to learn the safe work procedures?

Yes	No

Communication

10. Do you have a communication system with your Manager concerning health and safety?

Yes	No

11. Are you /your representative involved in safety matters?

Yes	No

12. Does the management take notice of what you say about safety?

Yes	No

13. Do you know who your safety committee member (or safety rep.) is?

Yes	No

Reporting safety

14. Do you have a safety reporting procedure (for incidents and issues) and are you using it?

Yes	No

15. Do you report safety incidents?

Yes	No

16. Are you encouraged to report safety incidents?

Yes	No

17. Are the safety incident reports followed up?

Yes	No

18. Does your safety training get reviewed or updated if there is an incident?

Yes	No

19. Does your company take immediate action if you report a serious problem where someone could get hurt?

Yes	No

Management commitment

20. Do your Managers understand what they and you should do regarding safety?

Yes	No

21. Is the time put in to safety matters enough?

Yes	No

22. Do you feel that the resources and money allocated for safety is enough?

Yes	No

23. Is safety given a high priority in your company?

Yes	No

24. Does the management get involved in safety issues?

Yes	No

25. Do you feel that your health and safety matters in your organization?

Yes	No

Injury and return to work

26. Do you know whom to ask about what to do if you get injured?

Yes	No

27. Does your company display information regarding injury management?

Yes	No

28. Do you have a return to work programme?

Yes	No



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(අදාළ ස්ථානයේ (✓) ලකුණ යොදන්න)

පුහුණුව හා සුපරීක්‍ෂණය

1. ඔබ සියලු දෙනාම, ආයතනයට බැඳුණු අවස්ථාවේ මූලික පුහුණුවක් ඔව් () නැත ()
ලබා දෙනවාද? ඔව් () නැත ()

2. ඔබට අදාළ කාර්ය කිරීමේදී ආරක්‍ෂා ක්‍රමවේද ගැන පුහුණුවක් ලබා දුන්නාද?

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3. ඔබගේ කළමනාකරු/සුපරීක්‍ෂකවරයා ඔබට අදාළ කාර්ය ඔව් () නැත ()
ආරක්‍ෂා සහිතව කරගෙන යා හැකි දැයි සොයා බලනවාද?

4. ඔබ සියළු දෙනාගේම ආරක්‍ෂාව සම්බන්ධයෙන් අදාළ ප්‍රශ්න පිළිබඳ ඔව් () නැත ()
දැනුවත් කිරීමකලාද?

ආරක්‍ෂාව සහිතව වැඩ කිරීමේ ක්‍රමවේද

5. ඔබ ආයතනය, ආරක්‍ෂණ අවදානම් සහිත රැකියා පිළිබඳ ඔව් () නැත ()
ඔබ දැනුවත් කර සිටිනවාද?

6. ඔබ ආයතනයේ සෑම වැඩකරුන්ටම ආරක්‍ෂා සහිතව වැඩ කිරීමේ ක්‍රමවේදයන්
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ඔව් () නැත ()

7. ඔබ ආරක්ෂා සහිත වචන කිරීමේ ක්‍රමවේදයන් අනුගමනය කරනවාද?
8. ඔබ ආයතනය ආරක්ෂා සහිත වචන කිරීමේ ක්‍රියාදාමයන් සොයා බලා හිරි
රුව විමසනවාද? ඔව් () නැත ()
9. ඔබ ආරක්ෂා සහිත වචන කිරීමේ ක්‍රමවේදයන් පිළිබඳව විමසා ඔව් () නැත ()
(ඉගෙන දැනගැනීමට කාලයක් (අවශ්‍ය ප්‍රමාණයට) තිබෙනවාද?

සන්නිවේදනය

10. ඔබගේ කළමනාකාරනුමාස මග සෞඛ්‍යය ආරක්ෂා ව පිළිබඳ
සාකච්ඡා කිරීමට සන්නිවේදන ක්‍රමයක් තිබෙනවාද? ඔව් () නැත ()
11. ඔබ/ඔබගේ නියෝජිතයා, ආරක්ෂණ වැඩ පිලිවෙල පිළිබඳ ඔව් () නැත ()
වැඩසටහන්වලට සහභාගි වෙනවාද?
12. ඔබ ආරක්ෂණය හා සම්බන්ධව යමක් පවසනවා නම් එය ඔව් () නැත ()
කළමනාකාරිත්වය සොයා බලනවාද?
13. ඔබ ආයතනයේ ආරක්ෂණ කමිටුවේ සාමාජිකයන් කවරින්දෙයින්ද ඔව් () නැත ()
න්නවාද?



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ආරක්ෂාව පිළිබඳ වාර්තා කිරීම

14. ආරක්ෂණයට අදාළ දැනුම් දීමේ ක්‍රමවේදනයක් තිබෙනවාද? ඔව් () නැත ()
ඔබ එය පිළිපදිනවාද?
15. ඔබ ආරක්ෂණය පිළිබඳ යමක් සිදු වුවහොත් එය දන්වා සිටිනවාද? ඔව් () නැත ()
16. ආරක්ෂණයට අදාළ කරුණු වාර්තා ඔව් () නැත ()
කිරීමට ඔබ වදි රගන්නනවාද?
17. ආරක්ෂණ සිදු වීමේ වලට අදාළ වාර්තා
ඔව් () නැත () පසුව පරමක්
කරනවාද?

18. යම්කිසිසිදුවීමක්වුවහොත් ඒ ගැන විමසා ආරක්ෂණ පුහුණුවීම් වැඩසටහන්/ අළුත් කරනවාද? ඔව්() නැත()

19. ඔබ ආයතනය, යම්කෙතෙක් අනතුරු කටපත් විය හැකි හැකි තත්වයක් වාර්තා කලහොත් ඒ පිළිබඳව ඉක්මන් ප්‍රතිචාරයක් දැක්වෙනවාද? ඔව්() නැත()

කළමනාකාරිත්වයේ කැපවීම

20. ඔබගේ කළමනාකාරිත්වයට ආරක්ෂණය පිළිබඳව ඔවුන් සහඔබ ගත යුතු ක්‍රියා මාර්ග ගැන තේරුමක් තිබෙනවාද? ඔව්() නැත()

21. ඔබ සිතන අන්දමට ආරක්ෂණ ක්‍රියාවලිය සඳහා කැපකොට තිබෙන කාලය ප්‍රමාණවත්ද? ඔව්() නැත()

22. ඔබ සිතන අන්දමට ආරක්ෂණ ක්‍රියාවලිය සඳහා යොදා තිබෙන සම්පත් හා මුදල් ප්‍රමාණවත්ද? ඔව්() නැත()

23. ආරක්ෂණ ක්‍රියාවලිය සඳහා අසපු ඔබගේ වයස් ලබා දෙනවාද? ඔව්() නැත()



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24. ඔබගේ කළමනාකාරිත්වයට ආරක්ෂණයට අදාළ පුශ්ණ සඳහා සම්බන්ධ වෙනවාද? ඔව්() නැත()

25. ඔබගේ සෞඛ්‍ය සහ ආරක්ෂාව ඔබ ආයතනයට අදාළ යැයි සිතනවාද? ඔව්() නැත()

අනතුරු කින් පසු නැවත සේවයට පැමිණීම

26. ඔබට අනතුරක් වුවහොත් කටයුතු කරන ආකාරය පිළිබඳ දැනගන්නේ කාගෙන්දැයි දන්නවාද? ඔව්() නැත()

27. ඔබ ආයතනයේ, අනතුරු කළමනාකරනය පිළිබඳ විස්තර ප්‍රදර්ශනය කොට තිබෙනවාද? ඔව්() නැත()

28. අනතුරකින් පසු නැවත වැඩට පැමිණීම පිළිබඳව යම් කිසි වැඩසටහනක්

මව්() නැත()

තිබෙනවාද?



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Appendix – C; Results of Cumulative response for the questionnaire

	Yes	No
Training and supervision	838	127
Safe work procedures	1124	126
Communication	789	211
Reporting safety	1397	103
Management commitment	1264	236
Injury and return to work	621	129

Appendix – D; Results of the Comparison of Training and Supervision

	Yes	No
P1	121	19
P2	125	15
P3	80	20
P4	51	25
P5	116	28
P6	268	16
P7	112	4

Appendix – E; Results of the Comparison of Communication

	Yes	No
P1	139	1
P2	115	25
P3	56	44
P4	35	41
P5	133	11
P6	210	74
P7	101	15

Appendix – F; Results of the Comparison of Safe Work Procedures

	Yes	No
P1	173	2
P2	148	27
P3	97	28
P4	74	21
P5	167	13
P6	320	35
P7	145	0

Appendix – G; Results of the Comparison of Reporting System

	Yes	No
P1	209	1
P2	192	18
P3	128	22
P4	101	13
P5	206	10
P6	393	33
P7	168	6

Appendix – H; Results of the Comparison of Management Commitment

	Yes	No
P1	208	2
P2	140	70
P3	134	16
P4	93	21
P5	197	19
P6	359	67
P7	133	41


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Appendix – I; Results of the Comparison of Injury and Return to Work

	Yes	No
P1	104	1
P2	100	5
P3	58	17
P4	35	22
P5	90	18
P6	154	59
P7	80	7