Study on
Occupational Hazards, Health & Safety of Women Workers in Electronics Assembly, Readymade Garments & Plastic Products Manufacturing Industries

Supported by:

GOVERNMENT OF INDIA
Ministry of Science & Technology
Rashtriya Vigyan Evam Prodyogiki Sanchar Parishad (RVPSP)

Study Conducted by:

National Foundation of Indian Engineers

ACKNOWLEDGEMENTS

At the outset, NAFEN would like to specially thank **Ms Shashi Ahuja, Director, RVPSP,** Department of Science & Technology (DST), for her guidance, motivation and sparing her valuable time during the course of this study.

We specially acknowledge with thanks the guidance and expert advice given by **Prof. Dr. S K Dave,** a renowned Emeritus Medical Scientist (ICMR) and Former Director, NIOH, GoI in finalizing the report and preparation of the Manual.

NAFEN is also deeply obliged to **Prof. Dr. Anand Krishna,** AIIMS, Delhi and various other experts and all the respondents from all the three sectors for giving valuable information as per the structured questionnaires for completing the study in time.

We are thankful to all our colleagues in NAFEN, who helped NAFEN in completing this study within the stipulated time period.

New Delhi
Dated: September, 2010

Dr. P K GUPTA
Project Investigator

SECTION -1: ABOUT THE STUDY

1.0 BACKGROUND

Health and Safety of the employees are important aspects of an organization's smooth and effective functioning. Good health and safety performance ensures an accident-free industrial environment.

Awareness of occupational health and safety (OH&S) still needs improvements in India considerably. Organizations have not yet started attaching the same importance to achieve high OH&S performance as they do to other key aspects of their business activities. This demands adoption of a structured approach for the identification of hazards. A properly documented OH&S management manual enables an organization to formulate policies and objectives, taking into account statutory requirements and information about significant hazards and risks, which the organization can control and over which it can be expected to have an influence, to protect its employees and others, whose health and safety may be affected by the activities of the organization.

In January, 2008, Science & Communication Division (Rashtriya Vigyan Evam Sanchar Parishad- RVPSP) of the Department of Science & Technology, Government of India invited open proposals from various organizations for conducting a study on Occupational Health Hazards of Women and preparation of Manual for health & safety of the women industrial workers in India. The Parishad has been mandated to empower women and selected awareness on occupational hazards as an area of priority.

1.1 INTRODUCTION

Occupational health and safety is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment. The goal of all occupational health and safety programs is to foster a safe work environment. As a secondary effect, it may also protect co-workers, family members, employers, customers, suppliers, nearby communities, and other members of the public who are impacted by the workplace environment. It may involve interactions among many subject areas, including occupational medicine, occupational (or industrial) hygiene, public health, safety engineering, chemistry, health physics, ergonomics, toxicology, epidemiology, environmental health, industrial relations, public policy, industrial sociology, medical sociology, social law, labour law and occupational health psychology.

Reasons for Health and Safety

The reasons for establishing good occupational health and safety standards are frequently identified as:--

Moral - An employee should not have to risk injury or death at work, nor should others associated with the work environment.

Economic - Poor occupational health and safety performance results in cost to the State (e.g. through costs for medical treatment and the loss of the "employability" of the worker). Employing organizations also sustain costs in the event of an accident at work (such as legal fees, fines, compensatory damages, investigation time, lost production, lost goodwill from the workforce, from customers and from the wider community). Loss of trained man power results in low productivity as the new employees would need training & further experience. Healthy worker would also protect the organization against accidents and disasters

Legal – Statutory requirements for health & safety may be reinforced by law. It is accepted that without the extra "encouragement" of potential regulatory action or litigation, many organizations would not act upon their implied moral obligations.

Hazards, risks, outcomes

The terminology used in OSH varies, but generally speaking:

- A hazard is something that can cause harm if not controlled.
- The outcome is the harm that results from an uncontrolled hazard.
- A risk is a combination of the probability that a particular outcome will occur and the severity of the harm involved.

“Hazard”, “risk”, and “outcome” are used in other fields to describe e.g. environmental damage, or damage to equipment. However, in the context of OSH, “harm” generally describes the direct or indirect degradation, temporary or permanent, of the physical, mental, or social well-being of workers. For example, repetitively carrying out manual handling of heavy objects is a hazard. The outcome could be a musculoskeletal disorder (MSD) as well as Repetitive Strain Injuries (RSI) or acute back pain or joint injury. The risk can be expressed numerically (e.g. 0.5 or 50/50 chance of the outcome occurring during a year), in relative terms (e.g. "high/medium/low"), or with a multi-dimensional classification scheme (e.g. situation-specific risks).

Hazard Assessment

Hazard analysis or hazard assessment is a process in which individual hazards of the workplace are identified, assessed and controlled/eliminated as close to source (location of the hazard) as reasonable and possible. As technology, resources, social expectation or regulatory requirements change, hazard analysis focuses controls more closely toward the source of the hazard. Thus hazard control is a dynamic program of prevention. Hazard-based programs also have the advantage of not assigning or implying there are "acceptable risks" in the workplace. A hazard-based program may not be able to eliminate all risks, but neither does it accept "satisfactory" -- but still risky—outcomes. And as those who calculate and manage the risk are usually managers while those exposed to the risks are a different group, workers, a hazard-based approach can by-pass conflict inherent in a risk-based approach.

Risk assessment

This assessment should:

- Identify the hazards
- Identify all those who are likely to be affected by the hazard and how

- Evaluate the risk
- Identify and prioritize appropriate control measures

The calculation of risk is based on the likelihood or probability of the harm being realized and the severity of the consequences. This can be expressed mathematically as a quantitative assessment (by assigning low, medium and high likelihood and severity with integers and multiplying them to obtain a risk factor, or qualitatively as a description of the circumstances by which the harm could arise.

The assessment should be recorded and reviewed periodically and whenever there is a significant change to work practices. The assessment should include practical recommendations to control the risk. Once recommended controls are implemented, the risk should be re-calculated to determine if it has been lowered to an acceptable level. Generally speaking, newly introduced controls should lower risk by one level, i.e., from high to medium or from medium to low.

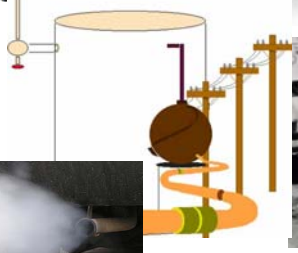
Various Occupational Hazards

Based on the data collected, following hazards have been identified:-

Physical Hazards

- Heat
- Noise
- Unsatisfactory Lighting
- Vibrations




Chemical Hazards

- Chemical Exposures
- Dust
- Fumes/ Gases

Man Machine Relationship

- Fatigue/ Exhaustion
- Injuries


Accidents

- Electrical Burns
- Hot Water Burns
- Gas Burns
- Slipping the Floor
- Cuts from Plants & Tools



Psychological

- Stress / Tension because of Work Place
- Coping with routine work at Home

Diseases Reported by ESIC Hospital / Dispensaries

Medical officers of ESIC Hospitals / Dispensaries were approached for their experience to detect various occupational illnesses such as chronic cough , backache, headache and occupational diseases such as acute and chronic bronchitis, pneumonitis, pharyngitis, silicosis muscular skeletal disorder (MSD), repetitive strain injuries and locomotors & neurological disorders.

1.2 OBJECTIVE:

To identify various occupational Hazards & illnesses in the working women & prepare Health & Safety Manual accordingly.

1.3 SCOPE:

Following three sectors were agreed to be covered for this study in consultation with the Department in the Project Advisory Committee (PAC) meeting held on 12th February, 2008 in DST at New Delhi under the chairmanship of Prof. Dr. S K Dave:-

- Electronic Assembly
- Readymade Garments
- Plastic Products Manufacturing

Above three sectors are fairly well organized and have proportionately large number of women employees in the work force. These industries were selected with a view to have a deeper and effective perspective of various occupational hazards for preparing the Manual sector wise.

After collecting data from women employees working in the three selected industries, identify the occupational hazards as per the agreed sample size, on random sampling basis

After identifying the hazards, prepare the Health & Safety Manual separately for each sector.

SAMPLE SIZE

As per Ministry of Small Scale Sector, GoI and DSIR, GOI, there are 29.49 million workers employed in 18 sectors of Indian Economy in SME sector.

Taking the above as the base, sample size was worked out as follows:-

	Nos. Million
No of workers in 18 sectors (2005-2006)	29.49
No of workers on prorate basis in three sectors	4.92

Sectoral distribution of male to female workers was assumed as follows: -

Sr.No.	Sector	Male/ Female	Female Nos. Million
1.	Electronic Assembly Industry	60/40	0.65
2.	Readymade Garment Industry	50/50	0.82
3.	Plastic Products Manufacturing Industry	70/30	0.49

Therefore, total female workers in the three identified sectors will be 1.96 nos. million.

As per statistical experts, 0.2% sample size was considered sufficient keeping in view the cost and time elements i.e. **3920 female workers for the three sectors that is 1307 nos. of female workers per sector on All India basis.**

In line with the above, data was collected from **3938** women employees from the three sectors covering **733** organizations to identify the occupational hazards on All India basis**. Sample was selected on Random Sampling Basis**.

Both Technical and Non Technical employees were covered in the ratio of 80:20 i.e. **4 technical employees and 1 non technical employee from each organization**.

In addition data was also collected from the following:-

- **80 owners** on all India basis from three sectors.
- Heads of the All India Trade associations in these sectors—**3 from each sector**
- **25** ESIC Hospitals
- **28** R&D Labs

1.4 MATERIALS & METHODS

i. Identified the manufacturing organizations all over India in the three selected sectors and prepared the data base with communication details from various trade directories and internet. Respondents for data collection were selected randomly as given in **Table No. –A.**

ii. Prepared the draft questionnaires separately for:-

- Employees
- Employers
- Trade Associations
- ESIC Hospitals

iii Above Questionnaires were discussed in depth first with Dr. Anand Krishna of AIIMS, Delhi and subsequently finalized with Prof. Dr. S K Dave, Emeritus Medical Scientist (ICMR) and former Director, NIOH, Ahmedabad (Gujarat)

iv The questionnaires finalized under (iii) above were pretested with three organizations in each sector that is a total of 9 organizations

v Since no problems were faced during pretesting, the questionnaires finalized under (iii) above were circulated by mail to various Manufacturing Organizations dealing with electronic assembly, readymade garments and plastic products manufacturing

vi Collected the data from the sample respondents through personal visits and discussions

vii Data feeding and internal rechecking

viii Data Analysis

Data collected from all the respondents was discussed with experts and analyzed.

Report highlights the occupational hazards and illnesses in the three sectors as perceived by the employees. Based on the data analysis, health & safety manual has been prepared covering three sectors electronic assembly, readymade garments and plastic products manufacturing.

R&D Labs were also contacted to find out if they have developed any technical gadgets or instruments for the health & safety of the industrial workers. R&D Labs which responded mentioned that so far they have not developed any gadgets or instruments applicable for our identified sectors.

Ix Final Report

Table No. –A: Response Profile

(Nos.)

Item		Industry / Zones														
		Electronics Assembly					Readymade Garments					Plastic Products Manufacturing				
		East	North	South	West	Total	East	North	South	West	Total	East	North	South	West	Total
Organizations Contacted by Mail		25	132	218	572	947	50	541	385	255	1231	24	508	111	796	1439
Organizations from whom Data Collected		15	58	76	92	241	11	70	101	53	235	7	71	18	161	257
Employees from whom Data Collected	Total	75	296	477	467	1315	75	449	519	263	1306	40	364	97	816	1317
	Technical	60	234	387	373	1054	60	367	410	206	1043	33	293	79	655	1060
	Non Technical	15	62	90	94	261	15	82	109	57	263	7	71	18	161	257
Employers from whom Data Collected		2	9	7	8	26	1	12	9	4	26	5	8	6	9	28
Trade Associations Contacted by Mail		1	6	6	1	14	--	3	2	5	10	7	11	6	19	43
Trade Associations from whom Data Collected		1	--	2	--	3	--	1	1	1	3	1	1	--	1	3

ESIC Hospitals	East	North	South	West	Total
Hospitals Contacted by Mail	11	8	8	15	42
From whom Data Collected	9	5	4	7	25
R&D Labs					
Labs. Contacted by Mail	6	12	5	5	28
From whom Data Collected	3	3	2	2	10

SECTION -3: CONCLUSIONS

3.0 CONCLUSIONS

Based on the data analysis, comparison of data for occupational hazards for the three selected industries is given below viz:-

- Employees of all the three sectors taken together
- Employers of all the three sectors taken together
- Trade Association of all the three sectors taken together

For more details for analysis of data please see section -2 of the detailed report which available at the following address:

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CONCLUSIONS

NOTE: **Data given below for comparison of common hazards is for "YES" responses and is for maximum number of responses for any occupational hazard followed by the next maximum**

1.00 EMPLOYEES

Sr. No	Item	Electronics Assembly Industry (EAI)	Readymade Garments Industry (RGI)	Plastic Products Manufacturing Industry (PPMI)
1	**Occupational Hazards**			
	Physical **(Technical Employees)**	860 (82) Heat	1024 (98) Vibration	849 (80) Heat
		280 (27) Unsatisfactory Lighting	959 (92) Noise	632 (60) Noise
	Observation *Heat is observed as a hazard in EAI & PPMI sectors where as Noise is observed in RGI & PPMI sectors. Further it was observed that hazard such as vibration was prevalent only in RGI*			
	Physical **(Non Technical Employees)**	131 (50) Heat	210(80) Heat	129(50) Heat
		--	108(41) Noise	126 (49) Noise
	Observation Heat is observed as a common occupational hazard for non technical employees in all the three industries while noise was prevalent only in RGI and PPMI			
	Chemical (Technical Employees)	860 (82) Fumes/Gases	984 (94) Dust	445 (42) Fumes/Gases
		--	438 (42) Fumes/Gases	286 (27) Dust
	Observation *Fumes & Gases is observed as a hazard in all the three sectors where as Dust is observed as a hazard in RGI & PPMI sectors only.*			
	Chemical (Non Technical Employees)	--	25(10) Dust	20(8) Dust
		--	--	--
	Observation Dust is the only hazard which is observed by RGI & PPMI Industry.			

Sr. No	Item	Electronics Assembly Industry (EAI)	Readymade Garments Industry (RGI)	Plastic Products Manufacturing Industry (PPMI)
	Man Machine Relationship (Technical Employees)	760 (72) Fatigue/Exhaustion	626 (60) Fatigue/Exhaustion	935 (88) Fatigue/Exhaustion
		230 (22) Injuries	210 (20) Injuries	539 (51) Injuries
	Observation *Fatigue / Exhaustion and injuries are observed as a major hazard in all the three sectors but it was more common in the PPMI sector*			
	Man Machine Relation ship (Non Technical Employees)	108 (41) Fatigue/ Exhaustion	95 (36) Fatigue/ Exhaustion	114 (44) Fatigue/ Exhaustion
	Observation Fatigue/ Exhaustion is the only hazard which is observed in all the three Industry			
	Accidents (Technical Employees)	716 (68) Electrical Burns	616 (59) Electrical Burns	287 (27) Electrical Burns
		212 (20) Cuts from Plant & Tools	384 (37) Slipping on the floor	146 (14) Cuts from Plant & Tools
	Observation *Electrical Burns is observed as a hazard in all the three sectors, where as cuts from plant & tools is observed as hazard in the EAI & PPMI sectors only*			
	Accidents (Non Technical Employees)	--	--	--
	Observation All the non technical employees from the three industries did not report any accidents.			
2	**Psychological Hazards** (Technical Employees)			
	(i) Do you feel any stress/tension because of work place	864 (82)	684 (66)	756 (71)
	Observation *Stress/ Tension because place is observed in all the three sectors.*			
	(ii) Possible to cope up with their routine work at home	952 (90)	972 (93)	777 (73)
	Observation *Majority reported that they are able to cope with their routine work at home.*			

Sr. No	Item	Electronics Assembly Industry (EAI)	Readymade Garments Industry (RGI)	Plastic Products Manufacturing Industry (PPMI)
	Psychological Hazards (Non Technical Employees)			
	(i) Do you feel any tress/tension because of work place	38 (15)	80 (30)	80 (31)
	Observation It is more prevalent in RGI& PPMI Industry as compared to EAI Industry			
	(ii) Possible to cope up with their routine work at home	198 (76)	195 (74)	118 (46)
	Observation To cope up with routine work at home was less in PPMI as compared to EAI & RGI			
3	**Personal History** (All Employees)	1209 (92) Do not smoke	1196 (92) Do not smoke	1160 (88) Do not smoke
		104 (8) Tobacco Chewing	110 (8) Ex. Smoker	57 (12) Smoker
	Observation *Majority reported that they are non smokers and non tobacco chewers*			
4	**Symptoms of Illness** (Technical Employees)	311 (30) Backache	396 (38) Headache	699 (66) Headache
		249 (24) Headache	230 (22) Cough	452 (43) Cough
	Observation *Headache is reported in all the three sectors where as cough is reported in RGI & PPMI sectors only. Further head ache and cough is maximum in PPMI*			
	Symptoms of Illness (Non Technical Employees)	54 (21) Backache	85 (32) Backache	64 (25) Backache
		37 (14) Headache	72 (27) Headache	138 (54) Headache
	Observation Backache was reported almost equal in all the three industries while headache was more common in PPMI			

Sr. No	Item	Electronics Assembly Industry (EAI)	Readymade Garments Industry (RGI)	Plastic Products Manufacturing Industry (PPMI)
5	**Chronic Diseases History** (Technical Employees)	240 (23) Anemia	262 (25) Anemia	120 (12) Anemia 120 (12) Skin Disease
		157 (15) Hyper tension	24 (2) Skin disease	18 (2) Heart Disease
	Observation *Anemia is reported in all the three sectors. Skin disease is reported only in RGI & PPMI sectors*			
	Chronic Diseases History (Non Technical Employees)	16 (6) Anemia	38 (14) Anemia	35 (14) Anemia
	Observation Anemia was the commonest illness reported in all three sectors			
6	**Provisions / Systems of Safety to Avoid Occupational Hazards** (All Employees)			
	Availability of Functional First Aid Box	1138 (87)	1245 (95)	1236 (94)
	Availability of Functional Exhaust Fans	911 (69)	1176 (90)	1181 (90)
	Proper Electrical system	958 (73)	1175 (90)	1114 (85)
	Protective Clothing	--	520 (40)	546 (42)
	Safety Hand Gloves	838 (64)	520 (40)	833 (63)
	Protective Shoes/ Gumboots	--	483 (37)	854 (65)
	Proper & Regular Cleaning of the shop floor	1111 (84)	1013 (78)	1089 (83)
	Proper railing of the stairs	1020 (78)	1032 (80)	389 (30)
	Adequate moving space around the working machines	676 (51)	1140 (87)	504 (38)
	Adequate moving space in other areas	750 (57)	1140 (87)	856 (65)
	Adequate clean water drinking facility	1000 (76)	1210 (93)	1245 (95)

Sr. No	Item	Electronics Assembly Industry (EAI)	Readymade Garments Industry (RGI)	Plastic Products Manufacturing Industry (PPMI)
	Safety Goggles	Not Applicable	Not Applicable	896 (68)
	Observation *Many organizations do not have various protective measures and systems in place as identified above.*			
7	**Training for Safety Regulations** (Technical Employees)			
	Training to follow safety regulations to avoid occupational hazards	267 (25) 12-24 months	521 (50) Above 24 months	235 (22) 12-24 months
		211 (20) Above 24 months	314 (30) 12-24 months	205 (19) 6-12 Months
	Observation *Very few organizations give training to their employees for safety regulations*			
	Training for Safety Regulations (Non Technical Employees)			
	Training to follow safety regulations to avoid occupational hazards	47 (18) 12-24 months	47 (18) 12-24 months	36 (14) 12-24 months
		34 (13) Above 24 months	184 (70) Above 24 months	30 (12)Above 24 months
	Observation It is observed that Maximum number of non technical workers reported training in the RGI after 24 months			
8	**Over Time Work (Hours/week)** (All Employees)	381 (29)	473 (36)	433 (33)
	Observation *About 30% of the employees reported that they do over time work*			
9	**Other Safety Requirements to avoid Occupational Hazards** (All Employees)			
	Status of house keeping/ hygiene at the work place	858 (65) Good	836 (64) Good	780 (59) Good
		265 (20) Very Good	382 (29) Very Good	370 (28) Very Good
	Over all management of Health & Safety at work place	758 (57) Good	706 (54) Good	958 (72) Good
		351 (27) Very Good	545 (42) Very Good	195 (15) Very Good
	System of Accident Handling	738 (56) Good	612 (47) Good	908 (69) Good
		459 (35) Very Good	535 (41) Very Good	220 (17) Average
	System of handling sexual harassment problems	693 (53) Satisfactory	1080 (83) Satisfactory	708 (54) Satisfactory
		568 (43) Very Satisfactory	226 (17) Not Satisfactory	85 (33) Very Satisfactory

Sr. No	Item	Electronics Assembly Industry (EAI)	Readymade Garments Industry (RGI)	Plastic Products Manufacturing Industry (PPMI)
	Work policy for expectant and new mothers	958 (73) Satisfactory	1046 (80) Satisfactory	1091 (83) Satisfactory
		357 (27) Very satisfactory	260 (20) Very Satisfactory	226 (17) Very Satisfactory
	Status of Welfare Facilities	1315 (100) Satisfactory	1306 (100) Satisfactory	1317 (100) Satisfactory
	System of Accident investigations in the organization	1315 (100) Satisfactory	1306 (100) Satisfactory	1317 (100) Satisfactory
	Observation *No employee reported Excellent .Most of the employees reported either Good or Satisfactory in all three sectors*			
10	**Availability of employee safety hand book in the organization** (All Employees)	130 (10)	260 (20)	212 (16)
	Observation *Very few organizations had safety hand book*			
11	**Medical facilities in the organization** (All Employees)			
	(i) First aid box	1191 (91)	941 (72)	1249 (95)
	(ii) Doctor on Call	124 (9)	--	68 (5)
	Observation *Availability of Doctor on call facility was reported by few employees in EAI & PPMI sectors. In the RGI sector it nil*			
12	**Holding of safety drills in the organization** (All Employees)	261 (20)	144 (11)	334 (25)
	Observation *Very few reported holding of safety drills in the organization*			

2.00 EMPLOYERS

S. No.	Item	Electronics Assembly Industry	Readymade Garments Industry	Plastic Products Manufacturing Industry
1	**Occupational Hazards**			
	Physical	16 (62) Heat	26 (100) Vibration	18 (64) Heat
		--	23 (88) Noise	7 (25) Noise
	Observation *Heat is observed as Occupational Hazard by employers in Electronics and Plastic Products Manufacturing Industry where as Noise is observed in Ready Made garments and Plastic Products Manufacturing Industry.*			
	Chemical	9 (35) Fumes / Gases	23 (88) Dust	8 (29) Fumes / Gases
		--	10 (38) Fumes / Gases	7 (25) Dust
	Observation *Fumes and Gases as a hazard are observed in few organizations in all the three industries and dust in Ready made garments and plastic products manufacturing industry.*			
	Man Machine Relationship	5 (19) Fatigue / Exhaustion	4 (15) Fatigue / Exhaustion	11 (39) Fatigue / Exhaustion
		4 (15) Injuries	3 (12) Injuries	5 (18) Injuries
	Observation *Fatigue / Exhaustion and Injuries as a hazard are admitted by few employers in all the three industries.*			
	Accidents	3 (12) Electrical Burns 3 (12) Cuts from Plants & Tools	4 (15) Electrical Burns 4 (15) Hot Water Burns 4 (15) Slipping on the floor	8 (29) Cuts from Plants & Tools
		--	3 (12) Cuts from Plant & Tools	5 (18) Electrical Burns
	Observation *Accidents as a hazard are admitted by very few employers in all the three industries.*			
2	**Provisions/ systems of safety in the organization for avoiding the occupational Hazards (All)**	26 (100)	26 (100)	28 (100) Except 20 (71) Protective Shoes/Gumboots
	Observation *All the employers reported that they have the necessary provisions / systems of safety in their organizations.*			
3	**Training to employees**	26 (100)	19 (73)	28 (100)
	Observation *Employers reported that they give training to their workers.*			

S. No.	Item	Electronics Assembly Industry	Readymade Garments Industry	Plastic Products Manufacturing Industry
4	**Over time of workers**	8 (31)	10 (38)	18 (64)
	Observation *Few employers admitted that their workers are required to do over time.*			
5	**Display of Safety / danger sign boards**	26 (100)	22 (85)	28 (100)
	Observation *Employers reported that they display safety / danger sign boards in their organizations.*			
6	Status of House Keeping / hygiene at the work place	20 (77) Good	21 (81) Good	19 (68) Good
		6 (23) Excellent	5 (19) Excellent	9 (32) Excellent
	Overall management of health and safety at the work place	16 (61) Good	15 (58) Good	15 (53) Good
		7 (27) Very Good	11 (42) Very Good	8 (29) Very Good
	Accidents Handling	16 (62) Good	15 (58) Good	22 (79) Good
		10 (38) Excellent	11 (42) Very Good	6 (21) Excellent
	Observation *Employers observations varied from Excellent to Good.*			
7	System of handling sexual harassment problems	26 (100)	26 (100)	28 (100)
	Work policy	26 (100)	26 (100)	28 (100)
	Welfare facilities	26 (100)	26 (100)	28 (100)
	Accident investigation	26 (100)	26 (100)	28 (100)
	Observation *All the employers reported that they have the necessary systems in place.*			
8	Smoking at the work place	No	No	No
	Using Mobile Phones	No	No	No
	Observation *All the employers reported that smoking and mobile phones are Not permitted at work.*			
9	**Employee Safety Hand Book**	3 (12)	16 (62)	5 (18)
	Observation *Very few organizations had employee safety hand book.*			
10	**Holding of safety drills**	5 (19)	26 (100)	4 (14)
	Observation *In Ready Made Garment Industry all employers reported that they hold safety drills.*			
11	**Medical Facilities –**			
	(i) First aid box	26 (100)	26 (100)	28 (100)
	(ii) Doctor on Call	3 (12)	Nil	2 (7)
	Observation *All the employers reported availability of first aid box. Doctor on call facility was available in few organizations.*			

3.00 TRADE ASSOCIATIONS

S. No.	Item	Electronics Assembly Industry	Readymade Garments Industry	Plastic Products Manufacturing Industry
1	**Occupational Hazards**			
	Physical	3 (100) Heat	3 (100) Heat 3 (100) Noise	3 (100) Heat 3 (100) Noise
		--	1 (33) Unsatisfactory Lighting	1 (33) Unsatisfactory Lighting
	Observation *All admitted Heat as an occupational hazard in all the three industries where as Noise only in Ready Made Garments and Plastic Products Manufacturing Industry.*			
	Chemical	3 (100) Fumes / Gases	3 (100) Dust 3 (100) Fumes / Gases	3 (100) Dust 3 (100) Fumes / Gases
		--	2 (67) Chemical Exposure	--
	Observation *All admitted Fumes / Gases as occupational hazards in all the three industries where as Dust was admitted only in Ready Made Garments and Plastic Products Manufacturing Industry.*			
	Man Machine	3 (100) Fatigue / Exhaustion 3 (100) Injuries	2 (67) Fatigue / Exhaustion 2 (67) Injuries	3 (100) Injuries
				2 (67) Fatigue / Exhaustion
	Observation *All admitted Fatigue / Exhaustion and Injuries as occupational hazard in all the three industries.*			
	Accidents	3 (100) Electrical Burns 3 (100) Cuts from Plants & Tools	3 (100) Electrical Burns	3 (100) Electrical Burns 3 (100) Cuts from Plants & Tools
	Observation *All admitted Electrical Burns as occupational hazards in all the three industries where as Cuts from Plants and Tools was admitted only in Electronics and Plastic Products Manufacturing Industry.*			
2	**Provisions / Systems of safety in the organization for avoiding the occupational hazards (All)**			
		3 (100)	3 (100)	3(100)
	Observation *All admitted that the necessary provisions / systems are in place in the industry.*			
3	**Training of Workers**	3(100)	2 (67)	3(100)
	Observation *All admitted that the industry trains the workers except Ready Made Garments industry.*			
4	**Status of house keeping**	3 (100) Good	3 (100) Good	3 (100) Good
5	**Overall Management of H&S**	3 (100) Good	3 (100) Good	3 (100) Good

S. No.	Item	Electronics Assembly Industry	Readymade Garments Industry	Plastic Products Manufacturing Industry
6	**System of Accidents Handling**	3 (100) Good	3 (100) Good	3 (100) Good
7	**Sexual Harassment Problems**	3 (100) Satisfactory	3 (100) Satisfactory	3 (100) Satisfactory
8	**Status of work policy for expectant and new mothers**	3 (100) Satisfactory	3 (100) Satisfactory	3 (100) Satisfactory
9	**Welfare facilities**	3 (100) Satisfactory	3 (100) Satisfactory	3 (100) Satisfactory
10	**Accident Investigations**	3 (100) Satisfactory	3 (100) Satisfactory	3 (100) Satisfactory
	Observation *Response varied from Satisfactory to Good.*			
11	**Employee safety hand book**	1 (33)	2 (67)	1 (33)
	Observation *Availability of safety hand book was reported in few organizations.*			

SECTION -4: RECOMMENDATIONS

4.0 RECOMMENDATIONS

Based on the analysis of the data collected from the respondents and discussions held during data collection, with the employees, employers and trade associations, following are the recommendations :--

4.1 Targets for health and safety

Targets for health and safety should be fixed and reviewed by the management of the Organizations.

Management of each Organization should review the performance of the managers with responsibilities for health and safety. Smart targets should be set for completion of risk assessments, training, and monitoring.

Additional targets relating to H&S should be set in appropriate cases. Targets should include monitoring of overall performance e.g., in relation to reported accidents/incidents.

4.2 Measuring Performance

Proactive monitoring of the implementation of preventive and proactive measures should be carried out to ensure continued effectiveness. Health and safety performance should be measured against set targets to assess how the organization is performing in terms of health and safety and to work towards continued improvement.

4.3 Audits and reviews

Management should carry out structured independent audits and performance reviews on the health and safety management systems and results should be fed into the organization's health and safety plan or programme of works and conveyed to all concern.

4.4 Manual handling

Material should be handled in bags or trolleys and should be risk assessed and reviewed. The top of the hierarchy of controls is elimination of hazards and risks where reasonably practicable

4.5 Workplace transport

Effective preventive measures should be implemented to control the risk. Such measures include suitable marking out of traffic routes, parking bays, provision of clear traffic signs and use of a one-way system in the shop floor.

4.6 Improvement Notices

Improvement notices should be issued from time to time so that every body in the organization is fully aware all the time

4.7 Legal implications

Every management has a legal duty to ensure the health and safety of its staff.

4.8 Future reports

All future reports on health and safety performance should include an update on progress in addressing the points raised in the previous meetings

4.9 Training --financial implications

Training is very import part of the Health & Safety activities. There is a cost for the training planned to comply with requirements. There should be in-house training budget in every organization.

4.10 Precautions

The following precautionary measures can help employers and employees remain safe and healthy.

- Use without fail .Personal Protective Equipment for hands, foot, eyes etc. Never wear PPE and underlying clothing if it is damaged and do not render them inoperative
- Give prompt care to any wounds sustained
- In the unfortunate event of an accident order thorough investigations
- To identify and transmit to the appropriate recipients any information requiring immediate attention
- Employer should organize appropriate training programmes for employees from time to time to make them aware about various occupational hazards prevailing in the respective industry

4.11 Retention of H&S Records

All H&S records must be properly documented and maintained properly at least for the last five years.

4.12 General

- Provide appropriate measures for handicapped workers
- Use work methods, which are as safe and without risk to health as is reasonably practicable
- Take all reasonably practicable measures with a view to eliminating excessive physical and mental fatigue
- Have recourse to specialists to advice on particular safety and health problems

Based on the data analysis and recommendations, NAFEN has been prepared health & safety manuals for each sector. For these manuals please contact at NAFEN Secretariate.