CHAPTER II

REVIEW OF LITERATURE

A systematic review of literature was carried out in order to gain insight into occupational health problems - their causes and effects. The literature and reports of researches conducted in India and outside India relevant to the present investigation have been grouped under the following headings :

1. Perspective on Occupational Accidents
2. Occupational Diseases and Musculoskeletal Problems in Different Occupations
3. Occupational Environment Factors and Occupational Health Problems
4. Sexual Discrimination and Exploitation at Work Place
5. Occupational Stress and its Sources
6. Occupational Relations and Productivity
7. Living Conditions of Women Workers
8. Women's Employment and its Impact on their Households

1. Perspective on Occupational Accidents

Industrialisation has brought in its wake several problems, one such is accidents. The concept of accident carries with it a wide variety of meanings. It refers to chance, unexpected and unplanned occurrences. Accident is what happens when it is unlooked for/unforeseen, inheriting chances of breakage to materials and injury to limb or life of the host on account of the interaction with some agent in accident situation. The

investigation of industrial accidents in factories was antedated in 1833 when factories act was passed and the laws were enforced through the establishment of factory inspectorate in U.S.A. and in India it was passed in 1948. The vital issue of industrial accidents which held the anxious concern of all the people of the society was the tremendous economic, social and psychological loss incurred in accidents in industrial and business establishments, farms, automobile industry and other public places (Sreekumar, 1966).

Madan (1991) highlighted that the number of fatal injuries at work place in the world is 100,000 annually and every three minutes, somewhere in the world, a worker dies of an industrial injury or illness and every second, at least four workers are hurt. Desai (1973) reported that total number of accidents in recognised industries in India rose from 75,947 in 1951 to 278,485 in 1970. The number of fatalities during the same period rose from 234 to 553. At present between 500 and 600 people are killed every year in such accidents.

Samuel (1976) and Dogra (1985) found that causes of accidents were unguarded or inadequately guarded machinery, improper ventilation, high humidity, improper dress, unsafe procedures, defective equipments and unsafe acts of the worker. Ninty five per cent of the accidents were caused by either unsafe mechanical or physical conditions. These factors resulted in falling, sliding, drowning, immersing, burning, scalding, stricking against something, inhalation and absorption of toxic material causing poisoning. These accidents resulted

into loss of life, loss of capacity to work and loss of earnings. The pain and suffering of the injured as well as the emotional loss to the victims of the fatalities and accidents causing permanent disfigurement or disabilities were impossible to be summed up or evaluated. In some highly industrialised countries, industrial accidents were responsible for the loss of four or five times as many working days as industrial disputes.

Valavanidis and Sarafopoulos (1989) reported that in Greece about 1 billion drachmas was spent on compensation to workers who had suffered at work. In certain cases their cost was comparable to that of national defence. Dogra (1985) highlighted that to the injured, accident caused the loss of wages and the cost of care; to the management, it was the direct cost for meeting medical expenses, compensation or disablement benefits to the injured or to their families. To the society economic cost was in terms of loss of productive capacity and cost of maintenance of the injured and their families through social security schemes or through public or private charities. It had also been found that highest efficiency was found in conjunction with the lowest accident records.

Much of the blame for the situation was laid at the door of the industry as the management thought that a few hundred injured or killed were not going to make a significant difference. Safety measures for workers were not regarded by the management even as part of their normal duty as the management were of the opinion that accidents were acts of God and there was no need for

protective devices on machines, protective equipment for personnel undertaking hazardous jobs or the numerous other measures that could be taken to prevent accidents. Few health standards and guide lines were applied to restrict work place accidents. Where standards regulating work practices or exposure did exist, they often were not applied because of lack of trained officials. In majority of the cases the general attitude of the management and departmental head was that safety was someone else's job and injuries to workers were due to their own negligence and carelessness.

There were cases where safety officers' warnings had been disregarded by the supervisory staff responsible for the achievement of production target resulting in accidents. There were no known instances of workers having been penalised for working without the devices provided because it was difficult to prove any lapse on the part of the workers. Casual labour was exploited with impunity. It has been found that casual labourers were often put on regular production jobs but they were deprived of many of the benefits of full time workers and fear of losing their jobs compelled them to obey orders without any regard for their own safety. They were put on jobs for which they were not trained without guidance or help from the supervisory staff. Apart from gross exploitation by way of low wages, they were not even given protective wear such as shoes, overalls, goggles and gloves.

In many cases response of management to occupational health was based primarily on the profit motive, cost involved and the extent of unions' hold. Thus in line with these considerations their notion had been ranged from outright above of health and safety precautions of the Factory Act to punitive measures against workers. Such managerial manoeuvres were resorted to avoid factory registrations, non submission of returns and records to workshop inspection centre, floating limits for toxic elements and dust and giving the blind eye to appropriate pollution control measures including the holding of regular medical check-ups for the workers. In certain industries the management for processing purposes kept the temperature so high that it resulted into such complications as heat strokes, heat cramps and heat exhaustion. All these transgressions were done knowingly with the active connivance of the inspection officer through personal and political favours and bribes. Further management also did not reveal information on various aspects of workers' production, the type of material used and their impact on health, the number of accidents and dangerous sites, pollution control records, toxicity level, accident reports, factory assessment and medical reports and recommendations for improvement made by factory officers and government agencies.

Agitations and strikes by workers in support of their demands for better wages and amenities for accident prevention occurred frequently. But on the other hand, hardly any trade union in the country had so far chalked out a definite accident prevention programmes. Most of the trade unions appeared on the

scene only after an accident had taken place and their efforts were confined to securing compensation for the worker or his dependents. But they did not feel the need to prevent the accident as no amount of money could compensate for the loss of life and limb. Of nearly 800 trade unions in the country, only 38 had become members of the national safety council. The leaders of the trade unions were of the view that they were not allowed to enter the premises of a factory where an accident had taken place. However when they lodged complaint about unsafe or bad working conditions, the management seldom took any remedial measure. The introduction of Employees State Insurance Scheme had acted as a disincentive to the employers to take an interest in the workers' health safety and after accident care. But the treatment, conveyance and hospitalisation under the scheme were inadequate.

ILO (1962) studied safety in mines. It was reported that employment in any capacity underground was fraught with danger, not only from unexpected disaster but from accidents and sicknesses that occurred daily in all mines. The hazards varied according to the nature of stratification of the coal seams, their thickness, and inclinations to the horizontal lines. The most frequent causes of accidents underground were falls of the roof, haulage and transport, explosions and fires, machinery, hoisting equipments and electrical faults. The influx of water and use of explosive or blasting devices were the hazards accounting for many deaths and injuries every year.

Asia and Pacific Development Centre (1989); Batliwala (1988); Vanackere (1988) and Vimal (1992) attempted to study occupational health hazards in agriculture. It was found that agriculture related health hazards were mainly toxic hazards and accidents. The consumption of agro-chemicals had increased tenfold over the last three decades. The pesticides were hazardous and many were not aware of it. There were 52 per cent cases of pesticide poisoning and 89 per cent work accidents (69 per cent work wounds, 13 per cent internal injuries and 7 per cent burns). About 1500 to 2000 people lost a limb or two and another 1.5 lakh suffered serious injuries per year. The cause was use of sub-standard material by machine manufactures. Labourers in sugar-cane fields were prone to eye injuries. Some had even lost an eye after their corneas got scraped by sharp sugar-cane leaves. Absence of proper medical facilities in the rural areas made the villagers end up losing an eye after spending as much as Rs. 4000 or so on quacks. It was also found that 40 per cent of all infant deaths occurred in the four monsoon months (July to October). When the fields were being prepared for sowing operations and seedlings, the figure rose to 61 per cent. So the environment after the onslaught of the monsoon brought in its wake many accidents. It was also a time when village access to health care was severely reduced by floods, blocked roads and the heavy demand for labour in the field. Agriculture labourers were also prone to snake bites as well as bites of the insects. On an average, there were 2.6 health problems for every worker and 30 per cent of them being work accidents.

2. Occupational Diseases and Musculoskeletal Problems in Different Occupations

Accidents causing a large number of deaths and injuries among factory workers and miners are frequently reported. However probably even greater distress is caused by occupational or work related diseases which are caused by long term exposure to hazardous working conditions. Disease is total reaction of the individual to the threats against his physical and mental integrity. It alters the physiological and psychological functions of an individual and produces many types of musculoskeletal problems also. Occupational diseases and illness are ever present hazards and become amenable to discovery only when situations tend to develop acute symptoms in the work. Dogra (1985) reported that in U.S.A., upto 11,00,000 occupational diseases develop silently and slowly, these remain totally unknown. In India, where the workers are often exposed to much worse hazards compared to advanced countries, where the facilities for proper treatment and diagnose are minimal, this tragedy exists on a large scale though this is not officially recognised. Studies relating to diseases and musculoskeletal problems in different occupations are as follows :

2a. Cotton Industry

Walford et al., (1966) studied diurnal variation in ventilatory capacity of cotton factory workers. An examination of 473 workers showed that workers with byssinosis gave a typical picture of effects of cotton dust. There was increase in prevalence of byssinosis with length of employment and many

workers showed symptoms of hypertension along with byssinosis (Pravizpoor, 1977).

Hunter (1975) and Martin and Higgins (1976) found that handling of dusty, low grade, stained cotton caused acute illness among workers. The illness occurred among workers exposed to high dust concentrations. The dust was produced while opening the bales and carding the cotton. Symptoms began within the first six hours of exposure, with fatigue and generalized aching followed by anorexia, headache, nausea and vomiting. The vomiting persisted for 6-9 hours. Many workers complained of abdominal pain or cramp and a sense of retrosternal discomfort which prevented them from taking a deep breath.

Franklin et al., (1977) indicated that the fine particles of cotton dust were responsible for the decrement in pulmonary function which occurred subsequent to cotton dust inhalation. Byssinosis, a disease of the respiratory system characterized by periodic coughing, wheezing, chest tightness and decreased pulmonary function occurred in individuals after inhalation of cotton dust. Cinkota (1979) investigated air borne bacteria and byssinosis in the cardrooms of 21 cotton spinning mills. Cumulative exposure to air borne bacteria correlated with the prevalence of byssinotic symptoms. The workers who worked in a cotton spinning mills for 20 years or longer appeared to suffer from the symptoms of chronic bronchitis that was bringing up phlegm for as long as three months each year about three times as frequently as matched non byssinotic and they suffered from

attacks of shortness of breath. Jerath (1970) also showed bronchospasm in weaving department. Haglind (1981) also observed prevalence of byssinosis in Swedish cotton mills.

Rao and Hussain (1984) reported that women checkers, machine operators, and others doing stiching, folding and automatic pressing complained of extreme tiredness, headaches, spells of nausea, dizziness and at times fainted. At least 100 persons reported sick every day in some factories complaining of fever, cough and cold. Christiani et al., (1986) studied prevalence of byssinosis and non specific respiratory symptoms among 887 textile workers with at least two years of employment in two cotton mills and one silk mill in Shanghi. The reports of byssinosis were more prevalent among women than men, with complaints of bronchitis and chronic cough.

Gupta and Borker (1987); Ministry of Human Resource Development (1988); Asia and Pacific Development Centre (1989); Misra (1991) and Nair (1992) reported that garment workers were prone to accidents such as sewing needles piercing their fingers which tended to occur under stressful conditions. Spinners and weavers suffered hearing loss due to very high noise levels of the process of spinning. Noise also led to mental and nervous disorders. They suffered from byssinosis, allergic rhinitis, allergic bronchitis, pulmonary tuberculosis and occupational cancers. The seriousness of the disease was dependent upon the fineness of dust, concentration of dust and period of exposure. The early symptoms were wheezing, cough, tightness of chest and shortness of breath. One-fourth of the active textile workers had

lung problem related to breathing cotton dust. The prevalence of diseases was found to increase with increase in duration of work. The other general complaints were lower back pain, joint pain, weakness, loss of weight, transient dizziness on standing after prolonged work, eye complaints, aching of feet and hips from sitting in one position, abdomen pain and headache.

Morris (1986) observed that in production processes where steaming was used, cold and rheumatism were common and it was noticed that sickness rate was lower in times of bad trade and indeed slack seasons were regarded as times for much needed recuperation. Occupational Health and Safety Centre (1995) also reported that 30 per cent of textile workers suffered from disabling occupational disease of byssinosis caused by cotton dust.

2b. Agriculture Work

Jerath (1970); Vanackere (1988); Asia and Pacific Development Centre (1989); Vimal (1992); Sudhir (1992) and Varghese et al., (1994) reported the occupational diseases and musculoskeletal health problems of workers in agriculture work. It was found that agricultural workers faced toxic hazards while using fertilizers, insecticides and herbicides. They were victims of byssinosis, bagassosis, pulmonary tuberculosis and occupational cancer. The agricultural dust coated the mucous membrane of the wind pipe and the result was that they could neither spit nor swallow. Agricultural workers were in close contact with animals or their products. Due to this they suffered

from zoonotic diseases. Agricultural workers also suffered from pneumoconiosis and allergies. Women's work also involved standing in stagnant water, they easily picked up parasitic infections. They also suffered from various musculoskeletal problems i.e., about 2/3rd of the subjects complained of pain in the upper arm and 80 per cent of lower back pain. The incidence of pain in the calf muscule (43 per cent), wrist (37 per cent) and knee joint (43 per cent) had also been considerably high due to prolonged hours of work carried out in bad postures. Mencher (1985) further reported that transplanting activity resulted in intestinal infections and splitting heats and crippling ailments like rheumatic joints and arthritis.

2c. Tea Plantation Work

Mackay (1977) and Asia and Pacific Development Centre (1989) studied disease pattern among the tea garden workers. It was found that intestinal infections and respiratory infections together account for half of the total loss of working time. The principal cause of death was cardiovascular diseases. Diseases related to digestive and respiratory systems caused more deaths among women. Other common problems for plantation women were anaemia, overwork, a high incidence of threatened suicide with parquet poison, urinary tract infections, backache, chest pain and joint pains. Ministry of Human Resource Development (1988) reported that tea pickers suffered from snake bites, allergies, occupational asthma, irritation of bronchi, pesticide hazard and pain at the back due to carrying of heavy loads.

2d. Metal Industry

Norwood et al., (1971) studied nitrogen dioxide poisoning due to metal cutting with oxyacetylene torch. Workers suffered discomfort and shortness of breath and developed pulmonary oedema. Cramer and Dahlberg (1966) studied incidence of hypertension among lead workers (a follow up study based on regular control over 20 years). Workers were found to be suffering from hypertension and there was a correlation between the incidence of hypertension and length of employment.

Uldall et al., (1971) investigated damage from industrial arsine poisoning. Workers had developed rigours, backache and severe abdominal pain which continued through out the night. The skin turned yellowish brown and their hair turned grey. The change in hair colour was ascribed to impregnation by sweat with a high arsenic content. Lessard et al., (1978) reported association between lung cancer and the exposure to nickel and the incidence of lung cancer was higher in nickel factory workers.

Srivastava (1978) and Ministry of Human Resource Development (1988) reported that metal workers suffered from paroxysmal nausea, tightness in the throat, chest discomfort, dyspnoea and headache followed by fever, chills and malaise. They also suffered from mental deficiencies, menstrual disorders, retarded foetal growth, thermal stress, heat exhaustion, eye problems, chemical toxicity and dermatitis. When removed from the environment, symptoms generally subsided.

Kumar and Backiyavathy (1990) studied adverse health effects of tannery and chromate industrial workers exposed to occupational environment in Ranipet of Tamilnadu. Examination of 500 workers showed dermatitis, bronchitis, acid burns, acute pharyngitis, asthma, allergic disorders and tuberculosis.

2e. Mineral Fiber Production

Kleinfeld et al., (1971); Wallace and Langlands (1975) and Nair (1992) surveyed occupational health problems of workers of asbestos fiber production. Total respirable dust and asbestos fibre concentration in the work environment were found much higher than tolerance level of dust. Pulmonary function tests were performed. Significantly more of the workers complained of cough and sputum and had high basal rates on examination. X-ray examination showed pleural calcification with or without pulmonary fibrosis. Nearly half of the working population had respiratory symptoms in one form or other and more than 1/4th had crepitation. Those with positive radiological findings had a proportionately greater number of abnormal pulmonary function values. Chest x-ray showed that abnormality increased from 13 per cent in men who had worked for less than 10 years to 85 per cent in men who had worked for 30 or more yeàrs in the industry. There was high mortality due to cancer of the lung, cancer of the gastro-intestinal tract and fibrotic lesions of the lungs. Concomitant suffocation and overtaxing of the heart proved to be extremely dangerous.

Upton (1979) reported pneumoconiosis in fibrous glass workers in Japan. Examination of lungs of workers by selective alveolobronchography showed changes in the small airways. Simonato et al., (1986) examined workers in man made mineral fiber production in Europe. The study concentrated on 21967 workers in 13 European countries. It was found that deaths due to lung cancer were more among the workers.

Nair (1992) highlighted that mica dust caused scars in lungs, pain in the chest and irritation of the eyes and skin. Prolonged lung deterioration led to tuberculosis. Occupational Health and Safety Centre (1995) revealed that asbestos remained in the lungs for years and caused cancer. It constituted a health hazard not only to workers but also to the population living around such factories.

2f. Chemical Factories

Kustov and Mihajlov (1966) and Hernberg et al., (1971) studied toxic effects of carbon monoxide, ammonia and carbon-disulphide. It was found that high concentration of carbon monoxide caused deaths. Coronary mortality and morbidity were found. There were significantly more cases of chest pain and higher blood pressure among the exposed workers. Aksoy et al., (1975) noted that benzene exerted its harmful effect primarily on leucocytes.

Mitchell and Gandevia (1975) investigated respiratory symptoms and skin reactivity in workers in detergent industry especially exposed to proteolytic enzymes. A total of 98 workers

were examined. Clinical history was taken and questionnaire on respiratory symptoms was applied. Pulmonary function tests were performed together with skin tests. Workers developed sneezing and nasal obstruction within an hour of exposure. Headache, chest tightness and bronchial reactions were also caused. Jerath (1970) reported dermatitis among workers in chemical industries.

Ministry of Human Resource Development (1988); Nair (1992) and Sudhir (1992) reported that the dangers to health due to chemicals and other toxic substances are potentially much greater than those from accidents. Sulphuric acid, oxides of nitrogen, zincs and other chemicals were highly injurious and caused chest pain, bleeding, impotence, abortion and cancer. Poisoning due to chemicals caused damage to internal organs e.g., liver, kidney, brain, lungs, heart, stomach and urinary bladder.

Exposure to dangerous substances over a long period led to chronic poisoning. The onset of symptoms was gradual and was unnoticed and in some cases it appeared 20 or 30 years after exposure. Malignant tumours of various organs of pesticide workers were discovered and most of which were lung cancer. Poly chlorinated biphenyls caused retarded growth and dioxane caused birth defects and still births. Benzene hexachloride and dieldrin a widely used pesticide similar to DDT were present in the breast milk of women exposed to them. Many workers complained of irritation and itching of skin. Many women had black, red and blue marks on their chest. They complained of giddiness, difficulty in breathing and rapid shallow breathing.

2g. Mine Work

ILO (1962); Ghei (1963); Rom et al., (1983) and Ministry of Human Resource Development (1988) studied health problems in mining industry. The diseases suffered most frequently were asthma, tuberculosis of lungs, rheumatism, inflammation of lungs and dermatitis (characterized by redness and scaling of the arms, hands and legs, papules and ulcernations that resulted into thickening, hyperpigmentation and scars). Lichenification, fissuring and excoriation due to scratching were common. They also experienced loss of appetite, nausea, vomiting, pain in stomach and fatigue. They also complained of loss of hearing, backache, aches in joints, eye, nose and throat irritations, inflammation of heart, irritation of the feet and occassional lameness from running over the uneven ground.

2h. Stone Cutting,Cement and Coal Industry

Gupta and Bajaj (1972); Zanardi et al., (1976); Clerk (1981); Chakrapani (1983) and Ministry of Human Resource Development (1988) conducted survey of workers engaged in grinding, chipping and drilling of stone. Inhalation of stone dust for prolonged periods was found to produce various categories of pneumoconiosis. Other lung diseases diagnosed were asthma, bronchitis, emphysema, pneumonitis and pulmonary tuberculosis. It was also found that the exposure to stone dust was fatal to many workers. The dust entered their system through the nose. The dust was accumulated in the lungs. The workers felt pain in the chest and workers coughed like an asthmatic patient

and x-rays showed black line in the shape of eyebrow inside the chest. Besides this, cuts, abrasions, licerations and bruises and eye injuries were very common. The industry offered permanent jobs to only healthy individuals but exposure to stone dust turned them into chronic patient. As soon as they became sick, they were deprived of their jobs.

Varigos and Dunt (1981) and Ministry of Human Resource Development (1988) observed occupational dermatitis among cement workers. Shallow cough, tuberculosis, loss of appetite and extreme fatigue were other symptoms. Ghei (1963) and Nair (1992) reported black lung disease in coal industry workers. It was endemic and incurable and caused by inhalation and retention of coal dust in lower lungs.

2i. Wood Work

Lunn (1966) and Gandevia and Ritchie (1971) reviewed relevance of respiratory symptoms and signs to ventilatory capacity changes after exposure to grain dust. Changes in ventilatory capacity were examined in relation to respiratory symptoms. These showed symptoms of asthma, persistent cough and sputum.

Hunter (1975); Yeung et al., (1978); Holness and Sasskortrak (1985); Ministry of Human Resource Development (1988) and Nair (1992) highlighted occupational health problems in wood and coir industry workers. These workers were found to have higher prevalence of respiratory disorders, cough, phlegm, wheeze, breathlessness as well as rhinitis and conjuctivities,

palpitation and haemoptysis. Wood workers also reported nasal and eye symptoms. Their work also caused nasal cancers, decreased breathing capacity, skin irritation, leprosy, various allergic reactions and neurological disorders. Asthma was also found in many cases. This usually developed in the early months of exposure. The workers who were affected tend to leave the industry.

2j. Tobacco Industry

Occupational health problems of tobacco workers were studied by Ghosh et al., (1979); Hunter (1975); Purushotham (1983); Dogra (1985); Ministry of Human Resource Development (1988); Koli (1990); Rao (1992) and Dharmalingam (1993). It was reported that process of converting raw tobacco into processed zarda consisted of number of parts : manual part, mechanical operations of winnowing, sieving and pounding. The processes particularly winnowing and blending caused a lot of tobacco dust to fly up into the air of closed rooms. The dusty atmosphere caused choking and cough. The dust was so thick that it was impossible to see even a person at a close range. It bathed the women from top to toe. It was found that workers suffered from difficulty in breathing, dry cough with or without sputum, anaemia, tuberculosis, skin diseases, irritation of eyes and conjunctiva. They complained of vomiting, nausea, giddiness, headache, tiredness and loss of appetite. Many workers complained of backache, joint pain, asthma, piles and gastritis. Nicotine concentration in the urine was also found. During the exposure

period, more than threefold increase in nicotine concentration in the urine was observed. Fifty to seventy per cent women reported gynacological and related problems including early periods, heavy bleeding during menstruation and general weakness.

2k. Construction Work

Ministry of Human Resource Development (1988); Misra (1991) and Varghese et al., (1994) carried a study on occupational health problems of construction workers. It was found that women were susceptible to occupational stress due to constant shifting of mortar. The strenuous job of rock and brick crushing as well as carrying loads up the improvised ladders resulted in strokes apart from various other physical problems such as fatigue, cramps and postural defects. They suffered from numbness of hand and cuts on hand with flying sharp particles of stone. Due to grave economical pressure, construction workers continued to work upto eighth or ninth month of pregnancy. Absence of even minimum health protection during pregnancy resulted in high infant mortality rates.

21. Agarbathi Industry

Ministry of Human Resource Development (1988); Venkatram (1989) and Chatterjee (1991) investigated that agarbathi manufacturing process was harmful to health because the workers inhaled a lot of dust. There was high incidence of tuberculosis among them. Other ailments that afflicted them were numbness or pain in the body because of squatting in one position for hours and deep cuts or burning of hands.

2m. Kerosene Work

Jee et al., (1985) conducted dermatological examination to determine the prevalence of dermatose (erythema, scaling and eczema). It was found that in the exposed group 65 per cent had erythema with or without desquamation over the interdigital spaces, 15 per cent had eczema and 4 per cent had dermatitis. Substances like mineral oil, grease, paraffin, synthetic waxes and petroleum not only caused dermatitis but if allowed to sit in contact with the skin for long period, it blocked the pores, irritated the epithelium of the skin glands and caused acne, cysts which resulted in folliculitis and boils.

2n. Electricity and Printing Press Work

Kogi (1976); Seguret (1983) and Asia and Pacific Development Centre (1989) reported neurosis and nervous disorders among workers. They suffered from near-sightedness, double vision, problems of lungs and skin. The constant repetitive movements of fingers, wrists and elbows at high speed led to inflammation of muscles and tendons which had been overused. Extreme pain was also experienced. Abnormally low haemoglobin concentration in blood was also found.

2o. Garbage and Sweeping Work

Mattsby and Rylander (1978); Itani (1980); Ministry of Human Resource Development (1988) and Varghese et al., (1994) reviewed occupational health problems of garbage workers and sweepers. These problems were studied by means of interview schedule, time

studies, continuous heart rate measurement and measurement of muscle tenderness threshold at the lower back and a subjective fatigue. Musculoskeletal problems included low back pain, forearm pain, pain in the palm, joint pain and shoulder pain. These workers were prone to respiratory discomfort due to inhalation of dust containing various diseases and germs. They also suffered from nausea, burns, rashes, sores on hands and feet, insect bites, viral infection, headache and injuries due to fall resulting from slippery floors. It was also found that heart rate at loading of garbage usually reached the level of 120 - 150 beats/minute and the muscle tenderness threshold values at the lower back decreased after work suggesting that the lower back muscles were affected by fatigue due to work. Many workers reported work related fever and diarrhoea. Fibrinogen degradation products were also found.

2p. Meat Packing, Fishing and Washing Work

Enander and Ljungberg (1979); Ministry of Human Resource Development (1988) and varghese et al., (1994) reported that lowering of body temperature was noted during work period for the majority of the subjects in the group. The subjects were clearly able to detect changes in the temperature in the peripheral parts of the body and meat workers perceived their work as heavy. Fishery women workers complained of lower back pain, upper shoulder pain, leg pain, sacroiliac joints were strained and displaced because of their work posture, chest congestion, skin diseases, heart burns, headaches, cuts and abrasions, puncture, wounds, sprains, bruises, burning and stinging pain in hands due

to prolonged use of cutting knives and it also provoked tenosynovitis and frost bites. Washer women suffered cancer mainly of kidney and genitals, irritation of eyes and upper respiratory tract, fatigue, drowsiness and memory impairment.

2q. Weight Carrying Work

Wells (1983) and Ministry of Human Resource Development (1988) reported that weight carrying was related to musculo-skeletal problems. This was especially true of shoulder and neck pain, knee, ankle and feet pain. The other problems were cold, cough, fever, constant headache, extreme fatigue and mental tension.

2r. Medical Profession

ILO (1976) and Ministry of Human Resource Development (1988) found that most serious risks in medical profession were infections, contagious diseases and parasitic diseases, allergies and dermatitis caused by various chemical products used as disinfectants. The other risks were the harmful effects of exposure to x-rays, the physical strain due to night shift and tension resulting from contact with physical deterioration caused by sickness and death.

2s. Pottery Work

Ministry of Human Resource Development (1988) and varghese et al., (1992) investigated that pottery makers had problems of pulmonary afflictions leading to a disease called silicosis which was due to handling of clay containing silica.

2t. Miscellaneous Occupations

Ministry of Human Resource Development (1988) observed that workers in gunny bag stitching, chindi work, shoe embroidery, bead piercing, charkha spinning, tailoring work, basket weaving, knitting and lace making suffered from in problems of weakening of eyesight, watering of eyes, headache, backache, shoulder pain, arm pain, finger pain, giddiness, severe pain in the lower abdomen. Many had asthma and other respiratory problems.

Occupational Health problems of sheep herders, fuel and fodder workers, head loaders, domestic workers and rag pickers were the physical stress and strain, postural defects, pain in legs, pain in joints, cuts in feet, skin burns, tetanus, lung congestion, respiratory problems, dog bites, virus infection and miscarriages.

Masala and Pickle industry workers reported burning sensation in the body, nose streaming, irritation in mucous membrane and skin problems. Chaturvedi (1993) carried out a study to find out the ergonomic job problems experienced by workers in packaging line in health products firm. Packaging task which involved repetitive operations caused physiological problems like fatigue, back pain, shoulder pain and feeling of sleepiness. All these problems affected the workers adversely leading to impaired health and poor performance in the long run.

Bhardwaj (1994) studied musculoskeletal problems among VDT (Visual Display Terminal) operators. The prominent pains reported by the subjects were back pain, pain in the eyes, pain in the

neck and wrist. The incidence of musculoskeletal problems was quite high among the older groups. Yang (1994) found that glue used in shoe and hat industry made the workers to feel sick and dizzy and they suffered from acute anaemia.

3. Occupational Environment Factors and Occupational Health Problems

This section reviews studies concerning the prevalence of occupational health problems and their most influencing sources. This section has been reviewed in terms of studies relating to work duration, wages, work place conditions, labour welfare benefits and work conditions in general.

3a. Work Duration

McFarland (1971); Kogi (1976) and Lin (1984) investigated work timing of workers. In many factories women worked very long hours even working till 2 a.m. during peak season and compulsory overtime of 2 hours was common. Accumulated fatigue made them more vulnerable to occupational health problems and many had hardly any time for extra-curricular activities. The hours of work were found to have direct relation with the output. When the hours of work were reduced from 48 to 36 hours per week, the average hourly output increased from 793.5 to 834.0 units of production. Thus long working days and overtime were relatively inefficient since production did not appear to be maintained at the earlier high rate.

Extended working hours resulted in fatigue with a consequent greater likelihood of accidental error and illness. Mean frequency of subjective fatigue symptoms was increased towards the end of the normal shift and complaints of eye strain and shoulder stiffness were increased after overtime work. Abnormally low haemoglobin concentration in blood was found. Fast pace of repetitive work and long hours of work contributed to behavioural changes and psychological stress. Rest pauses usually lessened fatigue and increased production inspite of the fact that the rest pause resulted in some reduction of the actual working time.

3b. Work Wages

Agriculture Labour Enquiry Committee (1957); Labour Bureau (1961); Research Programme Committee (1969); Johri and Pandey (1982); Sharma (1984) and Mazumdar (1990) found that a large number of workers in the industry were paid on piece rate basis. Wages were stagnant, wage levels were far below the recommended level of the minimum wages. Experience made very little difference to wage level and working condition. The system of casual and contract labour deprived them of normal and legitimate benefits. Employees deducted some amount from the wages if the material was less than the stipulated quantity. Wages were paid every fortnight in many factories. Skilled workers were paid by contractors and the unskilled and semi-skilled through intermediaries and this practice was clearly against the provision of Payment of Wages Act. Overtime payment was not a regular feature. The employers generally did not maintain the records of overtime payment in the prescribed overtime register.

Baud (1992) also found that wages varied according to job relations and gender. Among permanent workers,women received 79 per cent of male wages. Women workers wanted more wage advancements than employees were willing to give. Many workers were able to collect payment only after repeated requests and quarrels with the contractor. The lower wages impaired the production. Higher wages were given for skilled work. Shah (1994) observed that jari and embroidery workers in Surat did not get fixed wages. Majority of them were temporary and casual labourers. Their income depended upon the work they produced.

3c. Work Place Conditions

Vernon, Bedford and Warner (1928); Tiffin (1946); ILO (1962); Christenberry and Jabara (1977); Purdom (1980) and Lieber (1964) showed that physical conditions were related to worker's efficiency. In high temperature much of worker's time was lost in sickness. Low temperature also increased fatigue by slowing down the circulation. Among the normal physiological responses to high temperature were vasodilation in skin and corresponding increase in the heart rate. Heat, humidity and temperature of surrounding objects influenced the heat equilibrium of the body. In the hot working environment, number of accidents tended to increase. Industrial ventilation was found to be most effective method for controlling the quality of air in occupational environment. Lack of ventilation caused dusty and moist air and injurious fumes. Inadequate lighting in places of work caused eye problems and reduced the output. The various degrees of lighting had direct impact on output of workers. Proper lighting and recommended

illumination levels made the worker to see quickly and accurately in comfort. Light levels which were inadequate resulted in eye strain accompanied by watering reddening of eyes, headaches, dizziness and other general stress indicators such as changes in blood pressure and heart rate.

When high noise level was present, employee efficiency was affected and it was possible to recapture some of the lost efficiency by introducing certain other controls in the form of nourishment, rest pauses or certain favourable work methods. A loud noise also caused rise in blood pressure and decreased peristaltic movements with resulting abdominal discomfort. A noisy work environment also caused nausea, severe eye symptoms, tension, headache and interfered with hearing.

Sunderstron and Sunderstron (1986) highlighted that 1/3rd of the office workers reported having unpleasant working conditions. The foremost complaint was the temperature, poor ventilation and the work place being too cold. Noise made them uncomfortable and physical environment influenced the performance of the workers. In some weaving sheds it was found that live steam was introduced even when the dry bulb temperature was as high as $90^{o}F$.

Sharma (1984) and Venkatram (1989) reported that poor physical conditions added to problems of overburdened life of women workers. There were no provisions for either electricity or ventilation. Though drinking water was provided, the tap was inside a stinking toilet. The places where the women worked were most depressing. The units were usually housed in shacks or old

dilapidated buildings. In many units, there were no doors and windows.

Kouabenan (1991) investigated that hygiene and working conditions were poor. Employers were little concerned with the state of cleanliness of the premises and of the various amenities used by the workers which often left much to be desired. Nearly half of the workplaces were not cleaned even once a day or not cleaned at all. Most large and medium sized enterprises were kept clean. In many units,state of ceilings was alarming covered with dust and fibres. Free movements of workers were hindered by obstruction. Installations and facilities were found to be grossly insufficient and 1/3rd of the enterprises did not provide drinking water for the staff. The work places were dark, dirty, noisy, ill-lighted and poorly ventilated and often infested with rats or cockroaches. This affected the worker's satisfaction and output.

Steel and Sanderson (1971); Dogra (1985) and Vimal (1992) observed the toxic constitutents and dust concentration at work place. The atmospheric concentrations of toxic constituents exceeded the permissible limits in the majority of the cases. Dust concentrations were also very high and the dust was so thick that it was impossible to see each other and not possible to stand even for 3 minutes in this dust laden atmosphere but workers, mostly women workers were working there everyday for 8 hours. Exposure to dust of various origins was very common. Yang (1994) investigated that level of benzene in shoe and hat factory's air was 3 times higher than safety level and more benzene was added to stop the glue freezing.

3d. Labour Welfare Benefits

Gambhir (1972); Sablok (1976); Gupta and Borker (1987) and Bhadra (1992) analysed that welfare facilities were shocking in extreme. No canteen, creche, rest shelter, Spittoon, dust bins were provided. No paid leave, no sick leave, no bonus, grautity and provident fund were provided.

Purushotham (1983); Maithrey (1984); Nair (1987); Labour Bureau (1988) and Reddy (1988) reported that workers were not provided fringe benefits in any form. Employers shirked from the responsibility by resorting to contract labour and they were paid for the days they actually worked and they evaded the rules with impunity and without fear of punishment. After being exposed to a variety of diseases, workers were allowed no sickness benefits, not even pay for the period during which they were ill. In many industries medical expenses were said to have been paid when accidents occurred at work place itself. According to Factory Act the manufacturers were required to pay a minimum wage, dearness allowance and give other benefits but in reality benefits did not reach most of the workers. Provisions made for women admissible under different acts had remained on paper. Employers were not keen as far as labour welfare measures were concerned. Factory inspectors were aware of all these violations but they turned a blind eye to this. Prado (1992) also highlighted that lack of employee health benefits and occupational ill health threatened workers with frequent severe injuries and illnesses.

3e. Work Conditions in General

South India Textile Research Association (1965); Sharma (1973); Tiwari (1978); Johri and Pandey (1982); Rao and Hussain (1984); Reddy (1988); Gupta (1990) Manimekalal and Sundari (1991); Baud (1992) and Muthuchidambaram (1992) observed working conditions of workers in general. Workers of small scale and medium enterprises were being exploited and they lived like slaves. Most of them were contract labourers. The contracts of employment were oral and were easily regulated by authorities. In many industries recruitment was done by intermediaries who lured them by their tactics in the form of corruption. Stability of job was greater among the skilled hands than among the semi-skilled or unskilled workers. Also more of skilled expected better jobs. Many of the women employees working as casual labourers had no security of services. They had to search for work every now and then.

In the smaller units it was easier to dismiss and a notice period of one day was quite common and often workers were told on pay day that they were not required any longer. It was also found that some women were serving more than 36 years at low wages and they were forced to absorb their children also in their work. There was no formal training involved in learning the work and they learnt the skill by observing others at work and by doing it. But skilled workers by and large had received some training. Many respondents wanted further training. Grievances of the workers were connected with wage, training, workload. promotion, leave and welfare facilities in general, recreation facilities,

sanitation, advances and loans, revision of pay, bonus and formation of trade unions.

In many industries wherever latrines and urinals were provided, these were in neglected and unhygienic conditions and working conditions were far from satisfactory. Respondents had shown a sluggish participation in trade union activities (where these were present). A large number felt that leaders had always been too busy to bother about the local problems of the women workers.

The space for work was so small that women were crowded together on the floor and in many cases they had to stand for the whole day and in one factory it was found that 100 persons reported sick every day due to fever, cough and cold. The dirty, filthy and foul surroundings took their toll of the health. For migrant labourers employers provided no work place amenities. The workers paid for their work space and lighting themselves.

A major barrier to the improvement of their shocking working conditions was lack of organised movements. Many of the women workers had no contact with other workers and had no channels for acquiring these possibilities. They were ignorant of other job opportunities and of the rates of wages prevailing elsewhere. No government agency had done anything concrete for the betterment of workers. Owners too had anti-labour attitudes. Since long many of the workers demanded honest payment of wages and other allowances, permanent jobs, abolition of contract labour system and providing education. Vanackere (1988) analysed that features

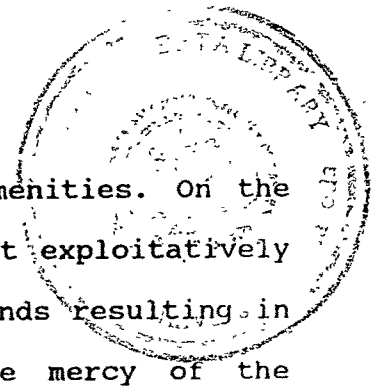
of employment tended to be protected where trade unions were involved.

ILO (1962); Pore and Mohite (1983); Rao and Hussain (1984) observed that general working conditions differed according to size of industries. In the small establishment, the conditions were not as satisfactory as in large ones. Larger units usually complied with some statutory benefits while smaller ones did not provide even statutory benefits.

4. Sexual Discrimination and Exploitation at Work Place

Discrimination is defined as any distinction made on the basis of race, colour, sex, religion, political opinion which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation including access to vocational training, access to employment and to particular occupation and terms and conditions of employment. The following studies show how the women workers are exposed to economic, health and sexual exploitation at work place. These further show why the employers are not willing to employ women workers.

Aggarwal (1975); Banerjee (1982); Pore and Mohite (1983) reviewed exploitation in employment. Women workers usually formed the rear of those recruited and lead the line of those dismissed. The factories behaved in a footloose manner and they formed the secondary line of operation. On the demand side two factors pulled in opposite direction. On the one hand, there was a reluctance to employ women because of the belief that women had low productivity and because of the legal requirements in the



factory employment of providing them special amenities. On the other hand, women were easier to be recruited at exploitatively low wages. Supply of female labour exceeded demands resulting in depressing wages and leaving the women at the mercy of the employer. Women in mining industry did the lifting and heavy part of the work and endured conditions which men would not tolerate and they endured the most arduous toil in a foul atmosphere.

Aggarwal (1975); Sablok (1976); Stevenson (1984); Morris (1986) and White (1990) found that women were paid less than men. The differences in wage rates were not attributed to differences in productivity. The differences in wage levels were also there even when employed in the same job. It was also found that as the cognitive development required in the job increased, the percentage differences between women's and men's wages were smaller, but as requirements for training time on the job increased, male female wage differentials tended to increase. Among occupations having similar human capital requirements, women were crowded into fewer occupations than men and that crowding was associated with lower wages for women. Majority of them were piece rated workers along with deductions for disciplinary fines. Many enterprises frankly admitted to paying higher wages to male workers even though government regulations require equal pay for men and women.

Tripathi (1992) and Dharmalingam (1993) reported that ignorance, tradition bound attitudes, lack of skill, seasonal nature of employment, lack of job security, long hours of work,

lack of minimum facilities, ill treatment and bondage were some of the features of the employment of women. Women labourers were generally paid less than 60 per cent of the male wage. The inequality of women was generally due to greater concentration of poverty, backwardness and low level of literacy and technical know how.

Carr (1983); Seguret (1983); Indian social institute and National Labour Law Association (1986) and Lin (1984) found that cost of maternity benefits and leave for child care as well as creche and other facilities were the reasons for maintaining low wage. The females had lack of access to social legislation, technology, training and to basic amenities and social security. Hirway (1985) concluded that less than 25 per cent of women workers in the state of Gujarat were covered by Maternity Benefit Act, about 1/5th of these actually received the benefits and only a portion of these in turn received all the benefits laid down by the law. There was lack of workers' awareness and at the same time weak bargaining power in the labour market discouraged them from fighting for their rights.

Misra & Khanna (1981); Endgren (1982); Mathur (1989); Manimekalal and Sundari (1991) examined that women were made to accept highly labour intensive, monotonous, low skilled and arduous work. Deitch (1981) and Maithrey (1984) found that women were disproportionately concentrated in low paying, competitive sector industries, non union jobs and non-supervisory positions. Discrimination was not obvious but women did have a relative disadvantage than men.

Rao and Hussain (1984); Hirway (1985); Dass (1988) and Swarajyalaxami (1992) showed that industries recruited young women to ensure a quick turnover of workers resulting in continuous supply of fresh labour forces and unmarried women were more preferred. The employers preferred women in tedious and repetitious jobs with no need for education and training and they employed them because they were docile, could be paid lower wages and had little job mobility. In general, majority of employers did not want to employ women because women workers were not fit for heavy work, they were less reliable, less efficient and more expensive.

Mencher (1985) and Verma (1993) highlighted that the wages of women agricultural labour were different from males at all levels and they were the worst victims of economic exploitation. The tendency to pay less for activities done exclusively by women as opposed to those done only by men was based on the assumption that women were weaker and could not do heavy work. Yet when the same task was done by males, it was considered a hard task.

5. Occupational Stress and its Sources

There are many empirical studies regarding occupational stress and psychological disorders and the sources of these problems. Selected studies have been reviewed and reported.

Margolis, Kores and Quinn (1974) reported six sources of occupational stress - role ambiguity, underutilization, overload, resource inadequacy and insecurity and non participation appeared to play an important role in physical and mental health of the

workers. Rappaport, Dolan and Clementi (1977) investigated that psychological disorders impaired work and physical well-being. Lack of opportunity for advancement, resentment over job performance evaluation, discontentment with management and excessive overtime caused psychological problems which affected job performance much more than other activities. Schmitt, Colligan and Fitzgerald (1980) observed that stress symptoms were caused due to work pressure, less employee income and dissatisfaction with company's personnel practices.

Davidson and Cooper (1981) found that shift work enhanced occupational stress as well as affected neuro-physiological rhythms such as blood temperature, metabolic rate, blood sugar level, mental efficiency and work motivation. Job overload was associated with such stress related symptoms as loss of self-esteem and low work motivation. Stress induced by the uncertainty of physical danger events was substantially relieved if the employees were adequately trained and equipped to cope with emergency situations. Other ailments aggravated by psychological job stress included asthma, thyroid disorders, arthritis, obesity, hypertension, tuberculosis, migraine, indigestion, ulcers and diabetes. Moreover stress could impair the body's immunity system which in turn could make an individual more susceptible to infectious diseases and viral illnesses. Prolonged stress had been shown to decrease physical stamina, mental alertness and reaction time.

Cherry (1984) reported that irritability, depression and tiredness resulted from occupational anxiety and strain and it also caused sleep problems and stomach pain. Keenan and Newton (1984) and Mukherjee (1985) reported that bad organizational climate and role performance contributed to frustration and occupational satisfaction was more with better payments and it also made the workers more occupationally committed.

6. Occupational Relations and Productivity

This section reports the studies on the nature of relationship, social support from one's collegues, boss and impact of these relationship on output and efficiency of the worker and industrial productivity as a whole.

Dickinson (1948) examined that satisfactory organisational relations produced satisfactory job performance reduced fatigue and increased production. Gangrades (1954) suggested that the relationship between employees and employers was of great importance to achieve maximum production and happiness than any other factor. Mental sickness due to bad relations led to accidents, absenteeism, tardiness, illness and reduced productivity and morale.

Chowdhary (1985) observed that participation of workers in problems relating to efficiency formed a significant factor in industrial productivity. It was found that workers were not motivated by financial incentives alone but the nature of supervision and face to face relations were of major importance. Productivity was found to be function of job satisfaction and other work conditions.

Ramalingam (1961) concluded that there was high correlation between productivity and voluntary co-operation. Large scale units were developing various techniques to obtain workers' co-operation, whereas small scale units depended entirely on personal contacts of the managers and owners. All the large scale units and 60 per cent of the medium scale units were satisfied about workers' productivity, whereas employees of small scale units were dissatisfied on this account. Economic satisfaction was lowest in small units. There was high psychological satisfaction among workers in larger units and the workers of medium units were fairly satisfied. Feeling of security was directly related to size of the industry. Ganguli (1961) further concluded that high producing workers were on the whole more satisfied with their job than low producing workers. If workers had a strong positive motivation, their productivity increased.

Ghosh et al., (1966); Rupanda and Paduki (1977) and Upadhayay (1980) reported that workers were more satisfied if they were provided more opportunities for achievement and proper recognition of work. Good interpersonal relations and proper supervision avoided dissatisfaction. Adequate fulfilment of needs reduced the propensity to leave the organisation. Participation of workers in various types of activities decreased their work apathy, industrial tension and conflict and helped in boosting up industrial productivity.

Appelbaum (1980); Srivastava and Sinha (1980); Davidson and Cooper (1981) showed that apprehensions and misunderstandings relating to human relations at work had been observed to cause

hypertension, gastro-intestinal disorders, ulcer and coronary heart diseases and also deteriorated worker's social life and developed low motivation at work. Strong support from colleagues and good relations relieved job strain and also served to condition the effect of job stress. Sharma (1983) pointed out that good industrial relations were necessary for increasing productivity.

Rao and Hussain (1984) and Kumar (1985) expressed that in many companies workers had good relations with their employees and supervisors but in others they took no notice of complaints made by them and were rude to them and shouted at them. It was lack of communication between management and workers due to which the former failed to understand the latter. A lot of energy and time was lost in resolving workers' disputes which could have been more beneficially utilised towards higher production and efficiency.

Shephard (1986); Dastmalchian, Blyton and Adamson (1989) assessed that industrial relation climate in conflict free organisation was characterized by more harmony, openness, responsiveness and absence of hostility between management and unions. There was lower rate of absenteeism, employee turnover and more effective ways of handling grievances by the management. Occupational stress caused boredom, job dissatisfaction, nervousness, fatigue and reduced performance.

7. Living Conditions of Women Workers

The studies in this section have focused much attention on the economic conditions, social conditions and other living standards of women workers and their families.

ILO (1974) studied living standards of plantation workers in Asian countries. The survey showed that the living conditions were very poor not only with regard to housing and food but also where hygiene and education were concerned. The workers were housed in compounds or overcrowded family accomodation. The accomodation was built of materials which did not afford adequate protection against the harsh tropical climate. They were badly fed and their diet was monotonous and unbalanced. Most of them hardly ate eggs, meat, milk and dairy products, fruits and vegetables.

Nair (1987) found that average household income was less in cashewnut workers' families. Living conditions in unorganised sector were extremely poor. None of the families had basic facilities like water electricity, lavatory and bathroom. Lack of facilities caused inconvenience, wastage of time and energy and tension in family relations. Savara (1982) investigated that miserable material conditions of domestic life contributed to the tensions in the family. Inadequate housing and crowding, lack of open space and daily struggle for survival : all added to the everyday tensions. Drinking and wife beating were common.

Thakur (1988) also found that women workers were living in crammed, temporary type dwellings with extra ordinary low

ceilings, just providing shelter from Sun and rain. Inspite of almost all members of the household putting in hard effort in productive activity, the average monthly income was found to be meagre which could hardly provide the bare minimum. Verma (1993) highlighted that what was earned by women workers was just sufficient for their subsistence. Majority had burden of debt and the purpose was marriage, shradha and medical treatment.

Mazumdar (1990) investigated that women workers in Madurai district were living at three levels of poverty. Members of household below the subsistence level lived in Jhuggis, looked malnourished, ate only one meal a day, dressed poorly, were unable to care for their children and depended heavily on female earnings. Families living at the subsistence level lived from hand to mouth, ate two skimpy meals during the day and clothed better and lived in 'Kutcha' houses, which were better than 'Jhuggis'. Families above the level of subsistence were relatively secured from abject poverty.

Every household investigated was found to be an independent and self sufficient economic unit and did not receive contributions from outside. The basic strategy in budgeting for the family was to incur minimum expenditure on necessities. The main item of expenditure in every single budget was food. The quality of food eaten was observed to be fair. Repayment of loans and payment of interest were important items of expenditure.

Manimeklal and Sundari (1991) reported that women workers lived below poverty line and their socio-economic conditions were

characterized by high rate of illiteracy, large size of family, low income, expenditure overshooting income, poverty and indebtedness.

8. Women's Employment and its Impact on their Households

The following review showed that women's employment has the potential to benefit household standards of living through increasing household income.

Hassenger and Raska (1945) stated that family total money income was considerably high when the wife worked. Their employment offered them status and dignity. Significant change had taken place in the attitude of husbands. They often paid attention to the sickness of the earning women. The jobs had made them economically independent.

Kapur (1970) highlighted that economic contribution helped the women to gain more power in decision making. They enjoyed more privileges with regard to their own earned money than they had when they were non earning. Rao and Parkash (1973) concluded that due to economic independent status, the employed mother's role was greater in making financial decisions like investment and budgeting within the family as compared to non-employed. Nair (1987) reported that 1/3rd of women workers felt that they had equal status in the family with men due to their employment.

Miralao (1984); Wolf (1984) and Mencher (1985) identified that women's income was major contribution to household income essential for survival. Women workers contributed as high as 28

per cent of total expenditure. They felt that their personal and social status was enhanced by certain benefits of factory employment. They had more freedom to leave the village, access to cash and had opportunity to make new male and female friends.

Talwar (1984); Bidinger, Nag and Baphu (1986); Thakur (1988) and Mazumdar (1990) investigated that after employment of women workers, household budget was controlled by female workers to a greater level. Generally egalitarian relationship between the sexes within the family domain was reflected. Women felt self reliant and independent. Khare (1963) and Gulati (1965) highlighted that employment of women brought changes in the way, the household work was shared in the family. Husbands willingly helped the working women in the household chores because they realized that their wives needed the help rather than taking it as a domination by them.

Shrivastava (1970) reported that at low socio economic level, it was difficult to maintain desired standard of living without women's earnings. ILO (1974) observed that employment of women brought improvement in the family. It had enabled them to continue the education of their children. Standards of hygiene and health of their families had also improved. Women's income enabled the families to repay loans and to have more recreational facilities.

Gulati (1979) and Kumar (1978) found that daily nutritional adequacy was related more to women's than to men's employment. It was estimated that on days when both the male head of household

and his wife were employed, their shortfall in terms of calories were 11 per cent and 20 per cent respectively while on days when woman was unemployed the shortfall increased to 26 per cent and 50 per cent respectively. Banerjee (1985) revealed that due to employment of women the life expectancy of children in these families was improving over time. With their income, they were able to buy some extra things for the family.

Paulson (1981), Acharya and Benett (1982) and Popkin (1983) reported that women's income had enhanced the daily consumption of items. Household expenditure and dietary intake were found to increrase when the mother participated in labour force. Among the families in which the wife remained in the labour force, it was the wife's change in earnings which had the major impact on the family's change in earning positions. Women translated their earnings into well being of family. Women's earnings had positive impact on health of family members and they spent more money on food and other basic necessities.

Dasgupta and Maiti (1986); Harriss (1986) and Gaonker (1992) showed that women's wages were generally spent on household welfare. Their wages were safely committed to cash needs and had bought many durable assets. It raised their consumption pattern and there was greater access to educational opportunities.

The foregoing review of the literature showed that researches included surveys, field studies, and experimental studies. The data were mostly collected by interview method, questionnaire method, observation method, clinical examination

and environmental monitoring method. The majority of studies were conducted mainly in the Western and Southern part of the country.

The review of literature has brought to the fore the general plight of women workers and it is clear from the overview of the literature that occupational health problems of women workers are infinite and we must make efforts to reduce these to the minimum.

Much of the information on effects of occupational hazards consisted primarily of piece meal studies or reports that fail to measure the relative risk of disease or death. Only a prevalence of particular disease or health problems in a segment of the exposed population at one point of time received attention.

The preceding discussion brings out the fact that till now many studies have been brought on the occupational health problems of women workers in India and abroad but no comprehensive and integrated study projecting its detailed picture has been made so far. The relationship between Occupational Health Problems and Output and Household Development and other correlates have not been examined thoroughly.