Title:

Environmental and Health Risk Assessment of the Working Children in the Automobile Repair Workshops (*Peshawar city-Pakistan*):

BY

Jehangir Shah

Abstract

The working children, working in polluted environment, due to their inexperience and non awareness of occupational safety measures faced the problems of occupational diseases besides cuts, burns, bruises of their body parts resulting in malnutrition, anemia, fatigue, and inadequate sleeping problems etc.

Looking into the involvement of highest number of child labor in the Automobile repair and maintenance workshops, this sector has been selected for detailed assessment of occupational heath and environmental risks. Use of dangerous chemicals, sucking of gasoline from the engine carburetor through mouth instead of A.C. pump, lifting of heavy items, odd squatting position of work, smoking, paint spraying, welding work, noise pollution, air pollution, and drinking contaminated water, were the common problems for the workers in these workshops.

These establishments in Pakistan are the small scale units providing repair and maintenance services, consisting; largely of independent, self employed individual with three to five working children, operate with very little capital, utilizing low level of technology and skill.

The objective of the study was to use, the base line data generated during the study as a tool for reducing child labor and provision of safe working environment for those working children whose immediate elimination is difficult.

The study population was drawn from automobile repair and maintenance workshops in the urban areas of Peshawar covering a

total of 130 respondents from child labor and their employers. The ambient air quality and noise pollution studies as well as physical health examinations of the respondents were carried out on the spot. Drinking water samples from these workshops and blood samples from the employed child labor ware collected and transferred immediately to the laboratories for detail study after following the standard techniques of storage and transportation. The report details the methods and instruments used.

For recording the interviews and observations of child labor and their employers, the questionnaires for the survey was developed and tested in the field prior to study.

The results of the study shows that smoky and polluted environment is found in about 94% workshops. It was also observed that paint is being sprayed in open air in 85% of the workshops, where many of the children are found working with no masks and other safety precautions etc.

It was observed that the work related accidents were 85%, ranges from minor to major in recent past, which is highly alarming situation. The types of accidents vary from cuts and burns to broken limbs. Of these, rate of cuts and burns is as high as 47 %, hand / legs damages is 32 %, injury to eyes is 13%, and other 8%.

The water samples were collected from 33 surveyed workshops, and were analyzed chemically. The results showed that about 50% of the water samples, found unfit for drinking purposes, in fact it were contaminated

Carbon monoxide was measured in the ambient air of each of the surveyed workshop. The maximum level of carbon monoxide (15ppm) was recorded at three spots. The permissible level (9ppm) for 8 working hours has been crossed at 9% workshops, while 3% workshops have touched the permissible level.

The total suspended particulate matters (TSPM) were measured at each of sampling stations / auto workshops and average value of PM was about 200 microgram per cubic meter. All the recorded values are well above the permissible level of WHO standards which is 75 micro gram / m^3 for 8 working hours.

The collected suspended particles / particulate matter from the ambient air were further analyzed for lead and cadmium presence. Five samples of the particulate matters were found having lead traces ranges from 3 ppm to 20 ppm, while in 28 samples lead was

absent. Cadmium was found absent in all the collected samples. Most probably the reason attributed to the absence of particulate matter was that lead and cadmium are heavy metal and cannot remain suspended in the air for longer time.

Maximum average noise level was recorded at shoaba Chowk that was 82.6 dB. At this point there is a cluster of automobile workshops and so many vehicles are repaired at different workshops at one time. While the average minimum noise 72.5 dB was recorded near Sheikh abad chowk, inside Peshawar city.

Although at all these points the noise level is within the level of WHO (85 dB for 8 working hours). However, this constant noise level without protective equipment is a health hazard to the lives of these vulnerable, who works for more than 12 hours a day

Key Words: Occupational health and safety, air pollution, water pollution and noise level in the working environment.