

## Occupational health and safety problems among workers in the wood processing industries in Mutare, Zimbabwe

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### Abstract

The aim of this study was to assess the exposures and perceived risks (occupational, lifestyle and psychological factors) of workers in the wood processing industries in Mutare, Zimbabwe. This project is important in that it will reveal why health, safety and hygiene should be perceived as a priority in the wood processing industries of the Eastern Highlands of Zimbabwe. Usually industry owners and managers do not provide sufficient maintenance and funds to buy protective equipment. Not much attention is thus given to the safety of processing machines, equipment and tools as well as their link to health requirements in such enterprises. A detailed descriptive study was undertaken in the timber working industries of Mutare with a focus between August and October 2011. Random sampling was employed targeting the workers and management of the wood processing enterprises. The samples were drawn from the total employees in each of the two companies under survey. The first company with 1200 full-time workers and 800 contract workers had a sample size of 200 (10% of the total) and the second with 1400 workers had sample size of 140. The wood sector in Zimbabwe needs to be guided by a comprehensive national policy dealing with safety and health issues in the wood processing sector. Wood workers seem not to be covered by appropriate national safety and health standard. Managers are not taking keen account of the risks linked with wood processing. There is need to have precise knowledge on the subject and the various exposure levels need to be measured and monitored.

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**Keywords:** occupational health and safety, wood processing, occupational risks occupational hazards.

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### INTRODUCTION

The aim of the study was to assess the exposures and perceived health risks (occupational, lifestyle and psychological factors) of workers in the wood processing industries in Mutare. Woodworkers, who represent a considerable fraction of the active population of the Eastern Highlands of Zimbabwe, are part of the workforce employed in tough and sometimes menial and poorly paid jobs. The health of the workers, their levels of working capacity and efficiency, professional reliability as well as their safety are influenced by the working conditions, ergonomic, psychological, social factors and lifestyle (Brown 2010, Comlal *et al.* 2007, Kadiri 2010, Kiwekete 2010). Whilst it is not possible to obtain accurate statistics, because of under-reporting, nevertheless attention has been focused on the hardwoods which can cause nasal cancer (Comlan *et al.* 2007). The National Social Security (NSSA) in Zimbabwe has simply indicated that there could be health impacts associated with woodworking and has not undertaken extensive research on the specific health impacts. Softwoods on the other hand can adversely affect human health when large quantities are being processed as observed by Comlan *et al.* (2007) of the Pathology department of the University of Health Sciences in Gabon. The nature of safety and health problems associated with woodworking in

Mutare needs examination as this is an area in which our ignorance exceeds our knowledge.

Traumatic occupational accidents and diseases in the wood sector represent a significant public health concern. Work-related accidents induce enormous emotional and financial costs to families and to society (Balsari *et al.* 1999). Unfortunately, work related accidents and diseases continue to be serious in the world. The human and economic costs of occupational accidents and diseases remain high and call for concerted efforts to handle them (Abongomera 2008). The ILO (2008) estimates that more than 2 million workers die each year from work related accidents and diseases and this is probably an underestimation. The International Labour Organisation (ILO) estimates that workers suffer 270million accidents and at least 335 000 fatal injuries annually. Avoidable occupational diseases affect 160 million people every year. International concern and awareness of the problem of occupational diseases and accidents remains modest. Muchemedzi (2007) observed that the global work force stands at 2.8 billion with approximately 300 000 employed in the wood and wood products industry and globally, 2.2 million work related fatalities and 270 million occupational injuries occur annually. The largest number of fatalities is associated with the timber industry with 92.4 deaths

per 100 000 workers in 2006, a decrease from 118 in 2002. In 2008 the number of fatalities increased to 116 deaths per 100 000 workers. Tiedemann (1998) asserted that the largest number of accidents related to wood processing occurred around 10:45am. Longer work duration increases the risk of errors and near errors, and decrease the workers vigilance. In 1998 Europe's wood and wood products industry suffered around 90 000 work accidents involving more than three days off-duty from work. Timber processing accidents and illnesses rose by 5.0% in the period 1996 to 1998. In Italy, the wood processing industry in general rates as one of the most hazardous occupations. Rotating devices, cutting or shearing blades, in running nip points, and meshing gears are examples of workplace injuries, while crushed hands, severed fingers, amputations and blindness are typical wood working accidents (Boy 2002). Colman *et al.* (2007) added to the hazardous wood working, high noise levels from operating machinery, dust conditions and work related musculo-skeletal disorders from repetitive movements that are likely to affect health of employees.

In Libreville, Gabon, the majority of formal employees are in the wood processing in which logs of wood are transformed into various finished products. Wood processing in Gabon is a dangerous occupation and it involves more than 30% of the active population. Out of 825 injuries, wood processing constituted 24.2% of wood workers injured in 2007 and 19.3% in 2008. During the 2007 and 2008 period accidents involving contacts with equipment exceeded all other events accounting for 64.1% of traumatic occupational accidents in wood processing (Colman *et al.* 2007).

The need to prevent occupational hazards leading to occupational injuries has been of growing interest and a great challenge to the government of Zimbabwe and industries in the wood processing sector (Mutetwa 2005). Unfortunately, in Zimbabwe little research has focused on the field of occupational health especially relating to occupational hazards (WHO 2005). NSSA (2009) indicated that an annual occupational mortality rate of 1 249 per 100 000 workers was witnessed in Zimbabwe in the past decade.

In Zimbabwe wood and wood products are ranked among the major accident, injuries and diseases industries, and in Manicaland Province they are at the forefront. The Timber Producers Federation of Zimbabwe is using various methods to reduce occupational hazards in the wood sector, but with limited success (NSSA 2007). Parastatals such as NSSA are assisting in the management of occupational hazards in the wood industry. NSSA is assisting with inspections, laws and regulations. In Zimbabwe, laws have been developed to supplement

international standards and these laws cover hazards in the mining, industrial and agricultural sectors. Pieces of legislation that relate to the wood-working industries include the Pneumoconiosis Act (Chapter 15; 08) and the Factories and Works Act (Chapter 14; 08) and its regulations (Chingofa 2010).

This study is vital in that it will reveal why health, safety and hygiene should be perceived as a priority in the wood processing industries of the Eastern Highlands of Zimbabwe. Usually industry owners and managers do not provide sufficient maintenance and funds to buy protective equipment. Not much attention is thus given to the safety of processing machines, equipment and tools as well as their link to health requirements in such enterprises. It is expected that this study will assist in ensuring compliance to legal requirements by the woodworking enterprises in guaranteeing safe and healthy working conditions for the workers including an adequate regime for their rest and nutrition. Current practice in industry has tended to focus knowledge on production processes and profit at the expense of the health and safety of the worker (Bean and Butcher 2006, Chernova and Shepvalova 2011, Ezeonu 2004, Pule 2011, Roa and Merisalu 2010, Schutte 2011). It is also expected that the study with its focus on health and safety issues will add a vital dimension which, if ignored, can affect the reputation of an industry should fatalities and injuries persist.

## METHODOLOGY

A detailed descriptive study was undertaken in the timber working industries of Mutare with a focus between August and October 2011. Random sampling was employed targeting the workers and management of the wood processing enterprises. The samples were drawn from the total employees in each of the two companies under survey. The first company with 1200 full-time workers and 800 contract workers had a sample size of 200 (10% of the total) and the second with 1400 workers had sample size of 140. The risk-related questions included types of hazards the workers were exposed to (or health complaints), use of personal protective clothing, accident reporting, awareness of risks involved with wood processing, legislation governing safety and health in woodworking and the commitment of management in addressing safety and health issues. Local medical experts in clinics and hospitals and the Safety, Health and Environment (SHE) manager and officers were interviewed on health impacts of wood-working. Company records from the SHE Department on work-health related issues were examined as well. Data analysis involved the use of SPSS version 17 for generation of tables illustrating the breakdown by occupational groups of the workers interviewed percentages of different exposures and duration of exposures as well as

clinically based and self-reported occupational health complaints among the wood workers.

**RESULTS AND DISCUSSION**

The survey involved workers whose mean age was 35 years (range 21-59 years) and the sex ratio 2.65%. In the group 96% could read and write and 68% were single. The workers had been employed for a mean of 5 years (range 0-9 years). The workers lifestyle was not by any means healthy because among them were smokers (23%), alcohol consumers (70.7%), physically inactive (39%) those with a poor nutrition regime (75%) and those who faced everyday stressful situations (41%).

Table 1 Breakdown by occupational groups of the workers interviewed

Workplace	% Workers	Workplace	% Workers
Anvil roll	2	Management	5
Boiler	5	Mechanics	4
Centring	1	Medical	1
Control	2	Peeling station	8
Cleaning	2	Gantry crane	1
Cutting saw	2	Saw	6
Debarker	2	Shift supervisor	7
Fork-lift truckers	3	Stacking	24
Drum chipper	3	Welding, sharpening	2
Dryer	3	Wood packing	17

**Exposure To Occupational Hazards**

All the workers are highly exposed to at least one hazard as shown in Table 2. In this study 340 workers participated in the survey. Half of the workers also declared at least one health complaint. Skin burn, red eyes, headache and chest/throat pains were reported by more than 74% of the workers. The clinical registers indicated that the main four health problems were backaches (68%) ophthalmic problems (49%), nasal irritations (46%) and chest and throat problems (34%).

In addition to the usual wood processing risks such as wood dust, noise and heat, workers reported exposure heavy lifting and pulling movements (71%), flying and falling objects (53%), awkward positions( 56%), sharp metals and objects (77%), slips and trips (33%), night shift (92%), meeting production quotas (27%) and stress (23%).

Table 2 Percentage of different exposures and duration of exposures among workers

Exposures	Exposed	Never	Sometimes	Always	>2hrs/ day	<2hrs/day
Wood dust	100	0	2	98	93	6
Excessive noise	86	14	73	13	98	1.2
Heat	86	10	11	79	-	-

Stackers comprised the largest occupational group among the 20 workplaces listed in Table 1(24%). In addition to the usual wood processing risks such as wood dust, noise and heat, workers reported exposure to night shift(87%), sharp metals and objects (78%), heavy lifting and pulling movements (80%), flying and falling objects (68%), awkward positions (67%),

slips and trips (34%), meeting production quotas (35%) and stress (46%). Workers were also exposed to precariousness, improper amenities, poor health, safety and hygiene conditions and inadequate medical services (63%).

Use of personal protective equipment was poor and inappropriate in the wood processing industries. All workers apart from management and medical staff acknowledged receiving a pair of security shoes/ boots and two overalls every year. The workers could be seen wearing their nose masks, but some had the nose masks on their foreheads as they found them uncomfortable. Workers also perceived the sawdust extractors to be inefficient because some of the sawdust was left in the air thus exposing workers to wood dust inhalation and body exposure. Similar findings were made by Matoone (1997) in his study of wood working enterprises in Lesotho. Table 3 shows that less than 50%of the required protective equipment was provided.

Table 3 Use of protective equipment (%) among the wood workers

Protective Equipment	Needs (%)	Effective use (specific %)
Gloves/mittens	81	43
Overalls	85	74
Security shoes/boots	93	94
Goggles/spectacles	87	14
Protective face shields	24	21
Nose/mouth masks	89	29
Earplugs, ear muffs	95	7
Helmets	44	11

In the wood-working industries of Zimbabwe, occupational health, safety and hygiene are not perceived as an urgent priority. The management or company owners do not provide adequate finance for maintenance as well as the purchase of protective clothing. There is not much attention given to the safety of processing machines, equipment, tools as well as their link to health requirements. There is no guarantee of safe and healthy working conditions from employers or an adequate regime for their rest and nutrition. Employees are also only provided the barest of protective clothing they need and without any instructions of how to use it. Workers also indicated that exposure to dust and noise was due to the lack of control at source. Despite being aware of a number of occupational and environmental health hazards, there are no clear policies for the wood-working sector. Some of the measures used in the sector are outdated and do not comply with occupational safety and health standards. These tended to discourage employees from adhering or applying them.

Wood dust is classified by the Occupational Safety and Health Administration OSHA (1985), as a hazardous substance and is subject to the Hazard Communication Standard. Until 1985 wood dust was regulated by OSHA under the Nuisance Dust

Standard. Research has shown that wood dust is not just ordinary dust. Hardwoods and soft woods in timber processing industries have different airborne levels of permissible exposure limits. Among the hardwoods, beech and oak used in furniture manufacturing have severe health hazards associated with them than softwoods. However, the extent of these hazards and the associated wood types has not been clearly established. Wood-dust becomes a potential health problem when wood particles from processes such as sanding, smoothing and moulding become airborne. Breathing these particles may cause allergic respiratory symptoms, mucosal and non allergic respiratory symptoms

Woodworkers are vulnerable to health hazards posed by their working environment. In Australia all wood dust is classified as carcinogenic. Exposure to sawdust is liable to cause dermatitis and allergic respiratory infections. The majority of machine operators in Australia are reported to have been diagnosed of respiratory infectious diseases due wood dust. When a worker is sensitised to wood dust, he/she is prone to suffer from an allergy reaction after repeated exposure. Other effects of wood dust are eye irritation, nasal dryness, irritation to eyes and the nose and frequent dryness. However, dust extractors have been put in place to minimise wood dust at their source of production, (IFC 2007). According to OSHA (2003), dust exposure should be controlled through the adoption and maintenance of effective extraction and filtration systems which are supplemented by use of personal protective equipment such masks and respirators

#### **Accidents and Injuries**

Injuries and illness in the wood working sector of Mutare are caused by exposure to occupational hazards. Hazards include any aspect of technology, or activity that poses risks. The level of risk is primarily the combination of two factors: the level of toxicity or amount of energy present and the degree of exposure (NSSA 2007). Health and safety in the wood working sector can only be pursued comprehensively, integrating all spheres of work, (Steenkamp 2002). The nature of work in wood processing industries, type of equipment and material handled present on the job all influence the nature of hazard (Judd 2004). Traumatic occupational injuries in the timber sector represent significant public concern. Timber related accidents induce emotional and financial costs to both families and society. In 1998, Europe's wood and wood products industry suffered around 90 000 work accidents involving more than three days absent from work. In Italy, the timber processing industry rates as one of most hazardous occupations. Accidents and injuries are as a result of conveyor systems, rapid moving parts of machines (blades, saws), falls and slips, kickbacks, wood handling, and vehicle accidents (Boy, 2002).

Colman *et al.* (2007) note that rotating devices, cutting or shearing blades, in running nip points and meshing gears are typical examples of potential sources of workplace injuries while crushed hands, severed fingers, amputations and partial blindness are typical wood working accidents. In Gabon's timber processing industry, in 2007 and 2008 data collected on work related accidents through the National Social Security Bureau indicated that the largest percentage of work related accidents were in public utility industries (30.1%), timber processing (21.5%) and commerce (16.5%). Wood processing in Gabon is a dangerous occupation which involves more than 30% of the active population. In 2007-2008 accidents involving contact with objects and equipment exceeded all other events accounting for 64.1% of traumatic occupational accidents. Approximately a quarter (24.6%) of these occurred among the timber processing workers in Gabon. Further out of a total of 825 injuries the proportion linked to wood processing was 21.5%. In this group 24.2% of woodworkers were injured in 2007 and 19.3% in 2008. With regard to nature of work related injuries and disorders; open wounds 48.6%, traumatic injuries 29.9%, borne and spine injuries 17.5% and multiple traumatic injuries 7%. Hence National Social Security Bureau programme gathers epidemiological information that helps to understand more about accidents linked to timber processing.

In Nigeria, Oyo and Osun in wood processing industries, a total of 140 injury cases were recorded among 64 workers. Results indicated that mill operators suffers highest rates of 83% while moving planks of wood into milling machines such as moulder machine, timber stacking accidents accounted for 36% while transport accidents is 22%. Further more injuries occurring to body parts include upper limb 68%, back and lower injuries 58% and less prominent lower injuries at 13%. In the case of Nigeria wood processing industries, a major risk factor noticeable in the factory was age factor of machines and equipment in use. Most of the machines were obsolete with most of the safety guards removed and non functional. It was also noted that from the study, the respondents notion about the concept of health and safety rules for operations in timber processing do not give preference to basic safety training in hazardous operations. None of the workers had attended safety training in the previous years. In most cases most of the workers entered the timber industry not as trained wood industry workers with a requisite professional knowledge. This had exposed most of the workers to some untold level of hazards (Bello 2010).

#### **Musculoskeletal Disorders**

Ergonomics is the study of human at work, evaluation of the stress that occurs in work and the ability of people to cope with these stresses

(Keyserling and Armstrong 1992). Ergonomics is defined in the rules of the Ergonomic Research Society as the study of the relationship between man and his occupation, equipment and psychological knowledge to problems arising there from. The practical aims of ergonomics are the efficiency and safety of man-machine and man-environment combinations, together with the welfare and satisfaction of the people involved.

Matuku (2009) argued that although the global industrialisation and innovative technology have their advantages, the other side of the coin is that they bring inherent ergonomic hazards at workplaces. For instance although they increase efficiency have the potential to cause painful and sometimes debilitating injuries known as Work Related Musculoskeletal Syndrome Disorders (WRMSSDs). Heller (1997), Low Back Pain (LBP) is the most common Work Related Musculoskeletal Syndrome Disorders (WRMSSDs) among others as tendonitis and tenosynovitis, accounted for 25% of occupational injuries in United States in 1997. In Zimbabwe, Mukwewa (2005) reported that at Hippo Valley Estates were 50 cases of WRMSSDs in 2000. It affects 10% of work force mainly cane cutters. A total of eight five (85) ill health retirements in 2000-2001 were due to low back pain injuries at the estate. The prevalence of WRMSSDs has been increasing over the past 15 years, although with increase in the number of cases is the cost associated with medical care, compensation and lost production.

### Noise

The problem of occupational noise first came to be recognized in the 19<sup>th</sup> century for workers in such trades as boiler-making, blacksmiths, iron turners, plate-makers, engineers and those employed in noisy machine shops. Nowadays the problem of noise is still prevalent in a wide range of occupations including textile mills, drilling operations, wood processing, grinding, hammering, general engineering and metal fabrication. According to NSSA (2009), noise is any sound pressure variation in the air or other or other medium that can be detected by the human ear. Noise induced hearing loss (NIHL) is the most serious adverse health effect of noise and a compensable occupational disease. Wallart (2002) noted that noise exposure is a well known hazard in wood processing industries, with a higher proportion of employees exposed to noise. A survey in Alberta wood processing industry revealed that on average wood processing machines produced 90 to 100dB thus employees were at risk from noise induced hearing loss. Wallart (2002) argues that, noise abatement at source might be considered an unattainable goal, but simple solutions such as properly positioned barriers, machine isolation and double wall enclosures have been recognised for some time in most wood processing countries in

developed countries. For instance in New Zealand in Hawkes Bay, wood processing industry has drastically reduced noise emissions from an average of 98dB to 86dB.

In South Africa NIHL was a leading compensable condition between 2000 and 2002. In Zimbabwe there are no collated NIHL statistics (Mazibuko 2005). The problem of noise in developing has not been well researched and documented, though exposure limits have been set by most national governments and international organizations. These limits generally vary between a limit of 85 or 90dB for an 8 hour shift, (NSSA 2009). In Zimbabwe, in terms of the Factories and Works (General) regulations Section 6, the limit for exposure to noise is 90dB(A) for an 8 hour shift and internationally an administrative level of 85dB. These controls are essential to control noise from machinery in processing and manufacturing industries to safeguard workers health. The target for industry is to therefore ensure that noise levels are kept to or below the recommended limit of either 90 or 85dB (A). Several possibilities to control noise are available such as administrative and engineering, NSSA (2009).

### Occupational Health and Safety Legislation and Standards

According to the preamble to the ILO constitution, the protection of the worker against sickness, diseases, and injury arising out of his employment is a precondition to universal and lasting peace. As a result, millions of employees die, are injured and fall ill every year as a result of workplace hazards. It has been reported that 250 million work related accidents occur every year worldwide world-wide. Furthermore, workplace hazards and exposures cause over 160 million workers to fall ill annually world-wide. With these tragedies, the means of action used by ILO to promote occupational health and safety include International Labour Standards, Conventions, and Codes of practise, provision of technical advice and the dissemination of information (I.L.O. 2009). The ILO has adopted more than 40 standards and over 40 codes of practise specifically dealing with occupational safety and health. Occupational Health and Safety Convention 1981 (No 155) and Occupational Health Services Convention 1985 (No 161) that covers the concept of occupational health and safety are the other conventions that are concerned with the protection of employees against risks and hazards as well as convection on safety and health in particular branches of economic activities. Others include the convection on 2006 Promotional Framework for Occupational Safety and Health (No 187), (Alphonse 2008). The protection of employees against hazards and risks at work remain a fundamental human right and as such the right to safety and health at work is enshrined in the United Nations Universal Declaration of Human Rights

1948, which states that, 'Everyone has the right to work, to free choice of employment, to just and favourable conditions of work.' The United Nations International Covenant on Economic, Social and Cultural Rights of 1976 reaffirms this right in the following terms, 'The state parties to the present covenant recognise the right of everyone to the engagement of just and favourable conditions of work which ensure in particular safe and health working condition' (NSSA 2008).

The XVIII World Congress on safety and health at work was held in Seoul, Republic of Korea from 29 June to 2 July 2008. The Seoul declaration, approved with a strong unanimous endorsement, was signed at the World Summit by a total of 46 leaders. The Seoul declaration state that a safe and health working environment should be considered as a fundamental human right and it encourages government to consider ratification of the ILO Promotional Framework for Safety and Health Convention, 2006 (no 187) as a priority, (Hope 2009).

Safety and health are basic human rights to be enjoyed by all employees throughout the world. These can be enjoyed through formulation and implementation of national health and safety legislation and the adoption of international safety and health standards. Zimbabwe has adopted the following conventions: (c155) Occupational Health and Safety, (c161) Occupational Health Services, (c162) Safe use of asbestos and (c176) Safety in mines. National laws that cover occupational health and safety include NSSA Statutory instrument 68/90 accident prevention and workers compensation with particular emphasis on the duties of the employers and workers in accident prevention; the Pneumoconiosis Act which clearly stipulates the need for medical examination for all workers in dusty occupations and the Factory and Works Act with its supporting regulations and in particular regulation 263 on general safety and health issues. National laws basically provide for safe and health workplaces, safe work systems and workers compensation and rehabilitation. In short, Maruta (2005) asserted that through ILO standards and national OHS laws decent work for all workers can be achieved through building and maintenance of a preventative health and safety culture.

The Standards Association of Zimbabwe (SAZ) plays a very important role in reducing impact of environmental hazards through periodically auditing implementation of ISO 14001/2004 Environmental Management Systems as well as OSHAS 18001. Such audits are made not only for certification of industry but also as an assessment tool for measuring performance with special regard to reducing Environmental and health disasters. The situation has been improving gradually and Zimbabwe has been

commended for developments in management of Occupational Health and Safety. W.H.O (2005), noted that the number of diseases and deaths have declined in the past decade in Zimbabwe. Critics were, however, quick to say that such a decline is attributed not to developments in management of OHS, but to the fact that the industry is and for the past decade has been operating far beyond capacity.

Findings in the wood working industries in Zimbabwe relate well with those in countries such as Italy and Tanzania. According to these studies the majority of workers in the wood processing industries worked under extremely hazardous conditions without the appropriate protective clothing (Boy 2002, Rongo et al. 2004). Boy (2002) noted that the wood working industry in Italy ranks among the most hazardous industries in that country. The potential sources of workplace injuries include rotating devises, cutting or shearing blades, in-running nip points and meshing gears while crushed hands, severed fingers, amputations and blindness are the typical accidents. The records from the medical sectors of the wood-working enterprises revealed that the common types of health complaints that included respiratory, pulmonary, dermatological, ophthalmic, musculoskeletal (especially backache).

As observed by Adei and Kunfaa (2007) in their study of wood processing industries in Ghana, occupational exposure to ergonomic hazards in the wood processing industries of Mutare were mainly due to lifting weights and uncomfortable posture during working hours. Workers could stand up to as long as seven hours of an eight hour shift. Matoone (1997) observed that back pain was the main complaint that resulted from awkward work postures such as prolonged standing, bending or kneeling. Workers are also exposed to chemical hazards such as gastoxin, glue, sodium chloride, aerolites, casmite, oxygen, acetylene and gas oil as also observed by Adei and Kunfaa (1997). There is need to have material data sheets as a way of raising the workers awareness on safe ways of handling the chemicals. According to McCann and Babin (2007) there is need for good dilution ventilation and additional protective gear such as goggles and NIOSH-approved toxic dust masks for workers in the chemical industry.

### **Conclusion and recommendations**

The wood sector in Zimbabwe needs to be guided by a comprehensive national policy dealing with safety and health issues. Wood workers seem not to be covered by appropriate national safety and health standards. Managers are not taking keen account of the risks linked with wood processing. There is need to have precise knowledge on the subject and the various exposure levels need to be measured and monitored. As noted by Comlan et al. (2007) in their

study of wood processing enterprises in Gabon, the lack of a prevention policy for the wood sector and occupational risks constitute an acute actual public health problem. They suggest that registration and research, being the main source of information on work accidents and occupational diseases should be improved. There is need to create comprehensive criteria for collecting and analysing data on workplace risk factors. Managers and supervisors need to be continuously trained in risk assessment to identify hazards. This would assist them to put preventive measures in place to avoid or minimise occupational accidents. There is also need for a shift organisation of occupational health services from curative to preventive health services. Pre-employment, periodic and exit medical examination, if performed on all workers may safeguard the health of the workers and avoid future litigations.

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