

Role of ergonomics in reduction of occupational health hazards in forestry

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ABSTRACT

An intrinsic characteristic of forestry work is that it is an outdoor activity, exposing its workers to the prevailing climate conditions. The rate of occupational health hazards and postural discomfort is very high among forestry workers. The factors which reduce the physiological working capacity of worker are climatic factors and technical factors. This paper deals with the measures and techniques which are applicable to reduce the occupational health hazards and postural discomforts in forestry sectors by minimizing the adverse effects of climatic and technical factors. The improvement of safety, health, well-being and efficiency is a basic condition for prosperity, and ergonomics is a very important tool for this.

KEY WORDS : Ergonomics, Occupational health hazards, Postural discomfort, Forestry workers

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Working and living conditions for forest workers are generally poor in most countries all over the world, very often, work efficiency is also poor. Physical heavy work, inadequate working methods, working techniques and tools and equipments cause not only occupational accidents, diseases and unnecessary fatigue, but low productivity as well. In countries with available accident records, forestry appears to be one of the most hazardous occupations, with frequent and severe accidents and many diseases. The improvement of safety, health, well-being and efficiency is a basic condition for prosperity and ergonomics is a very important tool for this.

Forest is a community of trees, shrubs, herbs, and associated plants and organisms that cover a considerable area that use oxygen, water and soil nutrients as the community attains maturity and reproduces itself. Forestry is the art and science of managing forests, tree plantations, and related natural resources. The main goal of forestry is to create and implement systems that allow forests to continue a sustainable continuation of environmental supplies and services. The challenge of forestry is to create systems that are socially accepted while sustaining the resource and any other resources that might be affected.

Working conditions in the forestry sector:

Melemez and Tunay (2010) conducted an ergonomic evaluation on whole-body vibration of loading tractor in Turkish Forestry and reported that exposure to whole-body vibration during occupational operation of loading

tractor. Whole body vibration was analysed at the seat-operator interface using a tri-axial accelerometer at 145 forestry loading operations in Turkey. The mean total vibration value was found 1.38 ms⁻² at loading equipment mounted tractors and 1.06 ms⁻² at original loading machines. The regression analysis was performed in order to determine the most important factors that affect total vibration value transmitted to the tractor operator. The most important factors that affect the total vibration value were machine type, ground roughness condition, ground type, wheel pressure, seat condition and operator weight. In the region, the use of original loading machines should be encouraged. The operator seats having an automatic mass adjustment mechanism should be used. The roughness of the ground should be reduced by covering the ground of forest depots with stabilized material. According to the ILO (1999), the forestry sector's labour force comprises of 1 per cent of the world's total employment of which a large majority is working in developing countries. Annually they produce 1.5 milliard m³ of industrial round wood (FAO, 2001). Being a predominantly rural based sector, it provides employment in areas where other employment alternatives often are rare (ILO, 1999). In the industrialized countries, the number of forestry workers has decreased considerably due to mechanization and the ILO (1999) predicts that this decrease will continue. In Sweden for example, the number of forestry workers decreased from 65800 in 1970 to 17600 in 1998 (Anonymous 1999). In the developing countries however, the ILO (1999) predicts that the