# THE ERGONOMICS ISSUES OF OPERATIONAL LEVEL EMPLOYEES IN ZOOS- A CASE OF NATIONAL ZOO IN SRI LANKA

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Thesis/Dissertation submitted in partial fulfilment of the requirements for the Master of Science in Occupational Safety and Health Management

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# DECLARATION

I declare that this is my own work and this dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or Institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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# ABSTRACT

A zoo or zoological garden is a park where captive animals often from all over the world, live and are exhibited to visitors. Occupational ill-health problems in zoos can be caused by any or a combination of exposure to harmful substances, inhalation of harmful particles, poor working practices such as excessive or inappropriate manual handling, environmental factors, such as noise, poor light or cramped working conditions and diseases transmitted by animals.

Ergonomics can be described as a system of interaction between components in the workplace, which include the worker, the work environment (both physical and organizational), the task and the workspace. In manual handling, if done incorrectly or inappropriately it can result in one of several disorders of the muscles, joints and bones. The main cause is neglect of ergonomics principles which leads to bring inefficiency and discomfort to the workers. There is often an acute lack of awareness of ergonomics issues, education and training programmes and certification within developing countries. Ergonomics is the new phenomenon to Sri Lanka and studying and analyzing ergonomics related problems is still draw low acceptance and limited application in the zoos in Sri Lanka.

The literature survey was done to identify the concept of ergonomics and the elements of ergonomics. It also describes the ergonomic risk factors which are relevant to zoo workers.

The case study approach was figured out as the best research approach for this research while observations, preliminary survey questionnaires and semi structured interviews were selected as the best methods to collect data. Also, the research has executed through both quantitative and qualitative research analysis techniques. Statistical analysis including descriptive statistics, likert-scale and RII (Relative Importance Index) as well as content analysis were used for data analysis of this research.

As per the results of the pilot survey analysis, the indirect ergonomic risk factors are the age limit, work experience and number of working hours. Based on these findings, expose to dust, expose to odour, poor conditioned tools, poor condition of

machines, poor work design, poor communication, lack of work training and lack of involvement in decision making are the major ergonomic risk factors in the zoo. In addition to that, the survey was found that the discomforts among operational level employees due to poor ergonomics in the zoo are low back pain, discomforts in thigh/ knee and discomforts in hand/wrist. The illnesses found are tiredness, eye weakness, extensive sweating, muscular pain and numbness. Based on the results of observations, preliminary questionnaire survey and interview it can be concluded that the current practice of ergonomics in the zoo exist at a low level.

**Key words: Ergonomics, Zoos, Risk factors, Sri Lanka**

# DEDICATION

*To My Beloved Parents……*

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# LIST OF ABBREVIATIONS

**HFESA**- Human Factors and Ergonomics Society of Australia

**IEA**- International Ergonomic Association

**ILO**- International Labour Organization

**ISO**- International Organization for Standardization

**MSDs** - Musculoskeletal Disorders

**OHS**- Occupational Health and Safety

**OSHA**- Occupational Safety and Health Administration

**PPE**- Personal Protective Equipment

**RII**- Relative Importance Index