

# **Expanding ergonomic activities in Sri Lanka –an industrially-developing country**

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## **Abstract**

**Sri Lanka is among many developing countries that have a considerable number of industries and a large number of workers working in various occupational settings. Ergonomics is an evolving specialty all over the world. Since the discipline of industrial hygiene is still not recognized in Sri Lanka and, the occupational health and safety legislation is not well developed in the country it is a common belief that majority of these workers are exposed to many ergonomic hazards. It is believed that a health-led concerted effort is essential considering the significance and applicability of ergonomics to healthcare professionals in Sri Lankan contexts. The Expert Committee on Ergonomics of Sri Lanka Medical Association (SLMA –ECE) was established with the objective of promoting ergonomics in medical community, general public and in healthcare settings. Over this short span SLMA-ECE has been able to initiate series of activities in order to meet its objectives. These activities, in reality, benefited not the SLMA-ECE but also the country in broader terms. As a result, it will contribute towards the advancement of the discipline of ergonomics in the country and also ergonomic applications in uplifting the national development. Sri Lanka’s experience on ergonomics as a developing nation will be a role model for other countries with similar backgrounds.**

## **1. Background**

Occupational health remains neglected in developing countries because of various social, economic, and political challenges (Nuwayhid, 2004). Occupational health professionals have repeatedly wondered why governments in developing countries are relatively unconcerned with occupational health, and why occupational health is absent where it is most needed, particularly given that clear empirical links exist between good occupational health practices, a healthier labor force, and improved productivity (Kromhout, 1999, Nuwayhid, 2004). Workplace interventions such as proper ergonomic practices have been presented as one of the tools to break the cycle of poverty, because these improve productivity, salaries, and, consequently, living conditions (O’neill, 2000, Elgstrand, 1985).

Sri Lanka boasts of good healthcare indices and is also among many developing countries that have a considerable number of industries and a large number of workers working in various

occupational settings. Ergonomics is an evolving specialty in Sri Lanka. Ample evidence is available on gross deficiencies in ergonomics in many settings at local level. Since the discipline of industrial hygiene is still not recognized in Sri Lanka and, the occupational health and safety legislation is not well developed in the country it is a common belief that majority of these workers are exposed to many ergonomic hazards and are at a great risk of developing diseases related to their occupation (Suraweera et al., 2014).

A health-led concerted effort is essential considering the significance and applicability of ergonomics to healthcare professionals in Sri Lankan contexts. Sri Lanka Medical Association (SLMA), being the premier professional organization representing the medical community of all branches of medicine, took the lead role in promoting ergonomics in Sri Lanka. The Sri Lanka Medical Association is the oldest and most prestigious professional medical association in Sri Lanka. It is widely considered the apex of all medical associations in Sri Lanka. It is the oldest professional medical association in Asia and Australasia with a history dating from 1887.

The Expert Committee on Ergonomics of Sri Lanka Medical Association (SLMA –ECE) was established with the objective of promoting ergonomics in medical community, general public and in healthcare settings. Over this short span SLMA-ECE has been able to initiate series of activities in order to meet its objectives.

## **2. Activities initiated by SLMA-ECE to promote ergonomics in Sri Lanka**

The mass media are increasingly popular as a strategy for delivering preventive health messages. Studies have shown that when the media have been used in an agenda-setting role in combination with a community component, significant changes in behaviour have been reported (Redman et al., 1990).

Printed and electronic media briefings were carried out in several occasions to highlight the importance of ergonomics by the experts working with SLMA-ECE. Several paper articles and television, radio talk shows were held with a view of sensitizing general public, disseminating knowledge and inculcating ergonomics culture in the Sri Lankan society. A series of workshops were carried out to spread the knowledge across the working community.

Advocacy is the effort to influence people, mainly the decision makers or the policy makers to initiate change, which in the context of ergonomics, results in comprehensive policies and effective programed implementation, through various forms of persuasive communication (World Health Organization, 2008). This is a very important component especially in the current local context where the priority given to activities related to ergonomics is very low. Several high level meetings were held with a view of involving various stakeholders in the venture of inculcating ergonomics culture in Sri Lanka. Minister of Technology, Research and Atomic Energy extended his invaluable

support to continue promoting the ergonomics in Sri Lanka.

Ergonomics should be an integral part in the designing of every facet of a school. Available evidence suggests ergonomic mismatches are present at classroom settings. Good practice examples in child ergonomic interventions are few in resource-poor contexts. According to a local study done by Jayaratne (2012), carriage of school materials was not found to be healthy. Deficiencies had been noted in weight, model, ergonomic features, and carrying behavior of bags. Children experienced several negative effects, in part attributable to mismatched ergonomic factors due to school bag (Jayaratne, 2012).

Thus a "Healthy School Bag" has been manufactured locally under direct guidance of SLMA-ECE, based on ergonomically friendly instructions, which has been shown not only to experts such as pediatricians and community physicians for evaluation but also to principals, teachers and most importantly children themselves. The main project of "Healthy School Bag" was identified as a priority of SLMA-ECE agenda. Minister of Education Services recognized the importance of popularizing Healthy School Bags among the students and has pledged to continue supporting in every mean. At present, the Ministry of Education has issued a circular making use of the Healthy School Bag compulsory. Meanwhile, behavioural changes among children are to be brought about by including a chapter in the Grade 8 science textbook from next year on school bags and ergonomic behavior. A secondary study has been conducted on the strategies for bag-weight reduction by the Ministry of Education under the guidance of Commissioner-General of Education Publications.

In Sri Lanka, childhood injury was identified as the fourth leading cause of death among children less than five years of age. One study done in at the Lady Ridgeway Children's Hospital (LRH) which is the premier pediatric tertiary care hospital in the country, has revealed that injuries within the road comprised 8% (Lamabadusuriya et al., 2002). Thus, road traffic injuries can be considered one of the leading causes of death and disabilities among children in Sri Lanka. Injury data suggest that children from lower income family background are at greater risk of motor bicycle related injury as a result of lower rates of helmet use. The child helmets available in Sri Lanka are not being manufactured according to the safety standards and imported child helmets are not being tested for safety standards. Hence, the child helmets on the market today offer varying degrees of protection that cannot assure the safety of the children during a motor bicycle accident.

In order to address the issues with regard to child helmets, the SLMA Expert Committee on Ergonomics has taken initiative to work on three main areas: Engineering, Enforcements and Education. Standards on child helmets are essential aspect of engineering. SLMA-ECE along with Sri Lanka Standards Institution (SLSI), which is the lead organization in developing standards in Sri Lanka, initiated developing standards in 2014. Currently it has been developed and

within few months, the stipulated standards will be available. Once the standards are available, the next step planned is to develop the legal framework, which will make using of the standard helmet mandatory.

Workshops on ergonomics for various professionals are important to raise awareness and to create an effective dialog among the professional community. The awareness and the knowledge gained will cascade down to a larger target population, which include different levels of professionals and general public. Sharing of experience related to strategies adopted by different local and international stakeholders to promote ergonomics is equally important in developing a comprehensive set of actions targeting promotion of ergonomics.

SLMA - ECE organized a one-day symposium on ergonomics, "Inculcating Ergonomics in the Sri Lankan Setting", as a pre-congress workshop of the Annual Academic Congress of the SLMA - 2013, in collaboration with National Institute of Occupational Health (NIOSH) with the support from National Science Foundation (NSF), World Health Organization (WHO), United Nations Children's Fund (UNICEF). This symposium was organized with the objective to disseminate ergonomic concepts and good practices to a multitude of partners from different sectors; health, corporate, labor and education with the aim of catalyzing the application of human factor principles in wider spectrum of fields.

The international collaborator of NSF, Prof Karen Jacobs, Clinical Professor & Program Director of Boston University, USA and former chairperson of the Ergonomics for Children and Educational Environments (ECEE) Technical Committee of the International Ergonomics Association (IEA) participated as a resource person of the workshop and several other post-symposium activities conducted in relation to ergonomics. Two other world-renowned ergonomists; Prof David Caple of La Trobe University, Australia and Prof John Abeysekera of Work Science Academy, Consultant Community Physicians, Medical Administrators and Bio-informatics specialists were key resource persons.

An organizing committee comprised of members of SLMA - ECE played the key role in planning and implementation of the proposed project. An abstract book was published with the profiles of key note speakers, abstracts of presentations and the programme.

A heterogeneous group of more than 180 professionals from different fields; Public health specialists, Ergonomists, Pediatricians, University Lecturers, Scientists, Industrialists, Journalists, Education & Health Ministry officials, Under graduate & post-graduate trainees, Occupational, Safety and Health (OHS) students, Physiotherapists, other medical specialists and private sector executives participated at the symposium.

The symposium covered different areas of ergonomics, its application and possible consequences of mismatched ergonomics by related professionals from both local and international levels. Leading

academia related to the discipline co-chaired three sessions. A panel discussion was held with the participation of experts from different sectors to delineate the way forward in the field of ergonomics in the Sri Lankan settings.

The main drawback in inculcating ergonomics in industrially developing contexts is the lacunae in knowledge. The pre-congress workshop on "Inculcating Ergonomics in the Sri Lankan Setting" was the first-ever health-led symposium in the evolving discipline of ergonomics in the country. This workshop attracted many professionals from different sectors both from local and international levels to share and transfer the new knowledge on ergonomics and human factors. Local experts working in isolation on different ergonomic scenarios had the opportunity to meet and share their work / experience at this workshop. It was an eye-opener and an effective platform to move forward with feasible ergonomic strategies with multi-sector involvement.

Several post-symposium activities were conducted jointly with NSF, NIOSH and SLMA-ECE to maximally utilize the presence of key overseas resource persons. These include; Stakeholder program on child ergonomics involving Ministries of Health & Education, A Guest Lecture at SLMA Annual Congress - 2013 Ergonomics Applications in Healthcare Settings and for Healthcare Professionals, Telehealth & Ergonomics - Knowledge Sharing Program for Scientists, Ergonomic Awareness Workshop for Gateway College teachers and Industrial Ergonomics for industrialists of Sri Lanka

Table 1: Post-symposium activities conducted by SLMA-ECE

<b>Activity</b>	<b>Resource</b>
Stakeholder program on child ergonomics involving Ministries of Health & Education	Prof Karen Jacobs
Guest Lecture - SLMA Annual Congress - 2013 Ergonomics Applications in Healthcare Settings and for Healthcare Professionals	Prof David Caple
Telehealth & Ergonomics - Knowledge Sharing Program for Scientists	Prof Karen Jacobs
Ergonomic Awareness Workshop for Gateway College teachers	Prof Karen Jacobs
Industrial Ergonomics for industrialists of Sri Lanka	Prof David Caple

Following the successful completion of the symposium on "Inculcating Ergonomics in the Sri Lankan Setting" at the SLMA Annual Congress - 2013, the authors of the prestigious international journal - WORK, published by the IOS Press agreed to publish a special issue dedicated to Sri Lanka titled "Ergonomics and Work in Sri Lanka". A large number of manuscripts have already been received and initial screening is currently underway to accept suitable articles. The special issue of this journal will be published in December 2015.

With the growing increase of computer use in education, there is an increasing concern about computer-related health problems. The lack of knowledge about healthy computer use and ergonomics, cause

computer-related health problems. Thus, it is important to train the computer users on healthy computer use (Odabasi and Eristi, 2012).

Stretch Break is a computer software developed by a team of health care professionals to increase circulation, relieve tension, boost the energy level, and help guard against Repetitive Strain Injuries (RSIs) among computer users. Once installed on hard drive, Stretch Break gently reminds the user to take periodic breaks while using the computer. The user is invited to perform a series of low-impact stretches illustrated on the screen. SLMA – ECE started collaborating in customizing this software to suit the Sri Lankan context. As a result, a royalty free full featured version was offered to be used, reproduced and disseminated across in Sri Lankan set up.

Injuries amongst children and adolescents is a growing public health concern in Sri Lanka, primarily due to the additional burden issues such as disability and premature deaths places on the health care system. On average, 600 children under 16 years old die each year from injuries and thousands of others suffer the consequences of non-fatal injuries in Sri Lanka. For each area of child injury, there are proven ways to reduce both the likelihood and severity of injury, yet, awareness of the problem and its preventability, as well as political commitment to act to prevent child injuries, remains unacceptably low.

Injuries to children occur due to many causes in a multitude of circumstances. One element of child injury prevention is raising awareness among healthcare workers, general public, parents and children. Healthcare workers are in constant contact with the parents and children throughout the injury-risk period of their age. Therefore, availability of injury-specific training material and audiovisual material is crucial in the prevention of child injuries.

SLMA – ECE could negotiate with *Safe Kids Worldwide* to help with resource materials in prevention of child injuries in Sri Lanka. In a quick response, they have modified the original "imagine" video to suit Sri Lanka. A Sinhalese version was developed with the help of the experts in the particular field and it was telecasted in main TV channels in the country.

With the assistance of UNICEF, SLMA-ECE developed a child injury prevention poster suited to the local cultural context in all 3 main languages in the country; Sinhalese, English and Tamil. Eighteen thousand posters were printed and distributed to all health institutions in the country. The same poster was published in some selected newspapers.



Figure 1 : Child injury prevention poster

### 3. Conclusion

The SLMA – ECE, being a newly established professional group, could showcase its capacity in transfer of knowledge and contributed to the national efforts in making a healthier nation. The activities, in reality, benefited not the SLMA-ECE but also the country in broader terms. As a result, it will contribute towards the advancement of the discipline of ergonomics in the country and also ergonomic applications in uplifting the national development.

Sri Lanka's experience on ergonomics as a developing nation will be a role model for other countries with similar backgrounds.

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