Introduction

Awareness is increasing in the Asia-Pacific region that ergonomics is useful for achieving a sound and safe work environment. Occupational health personnel in the Government and various industrial sectors are thus integrating ergonomics into their occupational health programmes. International cooperation projects for promoting occupational health in the Asia-Pacific region commonly place a particular emphasis on the application of ergonomics.

Reports on ergonomics research and ergonomic interventions in the Asia-Pacific region cover a wide range of the working conditions issues such as anthropometry, work load and work postures, working hours, workstation designs and work organization[1]. These reports concern various occupations such as agricultural and informal sectors, services and manufacturing sectors[2,3].

There is a fairly large number of interesting and successful ergonomic interventions that led to improved working conditions. These interventions commonly focused on work-related needs of local people[4]. It is of particular interest that for assessing ergonomic needs of practical improvements, often with active participation of the local people concerned, ergonomists in the Asia-Pacific region have developed useful field research tools for assessing needs and identifying practical solutions (Table 1).

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Workload evaluation for better workplace layout and arrangements

It is a fact that in the Asia-Pacific there are many workplaces where workers have to handle heavy materials manually. This materials handling work is often associated with strenuous work postures leading to a high accident potential. Khai et al. documented the characteristics of workload and heavy materials handling in a local sugar-cane factory located in the Mekong Delta area in Vietnam[5]. In the sugar-cane factory, workers handled sugar-cane bundles of over 40 kilograms manually on the muddy, slippery work floor. It was further shown that on the basis of the research results, the owners of the factory in collaboration with workers could initiate improvement activities, such as improved cement floors, transport ways, or a resting corner for workers.

In Thailand, the National Institute for the Improvement of Working Conditions and Environment has developed an intervention method for improving heavy materials handling work. This method has been successfully applied in various workplaces, including sugar-cane factories, where workers handle heavy materials manually. The method includes the following steps:

1. Workload evaluation for better workplace layout and arrangements
2. Identification of ergonomic interventions
3. Implementation of ergonomic interventions
4. Evaluation of the effectiveness of ergonomic interventions

This method has been found to be effective in improving working conditions and reducing injuries among workers handling heavy materials.
handling work, applying a simple, rapid assessment technique[6]. This method was applied in a local textile mill and a pottery factory. Rapid feedback of the research data directly to the owners and workers could help them initiate their positive improvement actions.

Workstation design

For designing appropriate workstations fit for the local people, anthropometry studies are increasingly important. The need for adjusting machines to the body size of the local people is particularly acute in the current conditions of rapid technology transfer. Many studies including a study in the north-eastern part of Thailand[7] revealed that body size differed greatly between urban and rural areas. This should be reflected in work redesign.

Ergonomic workstation design is achieved as a result of numerous studies. An interesting experience was reported for improving microscope design in collaboration with a microscope manufacturer[8]. Static and dynamic muscular workloads could be reduced by redesigning adjustable eye-point height and knob locations. A similar attempt in Thailand was also successful in readjusting weaving machines to the local workers[9]. Such redesign processes were often combined with a participatory process.

Rice farming and other agricultural jobs are important research themes in occupational health in the Asia-Pacific region. Similar particular studies were conducted in Vietnam as to postural workloads during rice harvesting, applying direct observation methods[10]. Particularly in India, appropriate designs of agricultural tools and machines have been proposed on the basis of anthropometric studies[11].

Working hours

Working time issues are a key agenda item for developing healthy workplaces in the region. Effects of shift work on health and family and social life of the shift workers have been important research topics[12,13]. Osiri et al. conducted an interesting survey on shift and night work systems applied in Thailand[14]. In some semi-continuous two-shift systems covering almost 24-hour production, workers worked six days a week, resulting in 72 work hours every week including night shift work. This and other surveys also pointed out many problems of the management and workers which required comprehensive measures covering work schedules and job redesign.

Participatory approaches

Participatory approaches building on local practice are playing important roles for upgrading working conditions by the initiatives of local people. Many reports from Asian countries, including Japan[15], Malaysia[16], Pakistan[17], Philippines[18], Thailand[19] and Vietnam[20], have demonstrated successful experiences in improving safety and health of workers. In these reports, including the experiences in applying Work Improvement in Small Enterprises (WISE) methodology developed by the ILO and similar action, training made use of many low-cost improvements[4].

Future perspective

Practical action-oriented ergonomics will continue to play an important part in occupational health programmes in the Asia-Pacific region. Application of locally available ergonomic improvements can reduce occupational health risks with active support of occupational health staff trained in this respect. It is important to promote the exchange of experiences at regional and international levels for sharing local achievements.

References

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