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Promotion of a Healthy Work Life at Small Enterprises in Thailand by Participatory Methods

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Abstract: The major problems of small enterprises include unfavourable working conditions and environment that affect safety and health of workers. The WISE (Work Improvement in Small Enterprises) methodology developed by the ILO has been widely applied to improve occupational safety and health in small enterprises in Thailand. The participatory methods building on local good practices and focusing on practicable improvements have proven effective in controlling the occupational hazards in these enterprises at their sources. As a result of applying the methods in small-scale industries, the frequency of occupational accidents was reduced and the working environment actually improved in the cases studied. The results prove that the participatory approach taken by the WISE activities is a useful and effective tool to make owner/managers and workers in small enterprises voluntarily improve their own working conditions and environment. In promoting a healthy work life at small enterprises in Thailand, it is important to further develop and spread the approach.

Key words: WISE, OSH, Small enterprises, Participatory approach

Introduction

Improvement of occupational health conditions in small enterprises is one of the most important issues in both industrially developing and developed countries[1–3]. The major problems of small enterprises include unfavourable working conditions and environment that affect safety and health of workers. In Thailand, more than 95 percent of the enterprises have less than 100 workers and they have played an important role in developing the country. However, most of them are confronted with numerous problems that limit their potential for growth and threaten their economic viability. One of the major problems is that they are often characterized by very unfavourable working conditions. The general level of working conditions and environment is very poor and workers in these enterprises are exposed to excessive risks at work. Most small enterprises urgently need to implement practical improvements in order to protect workers from occupational accidents and diseases. Our recent experiences show that participatory methodology, such as the Work Improvement in Small Enterprises[2] (WISE) activity proposed and implemented by the ILO, can effectively reduce risks in these enterprises. These experiences are reviewed to examine what features of the WISE methods are important in further promoting a healthy work life for workers in these enterprises.

Methods

There are various occupational safety and health activities to promote a healthy work life at small enterprises[2, 4, 5] in Thailand. One of the most famous activities that we use is the application of the WISE methodology to small-scale enterprises and the informal sector. The WISE methods make use of the participatory approach that was developed by the ILO for owners and managers of small and medium sized enterprises (SMEs) in attaining higher productivity and a better place to work. We first started WISE activities in Thailand in 1986 for the owners, managers and supervisors

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in small enterprises in Bangkok and provinces. From our experience of conducting WISE activities, we found that we should focus on improvements at the source of occupational hazards. In 1996, the National Institute for the Improvement of Working Conditions and Environment (known as NICE) launched a project for small enterprises that had a high number of occupational accidents. Under this project, we applied the WISE methodology at the metal pressing industry, one type of industry that had high frequency of occupational accidents in Thailand. WISE activities were implemented in small metal pressing factories and changes in the frequencies of occupational accidents after the intervention were examined in these enterprises.

We also applied WISE methods to small enterprises that had work environment problems. For example it was applied in a lamp-manufacturing factory where workers were exposed to excessive environmental heat. The main contents of the activity were: 1) introduction of the WISE methodology to the managers and workers of the factory, 2) walk-through survey using the WISE checklist by the working group to check working condition at the workplace, 3) group discussion to find occupational health problems at the workplace and brain-storming to find the solution for them, 4) plenary meeting to prioritize the problems and discuss counter measures against them. As a result of using the WISE checklist and brain-storming, it was suggested to introduce heat barriers between furnaces and workers. Based on the results of discussion, heat barriers were designed and made by the members of the company. To examine the effects of the heat barriers on reducing heat stress, we measured environmental temperatures and estimated the condition with WBGT index by using ISO 7243-1982: Hot Environments -Estimation of the Heat Stress on Working Man, Based on the WBGT Index. Work/rest regimes of workers exposed to high temperatures were compared before and after the installation of the barriers.

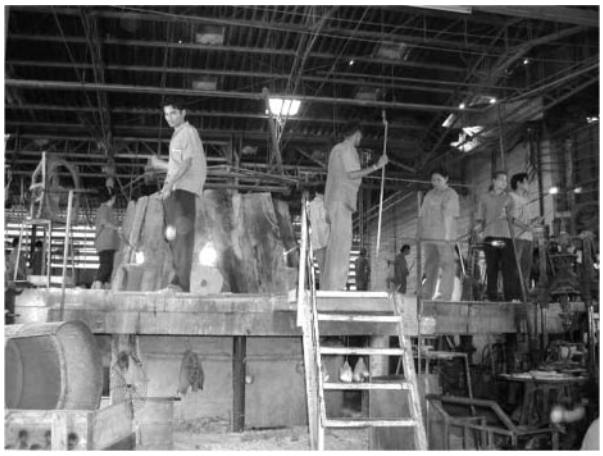

Fig. 1. Work at the stage around the furnace.
The workers take out a bit of melted glass from the furnace and produce glass electric bulbs by blowing.

Fig. 2. Work to take out glass from the furnace to make a bulb.
Take out a bit of melted glass from the furnace.

Results and Discussion

From the follow-up results observed after conducting WISE activities at the metal pressing industry, we found that the factories joining in our WISE Project could reduce the number of occupational accidents as shown in Table 1. The frequencies of occupational accidents reduced year by year starting from 1995 until 1997 at all the factories. The total number of accidents in those six factories in 1995, 1996 and 1997 was 87, 25, and 15 cases, respectively. Two of them could reduce the number of occupational accidents to zero. Metal pressing work is known as one of the most risky types of work and many countries have struggled to reduce the cases of accidents in those factories but failed to solve the problem. It should be noted that the number of accidents was markedly reduced with introduction of WISE methodology.

Table 1. Number of occupational accidents in 1995–1997 in 6 metal pressing factories joined in WISE activities

Enterprises	Number of Workers	Number of Occupational Accidents		
		1995	1996	1997
Factory 1	115	32	13	10
Factory 2	24	22	3	1
Factory 3	54	15	3	2
Factory 4	15	11	3	0
Factory 5	20	4	3	2
Factory 6	28	3	0	0

In the lamp manufacturing factory, hot environment was a sever problem for the workers especially ones working

Fig. 3. Blowing melted glass to shape a lump bulb. On the stage a worker blow the air into the melted glass to shape a bulb. On the flow another worker holds a mold.

Fig. 4. Measurement of thermal condition behind a heat barrier.

Table 2. Thermal conditions with and without heat barriers at a lamp-manufacturing factory with a furnace

Work location[1)]		Wet bulb (WB)	Dry bulb (DB)	Glove (GT)	WBGT Index
Control (shady outside in the factory)		26.4°C	30.5°C	30.8°C	27.7
Far point[2)]	without a barrier	28.2°C	34.7°C	37.7°C	30.8
	with a barrier	27.3°C	33.0°C	33.6°C	29.1
Middle point[3)]	without a barrier	28.2°C	34.7°C	37.7°C	30.8
	with a barrier	27.3°C	32.7°C	33.7°C	29.1
Near point[4)]	without a barrier	28.6°C	33.9°C	42.7°C	32
	with a barrier	27.6°C	34.1°C	34.9°C	29.7

[1)]: Allowable work length (min/hour) recommended based on the WBGT index.

[2)], [3)] and [4)]: Points about 100 cm, 250 cm and 500 cm apart from the furnace, respectively.

near a furnace to melt the glass. The workers should conduct the tasks of blowing electric light bulbs near the furnace (Figs. 1, 2 and 3). The dry bulb, wet bulb, and globe temperature was measured to estimate the Heat Stress Indexes at the workplace. The results were shown in Table 2. The results show that the air temperature at the spot near the furnace, where workers take out a bit of melted glass from the furnace, was very high and the calculated WBGT indicated the work at the place was not recommended even for a short period. The environmental conditions at the point about 5 m and 10 m away from the furnace were also very bad and the work at those places was not recommended either. Based on the results of the measurement of the environmental condition, introduction of heat barriers was recommended to protect the workers from the heat radiation from the furnace (Fig. 4).

After introducing the heat barriers, the worksite heat stress condition was markedly improved as shown in Table 3. We could confirm that the levels of WBGT at the worksites decreased from 38–43 to 33–35 after installing the heat barriers. The work/regimes actually taken by the workers before and after the improvement are shown in Table 3. We found that if the workers worked at the points 100 centimeters from the furnace they were not allowed to work without the heat barriers. With the barriers they could work for 30 min and rest for 30 min in each hour. When the worksites were 250 cm and 500 cm away from the furnaces, the workers could work only for 15 min and rest for 45 min in each hour

Table 3. Work/rest regimes actually worked before the introduction of barriers and after the introduction

Work location	Work / Rest Regimes (each hour)	
	Without Barriers	With Barriers
Far point[1)]	0	50 / 50
Middle point[2)]	25 / 75	75 / 25
Near point[3)]	25 / 75	75 / 25

[1)], [2)] and [3)]: Points about 100 cm, 250 cm and 500 cm apart from the furnace, respectively.

without heat barriers but with heat barriers they could work for 45 min and rest for 15 min in each hour. These results show that with the heat barriers the workers could work for a longer period than in case of working without the barriers.

Conclusion

The participatory approach using the WISE methodology has proven effective for improving the working conditions and environment in workplaces of small enterprises. The results of our study also prove that the introduction of WISE methodology can improve working conditions effectively. It is expected that if we focus on the improvement at the source of occupational injuries, it can reduce the number of occupational accidents and diseases. The WISE methodology thus represents the participatory methods that are very effective tools for promoting a healthy work life at small enterprises in Thailand.

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