

Integrating occupational hygiene and health: the effectiveness in improving small-scale workplaces

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As working situations are increasingly diversified, a clear trend in safety and health at work is the development of action-oriented approaches that build on good practices. The trend reflects the need for comprehensive risk management particularly in small-scale workplaces. This presents a unique opportunity for integrating occupational hygiene and health as essential elements of safety and health management systems at the workplace. In line with the trend, participatory action-oriented programmes have evolved as a direct means of promoting primary prevention in small workplaces with various resource limitations. Similar developments are seen in the spread use of Basic Occupational Health Services in these workplaces. These programmes have led to risk reduction in multiple aspects when they apply practical improvements based on occupational hygiene and workplace health promotion. In particular, three features of effective participatory action-oriented programmes attract our attention. They aim to: 1) build on local good practices; 2) focus on practical and versatile procedures for risk assessment and reduction; and 3) use action tools for implementing risk-reducing measures feasible in each local situation. The proactive nature of the participatory programmes has proven useful in small workplaces especially in overcoming constraints, such as lack of technical expertise and resources. A special emphasis is further placed on the use of locally adjusted action tools, such as action checklists and how-to guides. These tools are effective as they reflect principles of occupational hygiene, ergonomics and stress prevention. These recent experiences suggest the importance of integrating the risk management procedures that use action-oriented toolkits. It is vital to promote participatory steps reflecting proactive principles of occupational hygiene and health in a manner adjusted to local conditions of diverse workplaces.

Key words: Occupational hygiene and health, good practices, proactive risk management, small-scale workplaces, action-oriented toolkits

Introduction

As working conditions are increasingly diversified in globalization, a visible impact is seen on the growing need to manage safety and health risks at work. Attention is drawn to multiple risks affecting workers in various work settings. A prominent trend in many countries is to emphasize good practices as workable goals in addressing these risks. This emphasis reflects the need for advancing proactive risk management systems in diverse working situations [Lie et al., 2002; Kogi, 2002; Buffet and Priha, 2009]. This presents a unique opportunity for integrating occupational hygiene and health as essential elements of the safety and health management systems particularly in small-scale workplaces [ILO, 2001; Zalk, 2001; Kogi, 2010]. It is necessary to discuss the roles of integrated approaches in managing occupational safety and health (OSH) in various small-scale workplaces.

In line with the trend, many countries, including those in Asia and the Pacific, have developed their national OSH programmes referring to global strategies of the ILO and the WHO addressing workers' health and the ILO Promotional Framework for OSH Convention (No. 187, 2006) [ILO, 2001; Kawakami and Kogi, 2005; Rantanen, 2005]. An increasing attention is drawn to participatory action-oriented approaches that can facilitate the workplace measures aimed at improving safety and health of workers. International cooperation is developing towards utilizing practical good practices for the design and use of guidance and training materials in reducing safety and health risks at work [European Agency for Safety and Health at Work, 2000; Kogi, 2002; Tan and Kawakami, 2009].

Many Scientific Committees of the International Commission on Occupational Health (ICOH) are joining in this international cooperation responding to workplace needs in different working situations. ICOH places high priority on advancing proactive risk assessment and control, extending occupational health services for all workers and developing action-oriented toolkits. A special

emphasis is placed on achieving good practices in extending action-oriented programmes and Basic Occupational Health Services (BOHS) to small-workplaces and informal and rural sectors in collaboration with the ILO and WHO [Rantanen, 2005; Kawakami and Kogi, 2005; Zalk and Nelson, 2008].

The advantage of taking participatory steps involving employers and workers is recognized by recent progress in many of these programmes. These steps have proven effective in small-scale workplaces [Itani et al., 2006; Kogi, 2008].

It is useful to discuss the recent progress in effective types of participatory action-oriented programmes aimed at achieving locally feasible good practices. Attention is drawn to practical and integrated procedures taken by these programmes in building on good practices in the local context. Attention is also drawn to the application of action tools for direct use by workplace people. A focus of attention is the development and use of action-oriented toolkits for risk reduction procedures applicable in small-scale workplaces despite their resource limitations.

Methods

Recent progress in promoting good practices and associated action-oriented procedures for assessing and controlling safety and health risks at work is reviewed. Recent good practices compiled through regional OSH networks are examined to know practical types of workplace-level good practices in occupational safety and health [European Agency for Safety and Health at Work, 2000; Tan and Kawakami, 2009; Kogi, 2010]. The focus of the examination is placed on the roles of these good practices that can advance primary prevention of work-related risks.

The roles of participatory programmes in preventing work-related risks in different work settings are then reviewed. The review covered workplace-level programmes undertaken by partners of an Asian inter-country network (<http://www.win-asia.org>) and recent workplace interventions within the Basic Occupational

Health Services in some Asian countries. The reviewed programmes included (1) risk management programmes for reducing work-related risks [Kogi et al., 2003; Ito et al., 2006; Yoshikawa et al., 2006; Zalk and Nelson, 2008], (2) participatory programmes for small enterprises and home workplaces applying the WISE (work improvement in small enterprises) methodology developed by the ILO [Thurman et al., 1988; ILO, 2004; Kogi, 2008], (3) training workshops for farmers applying WIND (work improvement in neighbourhood development) methods in Asian and other countries [Khai et al., 2005; Kogi, 2008; Kawakami et al., 2009], and (4) workplace interventions within national programmes for promoting BOHS [Rantanen, 2005; Kogi, 2010]. The programmes for developing OSH management systems by implementing participatory programmes for work improvement are also examined [Kogi, 2002].

These programmes are organized as direct interventions involving employers and workers by commonly applying action-oriented training and practical procedures with the support of trainers and occupational health teams. The effectiveness of the programmes is evaluated by analyzing the improvement actions conducted, interviewing the participants and examining case study results.

Results and discussion

Building on local good practices

In meeting varying needs for protecting workers in diverse work situations, practical risk management procedures addressing multiple risks at the workplace are commonly promoted. Good practices advancing in occupational safety and health are thus usually aimed at comprehensive risk management [European Agency for Safety and Health at Work, 2000; Kogi, 2006; Tan and Kawakami, 2009]. Awareness is growing that flexible needs-oriented procedures of risk management lead to concrete results. These procedures are known to be effectively applicable despite many constraints in addressing a broad range of safety and health risks in small-scale workplaces.

It is of particular interest that action-oriented risk management procedures are commonly sought for addressing multiple risks including excessive workloads, traditional and emerging environmental risks, psychosocial risks and organizational failures. Many examples of good practices including those in small-scale workplaces make use of a variety of practical procedures often comprising semi-quantitative or qualitative methods of risk assessment. These procedures are usually combined with the adoption of locally practicable improvement measures. The criteria for compiling these good practices are similar in different regions (Table 1).

The criteria applied by the European Agency for Safety and Health at Work emphasize the impact of each case on reducing potential workplace risks, improving working conditions in general and sustainable effects [European Agency for Safety and Health at Work, 2000]. Similar criteria are used for Good Practice Samples (GPS) compiled by the Continuing Education Committee of the Japan Society for Occupational Health at its website [Kogi, 2010]. These samples include examples for occupational health services and action-oriented partnerships. The presented samples depict the collaborative process at the enterprise level for reducing multiple health risks as well as the roles played by occupational health professionals. These criteria are in line with the comprehensive nature of risk management systems. Good practices compiled by applying similar criteria through the ASEAN-OSHNET (the Association of Southeast Asian Nations Occupational Safety and Health Network) have yielded significant improvements in OSH in these countries. The merits of good-practice approaches were discussed at the ASEAN-OSHNET workshop held in February 2009 in Singapore. Examples included national OSH frameworks, enforcement and outreach programmes, training and information exchange [Tan and Kawakami, 2009]. Typical examples of national programmes reported to the workshop are shown in Table 2. These programmes have promoted the application of proactive risk management in small-scale workplaces. They commonly make use of local good practices as guides for effective risk reduction.

In these national programmes for extending OSH management systems, a particular emphasis has always been placed on the multi-dimensional approach with the active participation of employers and workers. In Cambodia, many OSH trainers have been trained for extending OSH protection into small enterprises and informal economy workers. Vietnam has placed a high priority on upgrading the quality of working life of farmers by applying participatory training methods since 2004. The good practices collected by the trainers and local agencies have been incorporated into the government implementation plan for wider coverage. This emphasis, seen also in other countries, has led to the extended application of the participatory work improvement programmes for small enterprises.

It is striking that the use of local good practices in participatory action-oriented training of small-scale workplaces has similarly spread to many countries. We can note the two main types of good practices in occupational health in diversified work situations may be summarized as indicated in Fig. 1.

The two main types of those good practices are noted for (a) promoting proactive and comprehensive risk management procedu-

Table 1: Examples of the criteria for compiling good practices in managing work-related safety and health risks

Criteria applied	Organization compiling good OSH practices		
	EU-OSHA (EU Agency for Safety and Health at Work)	JSOH (Japan Society for Occupational Health)	ASEAN-OSHNET (ASEAN Occupational Safety and Health Network)
Effective reduction of risks	+	+	+
In line with national policies	+		+
Positive impact on local practices		+	+
Better general working conditions	+		
Complying with legal standards	+	+	+
Meeting ethical principles	+	+	
Applicability in local situations	+	+	+
Sustainability	+	+	+

Table 2: Workplace-level good-practice approaches promoted by national programmes in ASEAN and other countries (ASEAN-OSHNET Workshop, 2009)

National programmes	Countries	Emphasis on good practices
Good OSH Practices in high-risk industries	Cambodia (OSH Master Plan), Indonesia, Malaysia (NIOSH Safety Passport)	Systematic risk management SMEs and the informal sector
Work-improvement programmes	Lao PDR, the Philippines (WISE-TAV Project for training and advisory visits), Vietnam	Action training by trained trainers SMEs, agriculture and informal sector
Zero-accident Campaigns	Thailand	Self-regulation of risk reduction SMEs
Programme-based Engagement (ProBE)	Singapore	Engaging stakeholders/outreach Multi-dimensional approach
OSH management systems	Japan	Proactive methods and performance
CLEAN Workplace Programme	Republic of Korea	Actions to improve OSH conditions including SMEs

res and (b) securing active participation of employers and workers in improving workplace conditions. It is of interest that proactive procedures based on risk levels are applied in identifying

the regions. The common steps taken and main features of participatory programmes including many onsite projects reviewed and WISE, WIND and BOHS programmes are summarized in Table 3.

Type A	National programmes Comprehensive risk management procedures		
	Emphasis: Managing multiple risks (workload, environment and organization)	Action: Planning and implementation of effective risk-reducing measures	Impact: Multifaceted interventions with sustained impacts
Type B	Characteristics: Collaborative improvement process involving main actors		
	Emphasis: Building voluntary initiative for workplace improvements	Action: Practical voluntary solution of workplace problems	Impact: Stepwise improvement by participatory steps

Figure 1: Two main types of good practices in occupational safety and health for diversified work situations

practical improvement measures often based on epidemiological and case-control evidence. These two aspects are mutually interactive, and most good practices reflect the two aspects at the same time. They usually involve both proactive procedures and ways of building voluntary initiative. As a result, a clear focus is usually placed on locally feasible measures that have real impact on work-related risk reduction.

Steps for effective risk reduction at work

The steps taken for workplace risk reduction by applying participatory programmes are notably common in different countries. This is because these steps usually follow the Plan-Do-Check-Act cycle adopted by the occupational safety and health management systems being widely applied in these countries [Kogi, 2002; Yoshikawa and Kogi, 2009]. This is obviously based on the fact that the risk management procedures set by the ILO OSH Management Systems Guidelines (known as ILO-OSH 2001) have been established as international standards in all

The participatory programmes dealing with work-related risks are organized according to the main risks affecting the target groups. Typical risks addressed concern injury risks such as materials handling and needle stick risks, musculoskeletal disorders, mental stress situations, irregular hours and overwork situations. Trainers and occupational health teams play facilitating roles by presenting good practices, adjusting training sessions to local conditions and focusing on practical options. Trainers and the staff involved make use of training methods incorporating local good practices and feedback from the participants. WISE training programmes are applied to different target groups including small and medium-sized industrial enterprises, small construction sites and home workers. Trainers facilitate the learning of local good practices, use of low-cost ideas and undertake extensive follow-up activities. Trainers in WIND programmes play similar roles for facilitating voluntary improvement actions by farmers. The initial checklist exercise done during household visits and training sessions leads to subsequent group work on practical

options. Farmers are usually able to implement selected options and report the improvements done. Trainers in WISE and WIND programmes thus adjust training materials to local situations.

cycle. The results are reviewed and follow-up activities are undertaken to further plan the stepwise progress to sustain the improvement actions. These subsequent actions may correspond

Table 3: Common steps used in participatory programmes for improving health at work

Programme	Participatory steps	Special features for facilitation
Work-related risk reduction in health care, other services and manufacturing	Two to five day workshops with checklist exercise, sessions on risk reducing measures and plans with follow-up (sessions may be held at intervals)	Presenting local good practices; adjusting training sessions to local risks; group work on practical options; and providing feedback
Small enterprises, construction sites and home workers (WISE)	Two to 10 day courses consisting of a checklist exercise, sessions on low-cost improvements and group work on plans and implementation with follow-up activities	Presenting local good practices; emphasizing the merits of small enterprises; focusing on locally applicable low-cost ideas of basic occupational hygiene and ergonomics principles; follow-up by visits and meetings
Farmers (WIND)	One to two day workshops including household visits and serial group discussions on practicable plans of improvement with follow-up and reporting of actions done	Presenting local good practices; emphasizing improving both work and non-work life conditions; focusing on low-cost ideas; encouragement by reporting
Work environment interventions in Basic Occupational Health Services (BOHS)	Collaboration of occupational health services with employers and workers including work environment survey, workplace interventions and group planning and implementation of practical improvements with follow-up	Learning local good practices; over view of occupational hygiene and health risks; joint planning and implementation of low-cost improvements; encouragement by local agencies and occupational health services

Similarly in action-oriented interventions in BOHS, local agencies and occupational health teams, often involving occupational hygiene specialists, collaborate with employers and workers to overview workplace risks and spread locally available good practices. Practical improvements are planned and implemented through this collaboration. Encouragement and follow-up activities are important to sustain the improvement actions addressing various work-related risks.

It is of particular interest that main features of the steps taken by these programmes are similar in the way serial participatory steps are organized. Typical participatory steps taken in achieving good risk management practices are shown in Fig. 2.

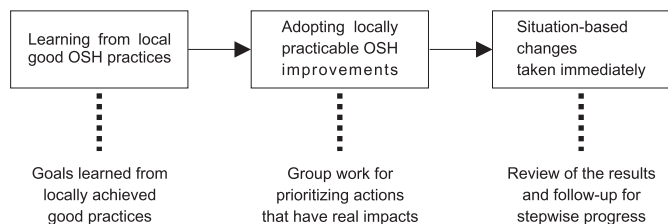


Figure 2: Common steps taken for achieving good practices in the local context

In aiming at locally practicable good practices, group work is organized by collaboration of workplace people to identify practicable improvements and prioritize immediate actions. These steps may correspond to the "Plan" and "Do" phases of the PDCA

to the "Check" and "Act" phases. The use of less expensive and quicker procedures proven useful for risk reduction and review is spreading. The advantage of taking these serial steps is clear as they facilitate the stepwise progress in risk reduction.

These steps are facilitated by action-oriented risk assessment procedures adjusted to each local situation. For example, practical procedures have been increasingly used particularly in small-scale workplaces applying the Five-step approach recommended by the Health and Safety Executive [Health and Safety Executive, 2006], the Four-point programme of the United States Occupational Safety and Health Administration [Occupational Safety and Health Administration, 2005] or similar approaches [Kogi, 2002]. The procedures also correspond to the steps recommended by the Psychosocial Risk Management-European Framework [Leka and Cox, 2008]. It is noteworthy that the process for prioritizing multiple improvement actions is effective though these straightforward steps.

Development and use of locally adjusted toolkits

The action-oriented nature of these common steps taken in participatory programmes for work improvement is important. A special emphasis is further placed on the use of locally adjusted action tools prepared by local teams. These steps help local people overcome various constraints for applying good practices in diverse work situations. Main constraints centre around the lack of technical expertise and available resources. Workplace programmes building on good practices through participatory steps are advantageous as they focus on locally adjusted procedures

for applying feasible solutions so as to overcome these constraints. The design and use of training toolkits that can support participatory action-oriented training (PAOT) are particularly useful [Thurman et al., 1988; Khai et al., 2005; Kogi, 2006, 2008]. The locally adjusted procedures for realizing good practices is important [Zalk, 2001; Khai et al., 2005; National Institute of Occupational Safety and Health (Malaysia), 2005; Kogi, 2008]. Various efforts have thus been made to develop training toolkits that can assist local people in adopting feasible measures that have real impact in each local situation [ILO, 2004; Kawakami and Kogi, 2005; Yoshikawa et al., 2006, 2007; Zalk and Nelson, 2008; Tan and Kawakami, 2009; Kawakami et al., 2009; Kogi, 2010]. It should be noted that all these toolkits are aimed at facilitating the direct action by employers and workers who are main actors of occupational hygiene and health in each local situation. The effectiveness of such toolkits is reported from these many programmes. We can learn from the common features of effective toolkits thus designed and used. Typical examples include:

- Management tools for constructing workplace safety culture;
- ILO Chemical Control Toolkit;
- Control banding for reducing chemical risks;
- ISO/TS 20646 and its checklist for reducing muscle loads;- Participatory action-oriented training toolkits for small-scale workplaces;
- Mental Health Action Checklist and its guides;
- Workplace risk assessment toolkits addressing multiple risks.

These toolkits provide concrete guidance about reducing significant risks in a manner adapted to the local situation. We can note the advantage of participatory steps taken by WISE and similar

Examples of these principles include fewer and faster handling of materials, easy reach and elbow-level work, coded displays, isolated or screened hazard sources and shared teamwork. It is important to use the toolkits applying proactive procedures based on epidemiological and established evidence showing effective risk reduction.

It should be noted that the steps effective for realizing good practices place emphasis commonly on the step-by-step progress for implementing feasible risk-reducing measures and on the stepwise progress adjusted to each local situation [Kogi, 2002, 2008; Zalk, 2001]. The process of building on local good practices may be summarized in the five stages indicated in Table 4.

As challenges for spreading good occupational hygiene and health practices, the exchange of positive experiences through local and international networks is essential. This is shown by the experiences in our Asian network for promoting participatory action-oriented training for small-scale workplaces. In particular, the exchange of training methods and achieved good practices through such a network has proven useful [Khai et al., 2005; Kogi, 2008].

It is important that there is a close link between the use of these participatory toolkits and risk management procedures. The toolkits are used as a means of building on existing good practices of managing significant risks and thus contribute to managing these risks in the form of the PDCA cycle. As shown in Fig. 3, the participatory process utilizing the toolkits represent the stages in the PDCA cycle for onsite risk assessment and control.

In line with the PDCA stages, risk control is directly aimed at taking immediate control measures based on the onsite survey of work-related risks. By looking at local good practices useful for reducing such risks, the participants are guided to set workable

Table 4: The stages followed in building on local good practices for risk reduction at work

Risk reduction stages	Viewpoints to build on local good practices	Challenges for spreading good practices in the local context
1. Learn local good practices	Local examples achieved in multi-faceted aspects	Use of locally achieved examples in training materials
2. Examine measures effective for risk reduction	Clarification of available measures and their effects	Design of action-oriented tools adjusted to each local situation
3. Identify locally feasible improvements	Prioritizing risk-reducing actions that have real impact	Effective use of limited resources locally available
4. Implement prioritized measures and review the results	Establishing voluntary procedures including implementation and review	Participatory consensus building involving main actors, not by outsourcing the process
5. Confirm the benefits and share performance	Spreading successful experiences and means of overcoming constraints	Participatory action-oriented training and exchanging positive experiences through networks

methods that emphasize building on local good practices and management goals. This is reinforced by practical easy-to-understand procedures can guide workers and employers about what they can do based on their own experiences and apply feasible preventive measures in a stepwise manner. The broad coverage of workplace risks and the focus on practicable improvements in various technical areas can help local people select appropriate options. These toolkits emphasize practical improvements that apply basic principles of occupational hygiene and ergonomics.

The implementation of effective control measures is done by proposing locally feasible actions that have real impact on risk reduction on the basis of the survey results. The follow-up activities correspond to the review of the risk reduction performance achieved. The participatory steps undertaken thus help workplace people go through the onsite stages of the PDCA cycle and learn practical risk management procedures adjusted to each local situation. The stepwise progress of workplace improvements is realized in small-scale workplaces through PDCA stages

involving broad occupational hygiene and health aspects. The participatory methods utilizing proactive toolkits are thus promoting the effective workplace risk management in a coordinated manner.

The application of these toolkits is facilitated by group work of people focusing on practicable risk-reducing measures that have real effects. Recent studies on the effects of participatory programmes confirm that reduction of ergonomic, environmental and psychosocial risks can be achieved by voluntary multifaceted measures [Itani et al., 2006; Tsutsumi et al., 2009; Yoshikawa and Kogi, 2009]. It is encouraging that such training toolkits are widely used in work improvement programmes and in BOHS interventions in a manner adjusted to various small-scale workplaces.

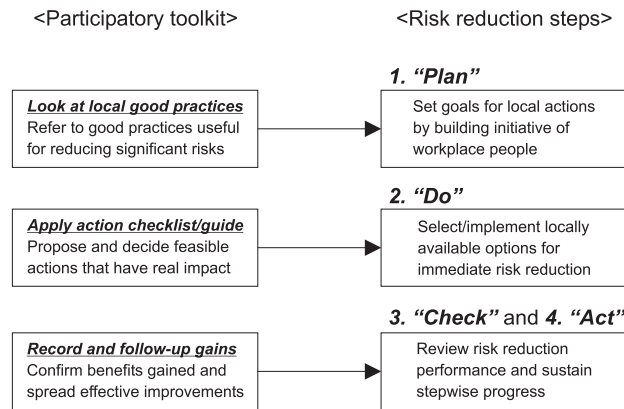


Figure 3: A participatory action toolkit suitable for the locally adjusted process for risk reduction in the local context

These recent experiences highlight the importance of linking the promotion of good practices with the use of locally adjusted risk management toolkits. Locally adjusted support measures need to be taken to facilitate participatory steps using these toolkits in diverse workplace conditions. This can be done through action-oriented training. It is particularly important that the toolkits adjusted to local situations take into account the principles of occupational hygiene, ergonomics and workplace health promotion in an integrated manner. As our experiences in regional networking of participatory programmes indicate, international networking of the development and usage of ready-to-apply toolkits for effective risk management is necessary.

Conclusions

The proactive nature of the programmes addressing multiple risks in small-scale workplaces has proven useful in overcoming constraints met by these workplaces, such as limited technical expertise and the lack of resources. A special emphasis should be placed on the use of locally adjusted action tools, such as action checklists and practical risk control procedures. These tools are effective as they reflect principles of occupational hygiene, ergonomics and stress prevention. The local adjustment of the tool designs is necessary by incorporating local good practices relying on these principles. These recent experiences in participatory programmes suggest the importance of integrating the risk management procedures and the associated use of action-oriented toolkits so as to achieve effective primary prevention. It is useful to promote integrated approaches that apply action-oriented toolkits reflecting proactive principles of occupational hygiene and health in a manner adjusted to diverse workplace situations

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