

Review

Roles of Participatory Action-oriented Programs in Promoting Safety and Health at Work

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Reflecting the current international trends toward proactive risk assessment and control at work with practical procedures, participatory action-oriented approaches are gaining importance in various sectors. The roles of these approaches in promoting the safety and health at work are discussed based on their recent experiences in preventing work-related risks and improving the quality of work life, particularly in small-scale workplaces. The emphasis placed on the primary prevention at the initiative of workers and managers is commonly notable. Participatory steps, built on local good practices, can lead to many workplace improvements when the focus is on locally feasible low-cost options in multiple aspects. The design and use of locally adjusted action toolkits play a key role in facilitating these improvements in each local situation. The effectiveness of participatory approaches relying on these toolkits is demonstrated by their spread to many sectors and by various intervention studies. In the local context, networks of trainers are essential in sustaining the improvement activities. With the adequate support of networks of trainers trained in the use of these toolkits, participatory approaches will continue to be the key factor for proactive risk management in various work settings.

Key Words: Participatory approaches, Low-cost improvements, Small-scale workplaces, Action-oriented toolkits, Good practices

Introduction

Comprehensive risk management aimed at primary prevention is advancing at the workplace, with a focus on widely applicable action-oriented procedures. International collaboration is essential for developing practical procedures that can fill the gaps seen in different countries and sectors. This collaboration is at the focus of attention in view of the diversifying working situations in the globalizing economy [1-4]. Reflecting this trend, participatory action-oriented approaches are increasingly applied in promoting workplace improvements effective for primary prevention in various local situations [5-8]. Awareness

is growing in the need to facilitate effective preventive activities through participatory steps in different work settings. As many workplaces are faced with constraints due to economic limitations and the lack of technical expertise in risk assessment and control, it is important to develop commonly applicable simple procedures emphasizing primary prevention [9,10]. It is encouraging that participatory approaches are contributing significantly to overcoming these constraints, particularly in small-scale workplaces [1,11,12].

This development clearly reflects the current trends in occupational safety and health toward a comprehensive risk management at the initiative of major stakeholders in each work place. Increasing attention is drawn to active participation of workers and managers in preventive activities as well as to a management systems approach in line with the current international standards [13-15]. These trends are reinforced by the awareness of the need to secure the safety and health of all workers. As emphasized by the Global Strategy on Occupa-

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tional Safety and Health adopted by the International Labour Organization (ILO) in 2003, it is important to apply proactive risk management procedures at all workplaces, including many small-scale and informal workplaces [15,16]. The need for proactive procedures that can overcome the workplace-level constraints is strongly recognized in these workplaces in all regions [7,17].

The ILO global strategy and the World Health Organization (WHO) global plan of action for workers' health are based on the international standards in occupational safety and health that have evolved since the 1980s. These standards, including ILO Convention No. 155 of 1981 on occupational safety and health and Convention No. 161 of 1985 on occupational health services, as well as the ILO Guidelines on Occupational Safety and Health Management Systems, known as ILO-OSH 2001, emphasize employers' responsibility and active participation of workers for securing safe and healthy workplaces [9,15]. It is essential to build a voluntary initiative of the workplace people, not relying solely on the traditional rules-based approaches. The shift toward the enabling approach for building workplace-level capabilities of workers and managers for risk assessment and control has been incorporated into the management systems approach, which is now widely undertaken in all sectors [9]. These trends are confirmed by various developments in both the industrially developed and developing countries. Participation of workers and managers, from the planning stage to the implementation and review of locally adapted risk management procedures, is recognized as being crucial for an effective workplace-level action for safety and health at work.

In response to these international trends, international cooperation is in progress in practically all regions for the development of participatory approaches in preventing work-related risks [1,10,16,18,19]. There are numerous reports pointing out the roles of participatory action-oriented training in facilitating workplace improvements that can reduce the safety and health risks in various work situations [10,12,20,21]. The usefulness of these approaches is noteworthy, particularly in overcoming the prevalent constraints affecting small-scale and informal workplaces. The workers and managers in these workplaces are faced with economic difficulties and a lack of technical knowledge for taking valid preventive measures. Participatory approaches can encourage these managers and workers to take advantage of the opportunities they have for making practical improvements despite these constraints. As they deal with varied technical problems, including work-related risks, through a close collaboration on a daily basis, they gain experiences in finding practical improvements via direct cooperation at the workplace. The spreading effects of good practices are signifi-

cant, particularly where participatory approaches are promoted by national policies and programs [1,21,22]. It is important to examine practical ways in order to facilitate locally feasible improvements in these workplaces.

The roles of participatory approaches in promoting safety and health at various work situations are discussed based on these recent experiences in different regions. Special attention is paid to the advances in achieving better practices through the active participation of the workplace people. It is necessary to examine the range of good practices aimed at as well as the participatory steps for planning and implementing feasible improvements for an effective risk reduction. The practical nature of simple workplace-level procedures, with the support of action-oriented tools facilitating these procedures, is further discussed.

Application of Participatory Approaches in Action-oriented Programs

Practical participatory steps for improving the safety and health at work are commonly applied in currently spreading participatory approaches in various work situations. Similarly, effective participatory approaches are undertaken for improving small-scale workplaces in both industrially developed and developing countries. Prominent examples include (a) work improvement in small enterprises (WISE) workshops and the relevant courses now spreading to different regions [23,24]; (b) work improvement in neighborhood development (WIND) workshops for farmers [8,25]; (c) participatory training programs for small workplace industry as well as services for reducing work-related risks, including those for small construction sites, home-based workplaces, health care services, and informal workplaces [11,12,20,26-28]; (d) participatory programs for stress prevention in various industrial workplaces and health care services [29-32]; and (e) participatory programs organized as part of basic occupational health services (BOHS) in industrially developing countries [33,34].

It should be noted that WISE and WIND programs have been widely undertaken in a number of countries, often with the support of national policies and programs for promoting good occupational safety and health practices. Usually, these programs are conducted in order to train the workplace people of the target groups. WISE training is now spread practically to all of the developing regions, whereas WIND training is spread to over 20 countries in Asia, Africa, and Latin America, both with the active support of the ILO. Inter-country networking is playing an important role in spreading the WISE and WIND programs as well as the other reviewed programs [1,16]. As

networking activities are advanced among Asian countries, the reviewed programs are more widely spread in Asian countries. The participatory approaches for training trade union members about practical workplace improvements, known as participation-oriented safety improvement by trade-union initiative (POSITIVE) training, are adopted in about 15 countries in Asia involving the national trade union centers [5]. Two important trends include organizing stress prevention programs by participatory methods and combining WISE training with BOHS activities [3,33].

In reviewing these different programs, special attention is drawn to the fact that all of the programs are organized as short-term, workshop-style training programs [12]. Support for the procedures followed by these programs is provided by occupational safety and health teams and the relevant local

agencies and organizations. As indicated in Table 1, the trends, common to the reviewed programs, are to emphasize multifaceted risk reduction based on simple procedures for planning and implementing practical improvements. A clear emphasis is thus placed on local good practices and on locally feasible improvements. Differences are seen in the types and ranges of improvements undertaken and in the ways to organize action-oriented programs addressing the local needs. This means that the reviewed programs have spread to different target groups by similar action-oriented approaches. On the other hand, the ways and means of adjusting the programs to the specific needs of the local people and relevant local organizations are important.

Through the ASEAN-OSHNET for regional cooperation in promoting occupational safety and health involving govern-

Table 1. Trends in participatory action-oriented approaches for improving the safety and health at work in different work settings through 1-, 2- or 3-day workshops or short courses

Target groups	Trends in participatory steps	Examples of main outcomes
WISE	Multifaceted risk reduction based on local good practices, simple procedures for feasible options	Multiple good practices with spread use of locally designed training tools and trainers
WIND (agriculture)	Multifaceted actions in work life and environment by collaboration of neighborhood volunteer trainers	Many small-farm and household improvements with networks of volunteers
Small-scale services and construction sites, informal workplaces	Simple improvements aimed at risk-reducing good practices by means of brief workshops	Spreading good practices through local organizations with community impacts
Stress prevention in industries and health care services	Participatory action planning for better work environment and teamwork including social support	Good practices shared by teamwork members in both physical and mental aspects
BOHS	Workplace-level actions through basic safety and health services and WISE training for primary prevention	Improved primary prevention with cooperation of labor and health sectors

WISE: work improvement in small enterprises, WIND: work improvement in neighborhood development, BOHS: basic occupational health services.

Table 2. Two main types of good practices in safety and health at work in diversified situations

Characteristics	Comprehensive risk-reducing procedures	Collaborative steps involving workers and managers
Emphasis placed	Managing multiple risks (workload, environment, and organization)	Building voluntary initiative for prompt workplace improvements
Action aimed at	Planning and implementation of effective risk-reducing measures	Practical voluntary solution of workplace problems
Sustained impact	Multifaceted interventions with sustained impacts	Stepwise improvement through participatory steps
Common criteria for good practices	Confirmed effects on multifaceted risk reduction Contribution to improving working conditions in general Sustainable effects Compliance with regulatory and ethical standards Process and methods applicable to other local workplaces	

ment agencies, several countries are emphasizing WISE and WIND training as a practical means of spreading good practices in small and medium-sized enterprises and in the agriculture sector [1]. As exemplified by the progress in these countries, participatory action-oriented training methods aimed at spreading good practices in the safety and health at work continue to play a vital role, involving numerous small-scale workplaces. Table 2 shows two main types of good practices reported from the ASEAN-OSHNET, and the other national and regional projects for promoting good practices in safety and health at work. It is striking that these two types are equally prominent in different regions and in some national programs, as in the case of Japan [33].

It is of particular interest that the two main types of good practices in line with the recent progress in promoting occupational safety and health management systems are well represented by successful participatory approaches discussed above. Comprehensive, multifaceted risk management and collaborative steps for stepwise progress are gaining importance today, and participatory programs are known to reinforce these

trends when they are organized as part of the primary prevention activities. Further, the common criteria observed in the regional or national promotion of good practices confirm the importance of primary prevention through multifaceted improvements and of undertaking these improvements by actively involving the workplace people.

Participatory Steps Leading to Locally Feasible Improvements

Sequential participatory steps are commonly taken by all the reviewed programs in improving workplace conditions in multiple aspects. These steps are universally aimed at building on local good practices and making locally feasible improvements [6,33].

Fig. 1 represents the typical participatory steps commonly taken by the reviewed programs. These steps lead to locally feasible multifaceted improvements. As a means of building on local good practices, the initially collected good examples are utilized for designing the action-oriented training materials. These locally achieved examples can show the types of improvements that can be planned for immediate implementation. In short-term training workshops or courses, the participants first learn how to set workable goals for primary prevention in local conditions. They then discuss how to select and propose immediate improvements applicable to existing conditions. Follow-up activities are necessary for reporting the improvements completed and assessing their validity and benefits so as to encourage the sustained action. In this way, the training steps are structured to facilitate the step-by-step progress adapted to each local situation.

The action-oriented nature of the participatory steps by the reviewed programs is summarized in Fig. 2. The commonly taken “good-practice” approach is useful for securing the initiative for undertaking effective workplace improvements. This initiative is assisted by knowing the multifaceted options available in local conditions. These steps are found to lead to the planning and implementation of priority improvements that can be readily applied. These steps clearly relate to the risk management stages, as indicated in the lower part of Fig. 2. It

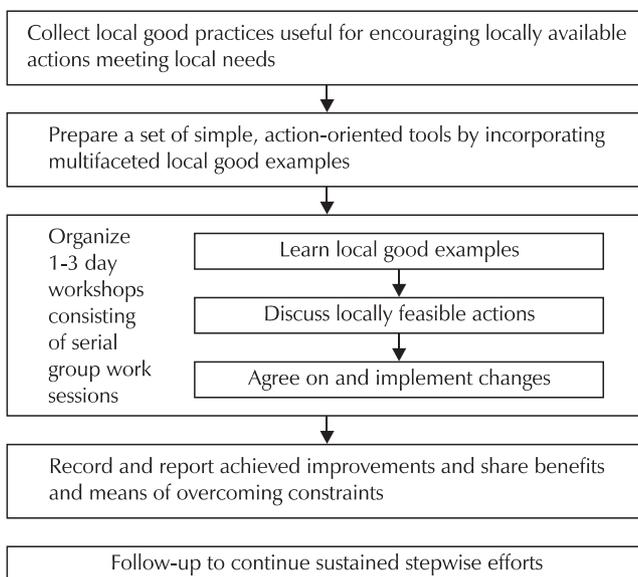


Fig. 1. Participatory steps commonly taken for emphasizing locally feasible good practices and stepwise progress.

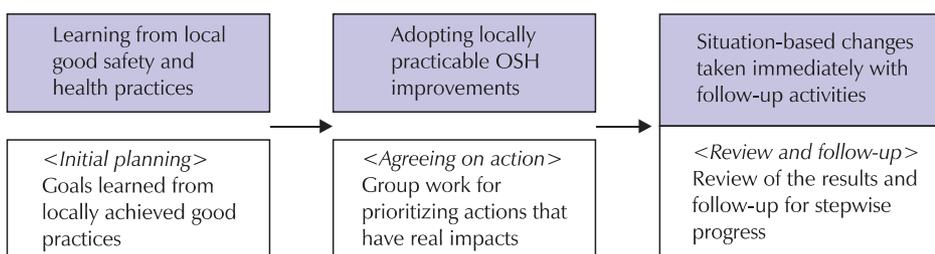


Fig. 2. Common participatory steps taken for achieving good practices in the local context. OSH: occupational safety and health.

is important that the participatory approaches can facilitate the execution of the Plan-Do-Check-Act (PDCA) cycle, which is generally promoted in risk management systems at the workplace. Both the action-oriented planning stage and the stepwise progress focusing on locally adjusted risk management with real impact are adequately facilitated in the manner adapted to local working conditions. This explains as to why these participatory steps can lead to many risk-reducing improvements in different work settings.

In this way, the types of improvements achieved by the participatory approaches have common features leading to their local feasibility. In the first place, reports from these approaches demonstrate that there are a variety of low-cost improvements addressing multiple technical areas. In addition, the validity of these simple improvements for reducing existing

work-related risks is ensured by referring to the basic principles of ergonomics and occupational hygiene. This is indicated by Table 3, which outlines the low-cost improvements widely applicable for reducing work-related risks in diverse work settings [14,29,35,36]. It is noteworthy that the technical areas covered by the participatory programs are similar and appropriate for risk management purposes. The validity of these improvements has been proven by intervention studies examining the actual costs involved and the effects on risk reduction in various local situations. It is important that there are a broad range of low-cost improvements that are relatively easy to plan and implement at the local initiative of concerned workers and managers.

Therefore, the effectiveness of short-term training workshops organized by participatory approaches is found to relate to the adequate coverage of these different technical areas with

Table 3. Examples of low-cost improvements that can reduce work-related risks in diverse settings

Technical areas	Examples of widely applicable low-cost improvements
Materials handling	Multi-level storage, labeling, carts and mobile racks, lifters
Workstation design	Easy reach to materials, elbow-level work, fixtures, coding
Machine safety	Proper guards, fences, interlocking devices
Physical environment	Daylight use, relocating lights, ventilation, isolating or screening hazard sources, proper use of protective equipment
Welfare facilities	Drinking water, clean toilets, washing facilities, resting corners
Work organization	Planning meetings, buffer stocks, cross-training, breaks
Environmental protection	Saving electricity/water, reducing waste, recycling

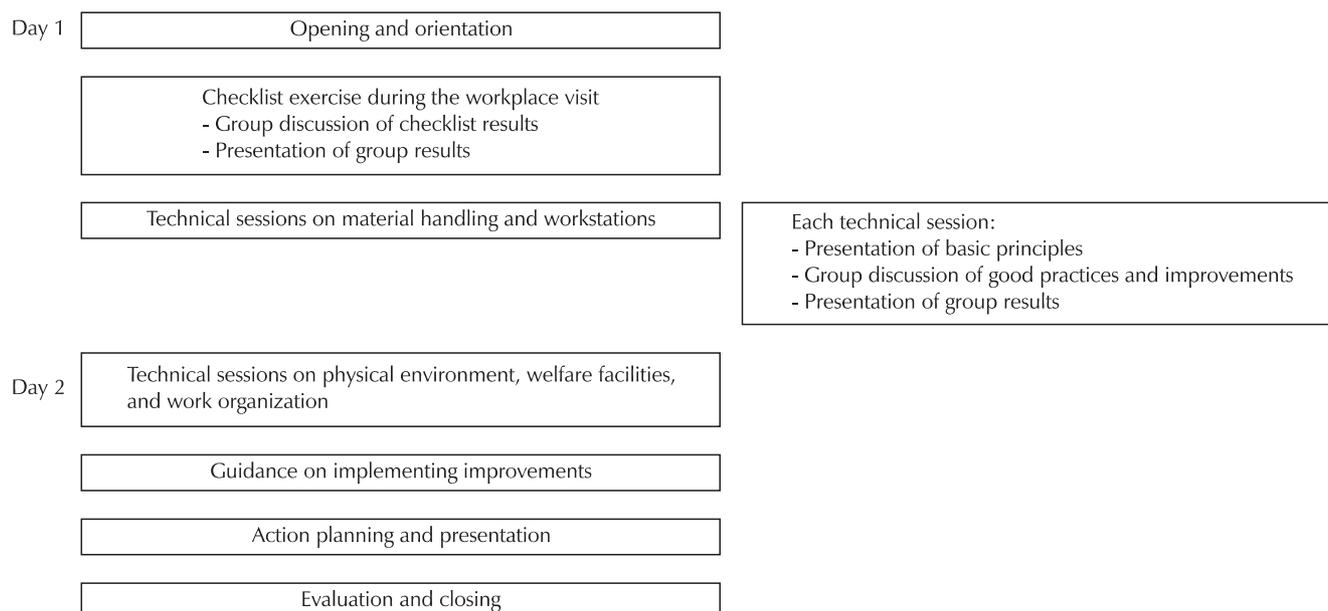


Fig. 3. An example of a 2-day workshop for training volunteer trainers in workplace improvements.

the support of trainers [10,16,21,31]. An example of a 2-day workshop shown in Fig. 3 demonstrates the usefulness of covering these technical areas by relying on group work sessions within the reviewed approaches. The group work sessions for learning the application of action-oriented tools, such as action-oriented checklists covering these technical areas, can be organized with the time frame of the workshop. Each technical session helps the participants learn low-cost types of improvements reflecting the basic principles, and propose similar improvements available in their local conditions. We should note that once workplace people are trained in the participatory steps leading to the actual improvements, they can apply the sequential steps on a more regular basis for managing multifactorial work-related risks. The emphasis placed on locally feasible improvements is important for sustaining the participatory steps as routine risk management activities at the workplace level.

It is thus important to focus on locally feasible low-cost improvements in the multiple technical areas by adjusting the participatory toolkits used in similar ways in the reviewed programs. The emphasis placed on this adjusting process in each of these technical areas is indicated in Table 4. We can confirm that it is possible to adjust the toolkits to the local safety and health needs of the target groups in the multiple technical areas covered by these programs. We can also confirm that it is meaningful and necessary to further adjust the participatory toolkits to the local needs of the diverse target groups. Obviously, the participatory approaches undertaken in these diverse groups are advantageous in more adequately adjusting the tool-

kits to different local situations. This is unique for the participatory approaches since many of the traditional risk management toolkits have tended to rely on more or less standardized procedures for assessing the existing conditions and thus, often fail to encourage the local initiative of the workplace people for planning locally practicable immediate improvements. It should be mentioned here that the practical nature of widely applicable low-cost improvements has a large potential for adjusting the toolkits for direct use by the different target groups.

Straightforward Procedures Facilitated by Localized Toolkits

Further, the experiences in the reviewed participatory approaches clearly point to the universal need to establish simple procedures for developing and utilizing the locally adjusted toolkits [1,10,12]. Often, the technically substantiated but rather complicated procedures incorporated in risk assessment, and the control tools proposed for workplace risk management may not be widely used, particularly by stakeholders in small-scale workplaces in the developing regions. Attention is drawn to the acute need for facilitating the usage of practical risk management toolkits within the participatory steps in many underserved sectors facing the many constraints discussed in this paper. Accordingly, it is really advisable to look for simplified procedures that are directly applicable to the participating workplace people. The design process for this purpose must be adapted to each local situation, as pointed out by the lessons from the reviewed participatory approaches.

Table 4. The emphasis placed on adjusting the participatory toolkits to local safety and health needs

Practical basic principles in technical areas	Emphasis to adjust toolkits to local needs
Materials handling: fewer and faster handling actions	Organized storage and mobile equipment for frequent handling work and specific materials
Workstation design and machine safety: more efficient and safer operations within proper workload	Efficient operations in natural work positions (e.g., elbow-level work, easy access, fail-safe procedures, easy-to-understand controls and displays) fitting to local workers
Physical environment: barrier-free and more comfortable work space with controlled risks	Locally appropriate work environment with real impact, and feasible with local resources (e.g., daylight use, nonhazardous space)
Welfare facilities: refreshing and hygienic facilities essential in daily work	Locally suitable, inexpensive facilities with satisfactory amenities
Work organization: better teamwork and restful work schedules for quality work	Improved teamwork and adjusted schedules meeting needs of local organizations
Social support: better communication and mutual support with access to care services	Linking basic services with participatory action-oriented training
Environment-friendly systems: saving energy with waste reduction and recycling	Collaborative procedures for protecting environment and community needs

We can verify from the reports of the reviewed programs that the participatory steps in these programs make full use of simple procedures for designing and using their action-oriented toolkits. These simple procedures are useful not only for training the workplace people but also for improving the workplace conditions in a sustainable manner within the risk management programs. The design of these toolkits is relatively easy because they compile local good practices and reflect those basic principles of ergonomics and occupational hygiene that have proven effective from the many program outcomes. The purpose of each toolkit has been to provide a brief overview of the local good practices in the multiple technical areas and give guidance on locally available options for improving the existing working conditions by reflecting the relevant basic principles. Locally adjusted action-tools are usually incorporated in each toolkit used by the participatory programs [10]. A typical toolkit consists of the following three kinds of participatory training tools:

- An action checklist: a list of low-cost improvement actions covering multiple technical areas, and of which are feasible in local conditions;
- Photographs and brief case reports of feasible improvements: examples of low-cost improvements achieved locally in multiple technical areas; Improvement guidance materials about how to make low-cost improvements in the local situation: presentation slides and illustrated how-to manuals about the practical types of improvements that apply the basic principles of ergonomics and occupational hygiene.

Each set of these tools can guide the training participants as to the practical ways of setting immediate goals and of planning and implementing local feasible low-cost improvements. The action checklist contains typical improvement actions represented by local good practices in the action form. It helps the participants look at local good examples and select locally appropriate actions needed for improving the existing working conditions. Photographs and case reports present information

about how to achieve such improvements. The illustrated slides and how-to manuals provide concrete guidance about easy-to-implement options for reducing the identified risks. These tools can obviously be utilized for both training and routine activities in order to improve the working conditions, particularly in small-scale workplaces.

Usually, each set of these tools can be compiled and adequately modified by a group of core trainers who organize the training workshops for their target groups. This design process is not complicated as the usage of the tools follows the straightforward participatory steps of a short-term workshop. Active participants of such a workshop can gain knowledge and skills to adapt the toolkit to local situations in which they organize similar workshops. This training-of-trainers process explains the uncomplicated, transparent process of designing and using a practical, action-oriented toolkit within the participatory approaches.

It is confirmed that the combined use of these tools as a toolkit can facilitate the planning and implementation of similarly feasible improvements that can have a risk-reducing impact [10,12]. By emphasizing the merits of concentrating on locally feasible improvements, the toolkit can be effectively used in participatory steps for selecting and agreeing on practicable options. The numerous examples of such toolkits point to their important asset in facilitating the stepwise progress in improving working conditions, particularly in small-scale workplaces of the different target groups. The toolkits are suitable for providing useful guidance about work-related risks and available options of feasible improvements [8,10,12,26]. This can simplify the identification of work-related risks and the planning of necessary improvements through a group discussion. The simple procedures for utilizing the toolkits are similar in the reviewed participatory approaches, and have proven effective in training workplace people in small-scale workplaces at different work sites. The emphasis in using the toolkits is usually placed on learning local good examples and proposing readily feasible

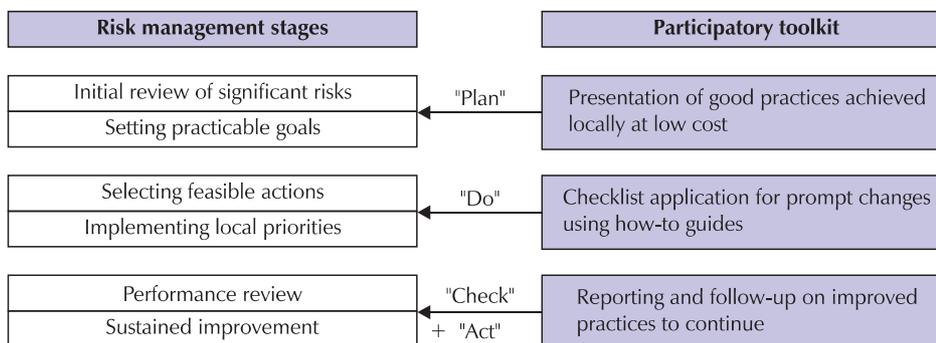


Fig. 4. Linkage between the participatory steps for improving working conditions, and the main three types of action-oriented training tools.

improvements in multiple aspects of working conditions. The toolkits have thus proven useful for flexibly adjusting their composition and usage as well as for promoting participatory workplace improvements in various settings.

These simplified and flexible procedures have contributed to facilitating training activities based on the participatory approaches. This is obviously one of the contributing factors for the spread of these participatory approaches. Thus, WISE training incorporated within the support programs by BOHS similarly contributes to the identification of significant risks and the planning and implementation of the practical workplace improvements [2,4]. The benefits of facilitating participatory steps, with the direct support of occupational safety and health teams, including BOHS, are thus clear from spreading the experiences of simple procedures for utilizing the action-oriented toolkits.

The relevance of the participatory steps commonly taken in the reviewed programs to the effective risk management stages is summarized in Fig. 4. The sequential participatory steps utilizing the locally adjusted toolkits correspond meaningfully to the planning and implementation stages of risk management stages [3,9,37]. The presentation of local good practices by these toolkits helps the workplace people set workable goals based on the initial review of significant risks. The checklist application and reference of how-to guides are actually useful for the implementation stage of risk management based on facilitating the planning of locally feasible actions. The composite structure of the toolkits, referring to multifaceted risk reduction methods, is likewise helpful for follow-up activities corresponding to the performance review and reinforcement of sustained improvement phases in the PDCA cycle. Participatory action-oriented training in following the cycle can help the people at work plan and implement necessary improvements for reduc-

ing work-related risks on a routine basis.

Recent intervention studies, conducted by the partner organizations of the participatory approaches, demonstrate the effectiveness of these approaches in different settings. Participatory action-oriented training has proven effective for facilitating the locally adapted risk management processes and reducing work-related risks in small-scale workplaces [27,28,36,38-41]. The sustainability of the participatory improvement activities is also proven by the follow-up results reported in these studies. These studies therefore demonstrate the effectiveness of the participatory approaches in various settings, including the reduction of work-related injuries, musculoskeletal disorders, and work stress.

Table 5 gives an overview of the procedures commonly applied in the participatory “good-practice” approaches in relation to the locally adjusted use of the action-oriented toolkits in managing work-related risks. The straightforward aspects of the usage procedures of these toolkits are obvious from their direct relevance to proactive risk management stages. Based on this overview, the effectiveness of the procedures should be further assessed in view of the limitations noted. The limited scope of the local good practices may affect the validity of risk identification, and this limitation needs to be re-assessed by more detailed case studies. Since the multifaceted risk-reducing practices are taken into account in following the simple procedures, the means of identifying the most significant risks and their countermeasures should be further explored in locally modifying the toolkit usage procedures. The validity of improvement options chosen by the workplace people in relation to the complex nature of risks involved needs to be further assessed. This assessment surely contributes to organizing the effective support by occupational safety and health teams through taking an active part in the participatory approaches. Further, the experi-

Table 5. The stages followed in building on local good practices supported by localized toolkits

Risk management stages	Participatory steps	Locally adjusted use of tools
1. Learn local good practices	Joint survey of local examples achieved in multifaceted aspects	Composite use of locally achieved examples for setting workable goals
2. Identify significant risks and effective measures	Group discussion of available measures and their effects	Quick overview of locally available options meeting local needs
3. Jointly plan locally feasible improvements	Agreeing on prioritized actions having real risk-reducing impact	Specifying actions feasible with available resources by group work
4. Implement prioritized measures and record the achievements	Following simple procedures, including implementation and reporting, with local support	Consensus building by stakeholders, not merely outsourcing the process, and managing immediate changes
5. Review the performance and sustain a step-by-step progress	Sharing local achievements and practical means of overcoming constraints	Sharing positive experiences and reinforcing local networks toward sustained collaboration

ences of using the locally adjusted procedures for the participatory action-oriented toolkits should be examined in exploring the appropriate technical support needed in high risk situations. The program features and the straightforward procedures discussed by this review can be a meaningful basis for developing generally effective support measures for sustained risk-reducing improvements in small-scale workplaces, despite their many constraints.

The advantages of the participatory approaches for safety and health at work may lie in the combined use of the good-practice orientation and the simple procedures with the support of locally adapted toolkits. First, good-practice orientation can facilitate the voluntary initiative at the workplace toward a comprehensive and proactive risk management. Second, the simple procedures for serial group work steps facilitate the action-oriented process by workers and managers as well as the consensus building on immediate changes. Finally, the support through the design and use of localized toolkits is vital for facilitating the otherwise complex course of action in prioritizing improvements in the local context. It is striking that these advantages are fully made to use in each of the serial steps for following the PDCA stages, as is also the case in small-scale workplaces.

It is encouraging that inter-country networking of partner institutions and organizations contributes to the development and dissemination of participatory approaches and their toolkits for improving multifaceted working conditions in small-scale workplaces [22,26]. The exchanges of localized toolkits and training outcomes are particularly useful. In the joint development of participatory approaches and action-oriented toolkits for direct use at the workplace, international collaboration can further promote the active roles played by these approaches in various work situations. A wider use of effective participatory approaches in furthering the effective risk management procedures, with the support of locally adjusted toolkits, particularly in small-scale workplaces, is suggested.

Conclusions

In facilitating practical workplace improvements despite the many constraints faced by various work situations, it is important to further support the roles played by participatory approaches. These approaches effectively contribute to work-related risk reduction, particularly in small-scale enterprises and in the agriculture sector. The effectiveness of these approaches is confirmed by their wide applicability in different sectors and their real impact on risk reduction through the straightforward procedures relying on action-oriented toolkits for direct use

by the workplace people. International collaboration through action-oriented networking arrangements is essential in developing and disseminating participatory approaches aimed at effective primary prevention at the workplace. The wider use of locally adjusted toolkits for participatory action-oriented training is suggested for facilitating the participatory planning and implementation of locally feasible improvements, which have a real impact in various work settings.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

References

1. Tan FQ, Kawakami T. The ASEAN Occupational Safety and Health Network good occupational safety and health practices 2008/2009. Vientiane (Laos): The ASEAN Occupational Safety and Health Network; 2009.
2. Scott P, Kogi K, McPhee B. Ergonomics guidelines for occupational health practice in industrially developing countries. Darmstadt (Germany): Institute for Ergonomics, University of Darmstadt; 2010.
3. Kogi K. Integrating occupational hygiene and health: the effectiveness in improving small-scale workplaces. *Italian J Occup Environ Hyg* 2010;1:69-75.
4. Rantanen J. Extending occupational health services to all workers - can it be done? In: Vainio H, Lehtinen S, editors. *International Forum on Occupational Health and Safety: policies, profiles and services*; 2011 Jun 20-22; Espoo, Finland. Helsinki (Finland): Finnish Institute of Occupational Health; 2012. p. 117-30.
5. Kawakami T, Kogi K, Toyama N, Yoshikawa T. Participatory approaches to improving safety and health under trade union initiative--experiences of POSITIVE training program in Asia. *Ind Health* 2004;42:196-206.
6. Itani T, Tachi N, Takeyama H, Ebara T, Takanishi T, Murata K, Inoue T, Suzumura H, Kurungkraiong S, Khuvasanont T, Batino JM. Approaches to occupational health based on participatory methodology in small workplaces. *Ind Health* 2006; 44:17-21.
7. Kogi K. Advances in participatory occupational health aimed at good practices in small enterprises and the informal sector. *Ind Health* 2006;44:31-4.
8. Niu S, Kogi K. Ergonomic checkpoints in agriculture. Geneva (Switzerland): International Labour Office; 2012. 234 p.
9. Kogi K. Work improvement and occupational safety and health management systems: common features and research needs. *Ind Health* 2002;40:121-33.

10. Khai TT, Kawakami T, Kogi K. Participatory action oriented training. Hanoi (Vietnam): ILO DWT for East and South-East Asia and the Pacific; 2011.
11. International Labour Organization (ILO). Decent work in Asia: ILO activities in the region. 13th Asian Regional Meeting; 2001 Aug 28-31; Bangkok, Thailand. Bangkok: ILO Regional Office for Asia and the Pacific; 2001.
12. Kogi K. Facilitating participatory steps for planning and implementing low-cost improvements in small workplaces. *Appl Ergon* 2008;39:475-81.
13. Lie A, Baranski B, Husman K, Westerholm P. Good practice in occupational health services: A contribution to workplace health. Copenhagen (Denmark): World Health Organization Regional Office for Europe; 2002.
14. Kawakami T, Kogi K. Ergonomics support for local initiative in improving safety and health at work: International Labour Organization experiences in industrially developing countries. *Ergonomics* 2005;48:581-90.
15. Machida S. National strategies and systems for occupational safety and health. In: Vainio H, Lehtinen S, editors. International Forum on Occupational Health and Safety: policies, profiles and services; 2011 Jun 20-22; Espoo, Finland. Helsinki (Finland): Finnish Institute of Occupational Health; 2012. p. 24-31.
16. Kogi K. Inter-country networking to facilitate participatory approaches for improving work in small-scale workplaces. In: Vainio H, Lehtinen S, editors. International Forum on Occupational Health and Safety: policies, profiles and services; 2011 Jun 20-22; Espoo, Finland. Helsinki (Finland): Finnish Institute of Occupational Health; 2012. p. 196-200.
17. International Labour Office (ILO). Ergonomic checkpoints; Practical and easy-to-implement solutions for improving safety, health and working conditions. Geneva (Switzerland): ILO; 2010.
18. Zalk DM. Grassroots ergonomics: initiating an ergonomics program utilizing participatory techniques. *Ann Occup Hyg* 2001;45:283-9.
19. Yoshikawa T, Kogi K, Kawakami T, Osiri P, Arphorn S, Ismail NH, Van Chin P, Khai TT, Koo JW, Park JS, Toyama N, Mitsuhashi T, Tsutsumi A, Nagasu M, Matsuda F, Mizuno Y, Sakai K. The role of participatory action-oriented training in building an Asian network for occupational safety and health of health care workers. *J Sci Labour* 2006;83:182-7.
20. Lee JE, Kim SL, Jung HS, Koo JW, Woo KH, Kim MT. Participatory action oriented training for hospital nurses (PAOTHN) program to prevent musculoskeletal disorders. *J Occup Health* 2009;51:370-6.
21. Kawakami T, Khai TT, Kogi K. Research that can support self-help initiative of local farmers to improve safety and health at work: birth and growth of WIND training program in Viet Nam. *J Saf Health Env Res* 2012;8:11-8.
22. Dul J, Bruder R, Buckle P, Carayon P, Falzon P, Marras WS, Wilson JR, van der Doelen B. A strategy for human factors/ergonomics: developing the discipline and profession. *Ergonomics* 2012;55:377-95.
23. Thurman JE, Louzine AE, Kogi K. Higher productivity and a better place to work - practical ideas for owners and managers of small and medium-sized industrial enterprises: trainers' manual. Geneva (Switzerland): International Labour Office; 1988.
24. International Labour Office (ILO). WISE: work improvement in small enterprises: package for trainers. Bangkok (Thailand): ILO Subregional Office for East Asia; 2004.
25. Kawakami T, Khai TT, Kogi K. Developing the WIND training programme in Asia; participatory approaches to improving safety, health and working conditions of farmers. Bangkok (Thailand): International Labour Office Subregional Office for East Asia; 2009.
26. Kawakami T, Arphorn S, Ujita Y. Work improvement for safe home: action manual for improving safety, health and working conditions of homeworkers. Bangkok (Thailand): International Labour Office Subregional Office for East Asia; 2006.
27. Yoshikawa T, Kogi K. The role of a participation-oriented approach in improving mental health as a part of occupational safety and health management systems (OSH-MS). *Job Stress Res* 2009;16:221-9.
28. Tsutsumi A, Nagami M, Yoshikawa T, Kogi K, Kawakami N. Participatory intervention for workplace improvements on mental health and job performance among blue-collar workers: a cluster randomized controlled trial. *J Occup Environ Med* 2009;51:554-63.
29. Kogi K. Low-cost risk reduction strategy for small workplaces: how can we spread good practices? *Med Lav* 2006;97:303-11.
30. Yoshikawa T, Kawakami N, Kogi K, Tsutsumi A, Shimazu M, Nagami M, Shimazu A. Development of a mental health action checklist for improving workplace environment as means of job stress prevention. *Sangyo Eiseigaku Zasshi* 2007;49:127-42.
31. Yoshikawa T, Kogi K. Roles in stress prevention of workplace improvements and the use of action support tools. *Job Stress Res* 2010;17:267-74.
32. International Labour Office (ILO). Stress prevention at work checkpoints; Practical improvements for stress prevention in the workplace. Geneva (Switzerland): ILO; 2012.
33. Kogi K. Roles of occupational health good practices in globalization. *J Occup Saf Health* 2010;18:172-81.
34. Rantanen J. Basic occupational health services - their structure, content and objectives. *SJWEH Suppl* 2005;(1):5-15.
35. Noro K, Imada A. Participatory ergonomics. London (UK): Taylor and Francis; 1991.
36. Kogi K, Kawakami T, Itani T, Batino JM. Low-cost work improvements that can reduce the risk of musculoskeletal disorders. *Int J Ind Ergon* 2003;31:179-84.

37. Leka S, Cox T. PRIMA-EF Guidance on the European framework for psychosocial risk management: a resource for employers and worker representatives. Geneva (Switzerland): World Health Organization; 2008.
38. Zalk DM, Nelson DI. History and evolution of control banding: a review. *J Occup Environ Hyg* 2008;5:330-46.
39. Takeyama H, Itani T, Tachi N, Takanishi T, Inoue T, Murata K, Ebara T, Batino JM. A case study on evaluations of improvements implemented by WISE projects in the Philippines. *Ind Health* 2006;44:53-7.
40. Yu I, Yu W, Li Z. The effectiveness of participatory training on reduction of occupational injuries: a randomized controlled trial. *Occup Environ Med* 2011;68(Suppl 1);A24-5.
41. Kim SL, Lee JE. Development of an intervention to prevent work-related musculoskeletal disorders among hospital nurses based on the participatory approach. *Appl Ergon* 2010;41:454-60.