

A large, stylized chevron graphic composed of four parallel, nested lines. The lines are colored in a gradient of green, with the innermost line being the darkest and the outermost being the lightest. The chevron points to the right.

1.0 Research

Best Practice Guidelines:
Effective Worker Participation in Hazard Assessments
Alberta Workers' Health Centre, December 2015

About the Alberta Workers' Health Centre:

The Alberta Workers' Health Centre is a registered charitable, non-profit organization that supports all workers, unionized and non-unionized, who need assistance to help make their workplaces healthier and safer. Since 1983 it has done this through programs of education and training; research and information; assessment and support for workers across Alberta.

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This module includes two research documents that helped us in our work of examining barriers facing workers from being informed and engaged in the process of hazard identification, elimination and control. Together, they capture a large amount of new and pre-existing data and analysis in this field, and inform the other modules in the Best Practice Guidelines.

They draw on field observations of a variety of workplaces; face to face interviews with workers, supervisors, health and safety consultants and other ‘experts’; focus groups with workers; a survey of over 2000 workers from across Alberta; reviews of published research articles; reviews of documents by health and safety agencies, and industry and labour organizations from across the world.

A. Worker Participation in Hazard Assessments: Barriers and Opportunities in Alberta Workplaces

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B. Worker Participation in Hazard Assessments: Recommended Practices

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WORKER PARTICIPATION IN HAZARD ASSESSMENTS

Barriers and Opportunities in Alberta Workplaces

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Research Paper 2013-01

May 2013

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This research paper was commissioned by the Alberta Workers' Health Centre. The author would like to acknowledge the contributions of Andrew King (University of Ottawa) Jason Foster (Athabasca University), Gord Jangula (University of Lethbridge), Marc Zweilling (Vector Poll), and Juliana Cortes, Daryl Richel and Kevin Flaherty (Alberta Workers' Health Centre). This research was carried out as part of a broader AWHC project on worker participation in the hazard assessment process.

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Executive Summary

Alberta's *Occupational Health and Safety Code* requires employers to undertake hazard assessment and control activities and to engage workers in these processes. This paper identifies opportunities for and barriers to effective worker participation in the hazard assessment process in order to inform the development of a recommended practices guide for use by employers, government, unions and workers. The opportunities and barriers identified in this paper draw upon a review of research as well as Alberta interviewer-specific interviews, field observation and survey data.

Worker participation is central to hazard assessment. At the most basic level, worker participation is a right set out in provincial legislation as well as international agreements. Worker participation in occupational health and safety (OHS) activities has been shown to be effective in improving health and safety. In addition, worker participation is necessary to balance employers' tendency to trade worker safety for profitability.

A 2012 survey of 2000 workers by the Alberta Workers' Health Centre (AWHC) suggests employer compliance with Alberta's hazard assessment and control requirements is uneven. Survey data indicated that 36% of employers seldom or never conducted hazard assessments. Only 19% of workers reported that their employer always involved them in the hazard assessment process, and approximately 30% of workers reported not being told about workplace hazards, including hazards that arise for changes in materials and processes. Few workers (18%) were moderately or very interested in being involved in OHS primarily because of lack of pay and influence. On the other hand, those who were involved in OHS were substantially more likely to be involved in hazard assessment, make a complaint and see action taken.

A number of recurring barriers to participation were identified in the literature review. The prevalence of complex subcontracting relationships results in a high percentage of small workplaces and piece-rate compensation systems that, in turn, impede worker participation. Employers' power to define what is considered a hazard, a tendency to blame workers for their injuries, pace of work and limited training may also create barriers to worker participation. Finally, the vulnerability of some workers to employer pressure and a culture of silence around workplace safety may limit worker participation in hazard assessment and control. In this context, worker concern over pay and lack of influence weakens the willingness to participate.

Strategies that might increase worker participation in hazard assessment and control in Alberta include:

- employers consistently performing hazard assessments and involving workers in them combined with state enforcement activity to identify and target non-compliant employers,
- employers creating formal OHS structures (e.g., joint health and safety committees) and allocating adequate working time for workers to participate in hazard assessment activities,
- employers creating systems to identify instances when work has changed and a new hazard assessment is required,
- employers providing high-engagement worker and supervisor training in hazard assessment, including language/literacy-appropriate materials and periodic retraining and/or reinforcement,
- employers taking action to control identified hazards and communicating such action to workers, and

- employers stopping reprisals for hazard identification and disentangling hazard assessments from disciplinary matters.

Some workplace characteristics create additional challenges to effective worker participation in hazard assessment. Altering payment schemes and bid requirements may improve the opportunity and willingness of workers in small firms to participate in hazard assessment and control. Making available outside OHS resources and enforcing employer compliance increase the opportunity, capacity and willingness of workers in small firms to participate in hazard assessments. Vulnerable workers (e.g., temporary foreign workers, precarious workers) may benefit from meaningful state enforcement of employers' obligations to conduct hazard assessments. Greater and more positive employer responsiveness to worker concerns may also reduce the risk workers associate with raising safety concerns. Mandating joint health and safety committees (JHSCs) would also create a structure through which vulnerable workers could route concerns about workplace hazards.

Introduction

Alberta's *Occupational Health and Safety (OHS) Code* requires employers to conduct hazard assessments and to engage workers in this process. Yet there are troubling questions about the degree to which Alberta workers meaningfully participate in workplace hazard assessment and control practices. Consider this fatality:

On July 8, 2008, 40-year-old Finning International Ltd. employee was struck and killed by a large dump truck at an open pit oil sands mine near Fort McMurray, Alberta.ⁱ Factors contributing to the worker's death include the employer failing to repeat a hazard assessment when a work process changed and failing to include affected workers in the hazard assessment and control process.

This incident suggests (and subsequent research substantiates) that the practice of employee participation in hazard assessment and control may fall short of legislative requirements. This research paper identifies the barriers to and the opportunities for meaningful worker participation in the hazard assessment process, including hazard assessments that are required when work changes.

This mixed-methods inquiry includes an examination of the literature on worker participation in OHS activities and hazard assessment as well as Alberta specific interviews, field observation and survey data. The results are presented in four main sections: worker opportunities to participate, worker capacity to participate, worker willingness to participate, and challenges to worker participation when work changes.

Hazards, Assessment and Control

Alberta's *Occupational Health and Safety Code* contains Canada's most detailed and prescriptive requirements around hazard assessment and control.ⁱⁱ Alberta requires employers to carry out a hazard assessment of a work site prior to the commencement of work and whenever work changes:

- 7(1) An employer must assess a work site and identify existing and potential hazards before work begins at the work site or prior to the construction of a new work site.
- 7(2) An employer must prepare a report of the results of a hazard assessment and the methods used to control or eliminate the hazards identified.
- 7(4) An employer must ensure that the hazard assessment is repeated
 - (a) at reasonably practicable intervals to prevent the development of unsafe and unhealthy working conditions,
 - (b) when a new work process is introduced,
 - (c) when a work process or operation changes, or
 - (d) before the construction of significant additions or alterations to a work site.

When activities and conditions change frequently (e.g., moving between locations, working outdoors), employers may rely upon a field-level hazard assessment done at the beginning of each day or job.ⁱⁱⁱ

Alberta requires worker participation in the hazard assessment and control process. Employers must also inform workers about any hazards identified and the hazard elimination or control strategies the employer has implemented:

- 8(1) An employer must involve affected workers in the hazard assessment and in the control or elimination of the hazards identified.

8(2) An employer must ensure that workers affected by the hazards identified in a hazard assessment report are informed of the hazards and of the methods used to control or eliminate the hazards.

Finally, Alberta stipulates the hierarchy of controls employers must use when eliminating or controlling a hazard:

9(1) If an existing or potential hazard to workers is identified during a hazard assessment, an employer must take measures in accordance with this section to

- (a) eliminate the hazards, or
- (b) if elimination is not reasonably practicable, control the hazard.

9(2) If reasonably practicable, an employer must eliminate or control a hazard through the use of engineering controls.

9(3) If a hazard cannot be eliminated or controlled under subsection (2), the employer must use administrative controls that control the hazard to a level as low as reasonably achievable.

9(4) If the hazard cannot be eliminated or controlled under subsections (2) or (3), the employer must ensure that the appropriate personal protective equipment is used by workers affected by the hazard.

9(5) If the hazard cannot be eliminated or controlled under subsections (2), (3) or (4), the employer may use a combination of engineering controls, administrative controls or personal protective equipment if there is a greater level of worker safety because a combination is used.

Alberta's requirements around hazard assessment and control are more detailed and stringent than those found in British Columbia,^{iv} Ontario,^v Quebec,^{vi} Saskatchewan^{vii} and the federal jurisdiction.^{viii} Alberta's definition of a hazard is also broad: "a situation, condition or thing that may be dangerous to the safety or health of workers".^{ix} There are many different kinds of hazards, which vary depending upon the kind of work being done.^x While there is no definitive typology of hazards, a useful categorization of hazards includes:

- Physical hazards are unsafe conditions that can lead to injury and illness. These include the structure of the workplace (e.g., machinery, electricity, heights, working surfaces), workplace events (e.g., fire, falling objects), and workplace conditions (e.g., noise, vibration, temperature, radiation, air quality).
- Biological hazards stem from working with animals, plants and people. They include bacteria, viruses, and fungi sometimes transferred via contact.
- Chemical hazards include liquid, solid and gaseous substances such as acids and poisons and substances that could lead to fire or explosion, as well as dusts and fumes from various processes.
- Ergonomic hazards occur when a body is strained by work, working conditions and the type of work. These include repetitive and/or awkward movements, being required to use too much force, improperly designed or adjusted workstations, frequent lifting and inappropriate lighting.

- Psychosocial hazards affect a worker's mental well-being or mental health and may have physical effects by overwhelming a worker's coping mechanisms and impacting the worker's ability to work in a healthy and safe manner. Examples include fatigue and stress (sometimes reflecting employer decisions around hours of work, shift patterns, pace of work and staffing levels) as well as bullying, violence and working alone.

These hazardous conditions can result in incidents, which include injuries, near misses and potential injuries. The purpose of worker participation in the recognition of hazards is to assist in efforts to eliminate or control those hazards and thereby prevent incidents.

Worker Participation in OHS

The internal responsibility system (IRS) for occupational health and safety has been widely adopted by Canadian jurisdictions. The three main principles of IRS are employer responsibility, worker participation and government enforcement.^{xi} Consistent with this model, Alberta's hazard assessment and control provisions require employers to conduct a hazard assessment and control for any hazards discovered. Employers must also provide workers with an opportunity to participate in these activities and inform workers of the outcomes. The government is responsible for compelling hazard assessment and control (including adequate worker participation) should employers fail to meet their obligations.

Worker participation is central to OHS in general and hazard assessment in particular. At the most basic level, worker participation is a human right set out in provincial legislation and international agreements. Worker participation in OHS activities are critical to identifying and addressing problems successfully. Employers typically do not know or control the production process well enough to identify and manage hazards without worker participation. Essentially, it is necessary to observe hazards as workers experience them in order to identify and control them effectively.^{xii}

Worker representation has been shown to be effective in improving health and safety. For example, survey data indicated that of the 56% of workers who reported unsafe working conditions, 79% saw their employer take steps to address the conditions. This appears to be particularly true when worker representatives are trained to practice "knowledge activism," a pragmatic combination of commitment, knowledge, strategy and experience and have access to external resources.^{xiii} Finally, worker participation is necessary to balance employers' tendency to trade worker safety for profitability.^{xiv} In Canada, joint health and safety committees (JHSCs) are an important mechanism of worker participation on OHS. JHSCs are not mandatory in Alberta and are predominately found on unionized worksites.^{xv}

Broadly speaking, worker participation in OHS tends to be more effective in larger workplaces and in the presence of trade unions.^{xvi} Workers in smaller firms and in workplaces reliant upon various subcontracting and outsourcing arrangements are less likely to have access to participatory practices such as formal consultation.^{xvii} Greater worker participation in OHS efforts is also associated with better OHS outcomes in both non-union^{xviii} and unionized settings.^{xix} By contrast, passive OHS efforts are generally found ineffective at reducing injury.^{xx} Effective IRS arrangements typically entail adequate training and information, opportunities to investigate and communicate with other workers, and channels for dialogue with management about existing problems and planned changes.^{xxi} The more of these features that exist in a workplace, the more worker participation is a meaningful influence on hazard detection and abatement.^{xxii}

Methodology

This mixed-methods study combines field observations, interviews, and survey work with a literature review to identify barriers to and opportunities for effective worker participation in hazard assessment in Alberta. The literature review began with an asynchronous roundtable among five practitioners and academics to identify a list of potential barriers and opportunities to worker participation in hazard assessments. A review of the research in these areas generated a small number of additional barriers and opportunities.

At the same time as the literature review was underway, the Alberta Workers' Health Centre (AWHC) staff completed 17 interviews with workers, managers and OHS professionals in Alberta. These interviews were generated via snowball sampling. Both male and female respondents were interviewed and respondent ages varied from 21 to 56 years old. Respondents worked in both white- and blue-collar jobs with job tenures ranging from three weeks to over 30 years. A number of respondents were recent immigrants. Additionally, AWHC staff conducted a 30-person focus group with shop stewards in the Alberta equipment-servicing sector and five days of field observations at Alberta worksites (primarily in the resource-extraction industry).

The AWHC also contracted a private research firm to conduct an online survey of 2000 Alberta workers aged 18 and older about their experiences with hazard assessment in Alberta workplaces. The online sample was based upon a large, recruited panel of thousands of Albertans that reflects the characteristics of the province's entire adult population. Prior testing of panel results against random sampling results suggests panel results closely mirror the results found via random-sampling.

The results of the survey, interviews and field observations were then combined with the literature to generate a comprehensive discussion of the barriers and opportunities to worker participation in hazard assessments in Alberta. Drafts of these findings were circulated among the roundtable participants until consensus was reached upon the content.

Workers' Experience of Hazard Assessment and Control in Alberta Workplaces

While Alberta's legislative requirements around hazard assessment and control are the most detailed and prescriptive in Canada, no publically available data exists regarding the degree of employer compliance with the requirements to conduct hazard assessments and involve workers in them.

A survey of 2000 Alberta workers was performed to determine worker experiences with hazard assessment and control. The survey found that 70% of workers reported knowing what a hazard assessment was and 75% of workers reported knowing they had a right to participate in the identification of unsafe work and work practices. Men were more likely than women to report this knowledge. Workers who reported regular exposure to 10 or more workplace hazards also reported greater knowledge about hazard assessment.

Table 1 shows that 64% of workers reported hazard assessments occurring at least monthly while 36% report hazard assessments occurring seldom or never.

Table 1. Frequency of Hazard Assessment

Every day	28%
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At least once a week	13%
At least once a month	23%
Seldom	26%
Never	10%

The frequency of hazard-assessment activity varies between workplaces, depending upon how frequently work changes. Hazard assessments were reported to occur more frequently in industries where work changes often as well as in larger workplaces (100+ employees) and in workplaces where workers reported routinely facing 10 or more hazards. That said, that 36% of respondents reported hazard assessments occurring seldom or never suggests potential employer noncompliance with s.7 of Alberta's *OHS Code*.

Section 8(1) of Alberta's *OHS Code* requires employers to meaningfully involve workers in the hazard assessment and control process. Table 2 shows that only 19% of workers report being always asked for their opinion or input about how to prevent potential injuries or deal with hazards when work changes. A further 21% report frequently being asked for input while 45% of workers report being asked rarely or occasionally, and another 15% of workers say they are never asked. Workers who reported regularly facing 10 or more hazards in the workplace also reported much higher rates (53%) of "always" being asked for input when work changes.

Table 2. Frequency Worker Input Sought When Work Changes

Always	19%
Frequently	21%
Occasionally	27%
Rarely	17%
Never	15%

That only one in five workers reports always being asked for input into hazard assessment suggests significant employer noncompliance with s.8(1) of Alberta's *OHS Code*. Employers not soliciting worker input creates perhaps the most fundamental barrier to worker participation in the hazard assessment process.

Table 3 shows that between 41% and 52% of workers reported that they were very or moderately engaged in four behaviours that are consistent with hazard assessment and control activities. Interestingly, when the behaviours of workers who self-identified as "very or moderately" involved in OHS were segregated, those workers reported engaging in the four behaviours 99% or 100% of the time. While this may appear to be a tautology (i.e., involved workers report greater involvement), in fact it suggests that the

literature (above) indicating worker involvement improved OHS efforts is applicable in Alberta.

Table 3. Worker Involvement in Hazard Assessment and Control.

	Very	Moderately
Looking into the safety risks for visitors, cleaners or maintenance workers who may not often be in the workplace	18%	24%
Investigating whether anything in the equipment, products or materials you handle could harm you or employees who work nearby	19%	24%
Deciding whether personal protective equipment should be used or worn when operating devices, working with potentially hazardous substances or in potentially dangerous conditions	21%	23%
Identifying any possible safety and health risks to co-workers or members of the public in the work you are doing	24%	29%

Section 8(2) of Alberta's *OHS Code* requires employers to inform workers of workplace hazards and control mechanisms, including when work changes. Approximately 80% of workers say new employees are advised of workplace hazards. Seventy-three percent of employees reported that a supervisor or other more experienced employee points out hazardous conditions that might result from work changing. Workers reporting that they regularly faced 10 or more hazards also reported being informed about hazards stemming from work changes 90% of the time.

The surveys revealed consistent industry-level differences. Workers who reported working in manufacturing, oil/mining and construction reported higher rates of employer compliance with Alberta's hazard assessment and control provisions. By contrast, workers who reported working in health and financial services reported lower levels of employer compliance.

Overall, the survey found that:

- 36% of workers reported hazard assessments occurring seldom or never,
- 59% of workers reported being occasionally, rarely or never asked for input in the hazard assessment or control process, and
- approximately 30% of workers reported that they are not told about hazards arising from new equipment or materials or when work changes.

These findings support anecdotal evidence that employers do not always comply with the hazard assessment and control requirements of Alberta's *OHS Code* and these forms of non-compliance limit the opportunities for workers to participate in the hazard-assessment. The reasons for employer noncompliance are unclear. These results might reflect the complexity and potential cost of worker involvement. It might be economically rational for employers to not do the hazard assessment, do them superficially, or to hire out the assessment (and thereby minimize worker input). An interview with an OHS

professional highlighted how the tension employers perceive between safety and profitability can undermine their commitment to identifying and controlling hazards:

Individually, supervisors are sincere. Certainly they don't want to see anybody hurt. If I look at it from a corporate standpoint, I don't know if it is sincere. They are in business. ... When push comes to shove, it is (about) productivity. You are not going to find any company that says anything different. They are in business. If you put safety before everything else, you are not going to stay in business (Interview 13).

It should be noted that employer noncompliance with the Alberta's legislative requirements for hazard assessment and control occurs in a context of widespread employer noncompliance with other Alberta OHS requirements.^{xxiii} Alberta's lack of effective OHS enforcement means noncompliance is effectively invisible, unless a worker is badly injured or killed and an investigation ensues.^{xxiv}

Barriers to Worker Opportunities to Participate

When hazard assessments are conducted, four clusters of issues appear to further limit workers' opportunities to participate in the hazard assessment process. These include the organization of work, the pace of work and compensation schemes, environmental factors, and notions of worker carelessness and safety culture.

Organization of work

The manner in which work is organized can affect workers' opportunity to participate in hazard assessment. At the macro-level, the trend towards greater use of subcontracting arrangements is of particular interest. Increasing subcontracting undermines traditional organizational structures (i.e., a single employer, centralized management, common conditions and rules of works) and results in work being completed by a mixture of permanent and temporary employees as well as contractors (both companies and individuals).^{xxv} These organizations may also operate (on) multiple worksites where their "workers" interact with workers and contractors employed by other organizations. In 2012, Alberta had the highest ratio of business locations to population in Canada.^{xxvi}

Subcontracting arrangements sometimes entail a loss of in-house OHS knowledge, the devolution of managerial responsibility for management tasks, and a loss of clarity as to who is responsible for what.^{xxvii} A loss of expertise and oversight among central and line managers may create internal political dynamics that reduce worker participation in hazard assessments:

The more experienced person you are on the job, the more they hate to have you involved in the process. Because your experience shows that the supervisors don't know what they are talking about (Focus Group).

The devolution of managerial responsibility for management tasks and loss of clarity as to who is responsible for what can be particularly acute when work is embedded in horizontally (i.e., multiple employers) and vertically (i.e., multiple levels of subcontracting) complex relationships.^{xxviii} Focus group data suggested that, in these circumstances, contractors may decide to forego hazard assessments altogether:

We get told that the safety program is site specific. We don't have our own specific safety meetings or (Joint Hazard Assessments), we are to follow what is at the customer's site. If the customer's site doesn't specify JHA's, you don't have to do them, but don't get hurt because then you can be disciplined if they aren't done (Focus Group).

On large worksites, the sheer number of parties involved in performing the work may reduce the opportunity for workers to participate in hazard assessment:

Sometimes due to lack of space, they gather only the foreman of each trade (for the hazard assessment). If the foreman wants to tell us what he remembers, he does. If not, then whatever (Interview 10).

One interview subject noted that his participation was limited to signing off on an assessment done by someone else, in part because his knowledge of what work he will be doing is limited:

Right now a work colleague makes a hazard assessment, I have to co-sign it and read it and see that it mentioned everything that we're going to do. So all I do now is just confirm and sign it. ...I don't make the assessment because I don't know what the task is going to be (Interview 5).

During field observations it was found that some organizations were reluctant to share their hazard assessment processes and policies with other contractors. This proprietary perspective on hazard assessment materials may impede the willingness of organizations whose operations interact from conducting joint hazard assessments.

Sub-contracted workers appear to be at greater risk of workplace injury than employees and may be less likely than employees to be consulted on OHS matters.^{xxx} This may reflect cost-minimization pressure on subcontractors that is generated (or intensified) by the competitive bidding process.^{xxx} It should be noted that some industries require subcontractors to meet OHS-related standards (e.g., processes, outcomes) in order to qualify for the bid process. It may be possible to shape such bid requirements to increase worker opportunities to participate in hazard assessments.

Subcontracting typically results in more, but smaller, firms. In 2012, 98.2% of Alberta businesses with Canada Customs and Revenue Agency payroll accounts had 100 or fewer employees, with 59.0% having fewer than 5 employees.^{xxxi} The literature suggests that smaller firms tend to have less knowledge of OHS and perform fewer OHS activities, perhaps due to a lack of time, resources and/or expertise as well as exemption from OHS regulation and/or enforcement and limited union presence.^{xxxii} Survey data reported that hazard assessment occurred more frequently in larger Alberta workplaces than in workplaces with fewer than 100 workers. Small business owners may also not see OHS as within their domain of responsibility (but rather a function of individual worker choices) and/or economically unfeasible to implement.^{xxxiii} These dynamics might constrain opportunities for worker participation in hazard assessments in small firms, although no studies specifically addressing hazard assessment were found.

Jurisdictions such as Sweden have addressed small workplaces via the appointment of regional worker health and safety representatives.^{xxxiv} The applicability of this model to Alberta is unclear due to contextual differences, such as Alberta's low union density as well as state and employer hostility to union activity of any kind. Third-party OHS providers such as community groups or workers' health and safety clinics may provide a similar service.^{xxxv} Small firm heterogeneity (e.g., type of work, degree of engagement with other firms) introduces complexity in recommending means by which to enhance worker opportunities to participate in hazard assessment.^{xxxvi} Mandatory JHSCs may provide one means of enhancing worker participation in OHS generally, although small businesses are often given an exemption from such requirements.

External pressure on smaller firms (in the form of proactive state enforcement) appears to generate additional OHS activities, which include more opportunities for worker

participation.^{xxxvii} There is also some research that suggests targeting high-risk industries can help to address enforcement challenges in industries characterized by extensive subcontracting.^{xxxviii} That said, additional enforcement does not necessarily alleviate the resource issues that constrain the capacity of workers in small businesses (and the businesses themselves) from engaging in OHS work.^{xxxix} Further, Alberta's limited proactive OHS enforcement efforts suggest such pressure may be small or non-existent.^{xl}

At the micro level, the (re-)organization of work is resulting in the seeming paradox of fewer supervisors but the same or greater level of worker supervision. This reflects that, in many industries, technology is being used to embed traditional supervisory tasks in work processes. For example, employers may computerize the evaluation of production quotas (e.g., keystroke counting, issue resolution times, production counts) or quality assessment (e.g., error rates). One implication of this reorganization of work is workers have fewer opportunities to discuss the hazards of work because there are fewer (or no) supervisors and the hazards (e.g., repetitive strain injuries triggered by production targets) are more difficult for workers to mitigate because the hazards are embedded in the work process and technology.

Pace of work and compensation schemes

Payment on a piece-rate basis (or "payment-by-results") is an increasingly common form of remuneration, particularly (although not exclusively) in industries with significant levels of subcontracting.^{xli} In conjunction with the profit incentive, piece-rate pay incentivizes haste. Significant competition among subcontractors that has driven down the value of bids and/or contractual terms containing incentives for early completion (or penalties for late completion) may compound this work-hastening effect.^{xlii} The technological changes discussed above may also trigger work hastening in more traditional organizations as they adopt lean production models that are associated with increased injury outcomes.^{xliii}

Work hastening may reduce the opportunities employers offer workers to participate in hazard assessments (particularly field-level hazard assessments) because such assessments slow production. An interview with a manager suggested the degree to which hazards identified by workers are attended to varies:

(It) depends upon who you ask and at what moment you ask. Under pressure, and often there are deadlines, the balance tilts towards productivity. ... Of course you can challenge a supervisor (over hazards) but you have to take the consequences. It depends on who it is. Some department heads will take you seriously. Some will lash out (Interview 15).

Field observations found that subcontracting can result in incomplete and rushed handoffs between contractors. For example, travel-related delays affecting one contractor created costs for another (whose workers had to wait). Consequently, the hazard assessment entailed a pro forma signing of the paperwork before handing over a worksite. In another instance, a contractor started work before the required hazard assessment process occurred, rather than wait for the required staff to arrive. This worker continued to work during the hazard assessment despite the (unusual) presence of both the observer and senior company representatives. This suggests the practice of working before doing the hazard assessment is well-established.

Survey data supports the notion that time and pay are factors that might limit worker involvement in OHS. The survey found that 45% of workers indicated that they don't have time to get more involved in workplace safety and 32% indicated they don't get

paid for health and safety involvement. Interview data suggests that worker participation in a hazard assessment is sometimes limited to reviewing an assessment completed by someone else:

I usually get the paper, which I sign, which is already fill out with information. So the person with whom I work does the hazard assessment (Interview 6).

Work hastening may also trigger superficial hazard assessment, particularly in cases where the varying nature of the work and working conditions requires employers to engage in frequent, field-level hazard assessments. Field observations and interview data suggests that superficial hazard assessment can include relying upon checklists or templates that undermine the rigor of the process:

Gone to the point of laminated copies, almost comical (Focus Group).

Superficial hazard assessment is widely acknowledged to occur. For example, consider this anecdote told by Progressive Conservative Member of the Legislative Assembly Robin Campbell to other legislators:

I can tell you from my 30 years of working in industry, in coal mining, which is one of the most regulated industries in Canada, that workplace hazard assessments just don't work. What those mean is that every worker before they start their shift has to fill out a workplace hazard assessment form of what their jobs are going to entail during the day and assess any workplace hazards that they're going to see, and they have to try and address those. I can tell you, Mr. Speaker, that in the mining industry, for example, I know that workers on four days of work take a piece of paper, photocopy it four times, sign their name, and hand the thing in. So it does nothing.^{xiv}

While Campbell implicitly blames workers for superficial hazard assessment behavior, it is the employer that created and operates this system. It is useful to consider why workers would treat hazard assessments in such a perfunctory manner given what is at stake in a mine. Worker disregard may reflect the expectation that meaningful hazard assessment will result in no (or a negative) response by the employer (see below). It may also reflect worker assessment about the validity of safety-checklist approaches to hazard assessment and thus the amount of time workers are willing to spend upon them.

Environmental limitations

Field observations suggest environmental conditions can affect the opportunity for workers to participate in meaningful hazard assessment. Bad weather (e.g., temperature, precipitation) is a hazard in itself, but may also limit the opportunities employers provide to conduct a thorough field-level hazard assessment. In such circumstances, supervisors sometime do hazard assessments “in the truck” without visual contact with the worksite or equipment. That is to say, the hazard assessment process becomes an entirely theoretical exercise. The root cause of this limitation on workers' opportunity to participate in a hazard assessment is an employer decision around the facilities (often none) available on the worksite.

Similarly, both limited daylight hours and the requirement to travel between worksites can pressurize workers to start work immediately upon arrival at a worksite. Field observation suggests that, where hazard assessments are done at all, they may be perfunctory exercises performed while workers are engaged or waiting to perform other tasks (e.g., driving to the site, setting up equipment, gearing up, going to the bathroom).

Hazard assessments may also be performed by workers who are exhausted as a consequence of travel requirements and shift scheduling—factors which are themselves

workplace hazards. Field observation found, for example, one worker who travelled from Spruce Grove (home) to Drayton Valley to meet his truck, then onto Rocky Mountain House to the worksite. This 250km commute was not considered part of the worker's working time. Upon arrival, the crew was anxious to start work and consequently the worker's opportunity to meaningfully participate in the hazard assessment that took place was very limited.

Careless workers, safety culture and safety climate

Workers' opportunity to participate in hazard assessment may be intentionally or unintentionally constrained by employers because employers view workers as the central workplace hazard. The (false) notion that worker behavior is the primary cause of injuries has a long pedigree, reflecting employer interests in limiting liability for injuries,^{xlv} and remains widely held.^{xlvi} During an interview, a supervisor volunteered that he held such views:

Safety is determined by individuals. Companies can bring in policies, even training. That doesn't mean anything if someone doesn't have the will to be safe. There are certain people that are accident-prone. I think it is due to careless workers or inattention or lack of insight or lack of foresight or clumsiness or occasionally bad luck, but usually carelessness.... Some people just have a lack of common sense (Interview 15).

The most recent manifestation of the careless worker myth is in behavior-based safety (BBS) systems. BBS focuses on modifying worker behaviors and assumes that incidents have a single or primary cause, rather than being the product of network of antecedent and contributory causes.^{xlvii} The notion of mono-causality tends to truncate incident explanation at the point of the worker, rather than delving into the contextual factors that explain worker behavior (e.g., a response to production pressures, the absence of training).

A similar dynamic seems to underlie discussions of safety culture and safety climate. These terms are often (although not necessarily correctly) used interchangeably to describe organizational and individual attitudes that emphasize safety.^{xlviii} Culture is often operationalized as individuals' attitudes towards safety, which then manifest themselves as behaviours. This view largely ignores the important impact that organizational practices have on behaviour. By emphasizing worker belief and behaviour and obscuring the context that work occurs in, safety culture and climate tend to truncate the explanation of incidents at the level of the worker, just like BBS. Several workers comment on how this dynamic spills over into the hazard assessment process.

(Field Level Risk Assessments), in my opinion, is a device for the company to point blame at workers if an incident happens (Focus Group).

The main push back (from workers) is that the forms are used as a way to put blame back on the worker (Focus Group).

An employer doesn't sit down with workers to develop a JHA that will make work safe. The purpose of the JHA is remove the liability from the company and put it onto the worker (Focus Group).

Employers who (implicitly or explicitly) blame workers for their injuries may be skeptical of the value of worker input. Consequently, they may provide workers with fewer or less meaningful opportunities for input into the hazard assessment process. Such employers may also accord relatively little weight to worker input to hazard assessments.^{xlix} In these

ways, blaming workers for their injuries reduces their opportunity and willingness to meaningfully participate in the hazard assessment process. (see below).

Barriers to Worker Capacity to Participate

Four clusters of issues appear to reduce the capacity of workers to participate in hazard assessments. They include employer control over the definition of hazard, the size of firms, precarious forms of employment, and a lack of hazard assessment training.

Definition of hazard

Employers determine the hazards that are present in the workplace when they design and organize work. It is uncommon for employers to consider hazard control in the work-design and -organization process. The tendency toward post-design hazard control both pre-determines the hazards workers face and limits the control strategies employers are willing to consider (due to retro-fitting and redesign costs). Employers shape which workplace hazards are recognized and controlled via the information they share with workers. Among the notable trends is that employers tend to emphasize short-term (safety) risks, whereas workers tend to be most concerned with long-term (health) risks.ⁱ

Employers also construct and operate the hazard assessment process. Historically, employers have used such control to define what aspects of workplace safety are examined and what kinds of evidence are considered legitimate in order to evade the regulation of and the liability for workplace health hazards, such as asbestos.ⁱⁱ Employers may also be more likely to acknowledge or provide information about hazards that are easy to address rather than hazards that require more involved remediation. Consequently, workers frequently have little to no access to accurate information about health or safety hazards.

Research also suggests that employers may conceptualize risk in ways that differ from workers. Specifically, managers may operationalize “high risk” as the significance of a negative outcome rather than the probability of its occurrence.ⁱⁱⁱ A highly probable but low consequence injury (e.g., a minor burn or laceration) may be viewed as low risk (even though it occurs often) while a low probability but high consequence injury (e.g., fatality) may be viewed as high risk (even though it is relatively uncommon). While severity of consequence is an important aspect of risk assessment, emphasizing it results in the discounting of lower consequence (but very common) injuries and inattention to the hazards that cause them. This definitional difference may reduce workers’ capacity to participate in hazard assessment in that workers define hazards in ways that are incompatible with managerial paradigms.

Field observation appears to validate the assertion that employer definitions of hazards affect hazard assessment. Workers following employer hazard assessment processes attended to high-consequence, low-probability hazards (e.g., explosions, H₂S leaks) while low-consequence, high-probability hazards (such as slippery and/or uneven work surfaces, sunstroke, fatigue, road conditions) were not identified and no control efforts were undertaken. There was also no discussion about the hazards posed by other workers operating on or near the worksite. Multiple crews on-site is common, given the degree of subcontracting that occurs. Other workers were assumed to pose no hazard and to know enough to keep themselves safe from the hazards associated with the work of others. Indeed, there were no meaningful impediments (e.g., fences, gates) to worker (or the general public) access any of the worksites observed despite the dangers of the worksites.

Size of firm

The growth of small firms, including those that operate in subcontracting relationships, may reduce the capacity of workers to participate in hazard assessments. Smaller firms frequently have little internal capacity to perform basic OHS functions.^{liii} This, in turn, limits employers' ability to train workers about hazard assessment (although such training could be procured from outside sources). Owners may also not view such training as being their responsibility.^{liv}

Smaller firms are characterized by higher worker turnover and a short firm lifespan. Higher turnover reduces employers' willingness to commit to training. Shorter organizational lifespan among smaller firms reduces the opportunity for workers to develop expertise, either in specific jobs (required to identify hazards) or in the hazard assessment process itself.^{lv} Indeed, the "supervisor" is often simply the most experienced worker rather than being someone with managerial expertise.^{lvi} Such arrangements may embed traditional ways of working, include failing to do hazard assessments. As noted below, such arrangements may also lead to hazard assessment approached based upon passive rather than active forms of worker engagement.

Precarious employment

Precarious work is "paid work characterized by limited social benefits and statutory entitlements, job insecurity, low wages and high risks of ill health."^{lvii} There has been a significant increase in precarious employment in Canada, largely attributable to employers seeking to reduce labour costs. The desire to minimize costs creates a disincentive for employers to invest in training, including safety training.^{lviii} The frequently short tenure of precarious workers also places these workers in workplaces and work processes with which they may be unfamiliar. These factors reduce the capacity of such workers to participate in hazard assessments.

Precarious employment may also increase the complexity of the hazards facing workers. For example, multiple jobs may create complex interactions between hazardous substances or stacked exposures that are not routinely considered in hazard assessments (which tend to focus on a single worksite). Precarious workers are also less likely to have access to training and/or knowledgeable representatives due to the lower likelihood of unionization. This makes precarious workers more reliant upon employers for information about hazards and their rights. This dependence may be intensified by language barriers often found in workplaces employing large number of migrant workers.^{lix}

Hazard assessment training

A necessary precondition for effective worker participation in OHS activities is basic knowledge about work processes, hazards and control strategies. Specific to hazard assessment, workers must understand what hazards to look for and how to look for them.^{lx} Such knowledge and skill is rarely a component of occupational training, even for high-skill, high-risk jobs.^{lxi}

Survey data indicates that 34% of Alberta workers (including 49% of workers under age 25 and 41% of female workers) reported that they have enough training to become more involved in OHS efforts. Employers must deliver such training in order to meet their obligations under the Alberta *OHS Code* to have workers meaningfully participate in hazard assessment and control efforts. Specific training (and potentially periodic retraining) as well as time to conduct such training is necessary to develop and maintain workers' capacity to effectively participate in hazard assessment.^{lxii} The cost of such

training, as well as the cost of remediating hazards identified by trained workers, may be a barrier to employers providing such training.

There is conflicting research about the effectiveness of contemporary safety training.^{lxiii} High-engagement training is linked to greater knowledge acquisition, better safety performance and a greater reduction in injuries.^{lxiv} High-engagement (or active) learning methods incorporate dialogue, reflection, feedback and action into the training. This degree of engagement allows trainees to infer causal and conditional relationships between actions, the environment and outcomes as well as learn from mistakes. This changes how workers think and act, especially in novel situations.^{lxv} By contrast, low-engagement training typically focuses on information transmission via lectures and written and video material with little social support to reinforce training. For example, significant questions exist about the effectiveness of online safety training due to its tendency towards passive, rather than active, learning.^{lxvi}

Creating and delivering high-engagement training requires pedagogical skills that many supervisors will not have, as well as time for such training to occur. These constraints often mean OHS training is often general and decontextualized, as well as casts learners in passive roles.^{lxvii} Further, the retention of safety training and its application to the workplace is affected by the behavior of supervisors and coworkers when a worker attempts to apply the training (see below).^{lxviii} In this way, the effect of good training can be nullified by ignoring the hazards workers identify and/or a negative reaction to hazard identification.

Field observation suggests an important workplace dynamic around safety training in Alberta is pressure to “get workers certified”. Certification is frequently required for site access and to meet due diligence requirements. For example, field observations revealed that industry-standard hydrogen sulfide safety training (H₂S Alive) was largely passive with only a short opportunity for hands-on work with equipment (which was broken) and no focus on problem-solving. Questions were discouraged and the sense among participants was that everyone would pass the exam regardless of what they knew.

More specific to hazard assessment training, there appears to be little post-training validation of worker knowledge or ability to apply it on the job, raising questions about the value of such training:

I don't have all of the tools to assess risk in the workplace. I took a very simple computer test (after I did the training). The idea of the test was to show the individual took the test and cover (the employer) against any legal problem rather than giving employees tools to prevent accidents (Interview 9).

At the root of this dynamic appears to be cost pressures on employers combined with a training system heavily dependent upon contractors providing “generic” safety training.

Literacy may reduce workers' capacity to participate in OHS activities such as hazard assessment.^{lix} Approximately 61% of Albertans have literacy levels adequate for effective functioning in society, suggesting a large subset of workers may struggle with written material.^{lxx} Literacy levels significantly correlate with level of formal education, with approximately 34.4% of Alberta workers holding some form of post-secondary credential.^{lxxi} To the degree that the labour market is segmented based upon credentials (or, more broadly, literacy), there is the potential for low-literacy workplaces and occupational sectors. Workers in such sectors may have lower capacity to participate in hazard-assessment training and (consequently) hazard assessments.

English-language proficiency may create significant difficulty among non-English speakers in understanding and applying operating manuals, safety signage and hazard material labeling. Survey data suggested that 8% of workers did not become more involved in workplace safety and health because language barriers made it difficult to communicate with their supervisors and management. Alberta's large migrant worker population also raises the issue of the impact of cultural diversity on worker participation in hazard assessment. At a high level, cultural factors (shaped by linguistic conventions) can affect when and how workers interpret messages as well as to whom they communicate.^{lxxii} For example, cultural factors may create differing levels of tolerance for dissent and questioning. These factors, in turn, reduce the capacity of these workers to participate in hazard assessments and comprehend hazard control efforts.

Barriers to Worker Willingness to Participate

Five clusters of issues appear to reduce the willingness of workers to participate in hazard assessments. They include worker- and employer-generated fear of participation, pace of work and compensation schemes, precarious work and worker vulnerability, and gender-based harassment and discrimination.

Fear-based silence

Workers often report that they fear speaking up about safety matters.^{lxxiii} This reaction reduces the willingness of workers to participate in hazard assessments.

You don't know the consequences of (pointing out hazards). You never know if they can fire you. ... At work, we're supposed to be seven guys but there are only two guys. But you can't tell the managers "you are killing me by making me do the work of seven guys". So it is difficult. If you do that you'll be fired. That is what is going on in our mind. No one wants to be fired (Interview 4).

Absolutely (workers are afraid). Intimidation, bullying by department heads, especially when it is coming down to deadlines. You don't say anything (Interview 15).

Survey data indicated that 19% of workers did not get more involved in checking for hazards or other safety problems because they felt their supervisors would object or not allow them to do so. Interestingly, 46% of workers who reported being regularly exposed to 10 or more hazard agreed with this statement. Another 13% of workers agreed "employees like me are afraid to speak up about health and safety problems." Again, workers who reported regular exposure to 10 or more hazards agreed with this statement 35% of the time.

Workers can use four main strategies when faced with unsafe work: leaving the workplace (exit), expressing their concerns (voice), waiting for something to change (patience) or ignoring the hazardous conditions (neglect).^{lxxiv} Silence is an aspect of all but "voice". Workers' choice of strategy appears to reflect their relative fear of termination and injury, supervisor attitudes and feelings of power and powerlessness.^{lxxv} For example, exit is extremely uncommon, reflecting workers' reliance upon waged employment. The effectiveness of voice is uneven, depending upon management attitudes. If voice is ineffective, workers may revert to patience or move onto neglect or exit depending upon job satisfaction, alternatives and investment.^{lxxvi} This dynamic is often seen in worker cynicism about the effectiveness of hazard assessment activity:

Some even go to [OHS] to file a complaint... but nobody cares and they don't do nothing. Alberta runs mostly on construction... so the government is not going to do

anything. They're going to turn a blind eye because if work gets done that means more money. So everybody just gives up (Interview 10).

Fear of speaking up can result in workers withholding knowledge about issues such as managerial behavior,^{lxxvii} worker treatment,^{lxxviii} organizational functioning^{lxxix} and organizational wrongdoing.^{lxxx} Employees who remain silent report that silence is motivated by fear of material or social repercussions in the workplace, such as looking foolish among their peers or being punished by supervisors.^{lxxxi} That said, not all employee silence is deliberative; some silence may well be reflexive.

Reflexive fear has an evolutionary basis: fear, both generally and of specific circumstances (e.g., of heights, darkness, confined spaces, challenging higher status individuals), triggers behavior that protects us from threats.^{lxxxii} Detecting threats is an early adaptive response that can trigger non-conscious reactions.^{lxxxiii} Workers' reluctance to challenge managers (who have higher status in the work hierarchy) and question the safety of a workplace (thereby challenging those who control it) may reflect an unconscious fear reaction leading to silence. This fear may be exacerbated by dominance cues (e.g., yelling, attributes such as supervisor size or gender, manner of comportment exhibited by leaders such as frowning^{lxxxiv}), as well as by childhood socialization that emphasizes submission to authority.^{lxxxv}

Culturally, we struggle. If I were your coworker and I saw you doing something stupid—it is sort of like an old boys' club—if I saw you doing something stupid I'd say 'what are you doing?' I think (that if) a new worker (said that), the crew would be saying 'what are you doing? Shut up.' A lot of pressure falls on people who raise issues (Interview 13).

The degree of fear response can be tempered by the immediacy or severity of the threat(s). For example, expressing safety concerns to an employer creates an immediate and potentially severe threat to a worker's employment. By contrast, a safety threat is generally non-immediate and of unknown severity. Consequently, a worker is likely to prefer unremediated safety issues to confronting a supervisor. To the degree that this process is unconscious (or habituated through past personal or vicarious experience^{lxxxvi}), workers may reflexively respond to routine tasks such as hazard assessments through silence. The pessimism and caution associated with fear may colour even more thoughtful and calculating responses.^{lxxxvii} These dynamics may drive workers' implicit acceptance of management's right to manage the workplace, particularly around issues where workers are indifferent or unknowledgeable.^{lxxxviii}

It may be possible to reduce workers' fear about challenging employers around safety by enhancing workers' knowledge and skills around hazard assessment and control.^{lxxxix} Providing instruction and encouraging peer support around identifying and remedying safety issues creates opportunities for workers to be successful (or even partially successful) in speaking up about safety. Such success helps workers see voice as a viable and less threatening behavior. This suggests that providing time for training, a formal process by which to raise OHS concerns (e.g., JHSCs), and recognizing the legitimacy of safety representatives may be a pathway to enhanced worker participation. That said, it remains difficult to prevent reflexive silence in situations of high fear intensity because of the evolutionary value of a better-safe-than-sorry reaction.^{xc}

Employer-created silence

An alternate perspective on worker silence suggests employers may intentionally create silence through agenda setting and institutional structures in order to avoid issues and

conflicts contrary to their interests.^{xcii} This may create a climate of silence wherein workers believe that speaking up is not worth the effort and doing so may be dangerous.^{xciii} Interviews suggested this dynamic operates around hazard assessments in Alberta:

When they do an accident investigation, they always try to find a way to say that “the employee failed to identify the hazards.” You can go from both extremes—from the (Joint Hazard Assessment) that is barely filled out so you don’t stir the pot and you don’t make that manager mad by identifying hazards he doesn’t want to address because there is a cost associated with them. Or you could go the opposite direction and where you can identify everything under the Sun... and it still comes down to the employee failed to identify the hazard. And after awhile you just give up. It is just a piece of paper that allows the company to present to whatever governing body that is in charge of this, probably the WCB, trying to do some sort of cost savings (Focus Group).

Managers are more likely than are other workers to blame workers for workplace injuries.^{xciii} This may result in distrust between employers and workers, thereby impeding workers’ willingness to engage in discussions of hazards.

As noted above, employers may create a shallow hazard assessment process that limits what is defined as a “hazard” and thereby avoid discussions around the hazards embedded in basic workplace choices (e.g., work processes, materials, staffing models). Indeed, there is some research that suggests employer-created work processes may require safety violations in order for workers to complete work.^{xciv}

Not capturing and acting upon feedback from hazard assessments (particularly field-level hazard assessments) to control hazards is sometimes characterized as a form of management failure.^{xcv} Alternately, information may be intentionally ignored in order to minimize production costs and/or liability.^{xcvi}

Yes, I (identified a hazard) and my concern was ignored. They were using a prototype machine that wasn’t proven—it didn’t have the safety guards or safety requirements to operate. It was operated. A near miss happened (Interview 9).

Approximately one-quarter of workers under age 25 indicated the lack of influence they had as junior employees was a reason they chose not to become more involved in OHS efforts. Workers over 55 also identified a lack of influence or employer indifference as barriers to greater involvement. Overall, 15% of workers reported management indifference to health and safety issues.

In either case, such inaction creates psychological stress (i.e., cognitive dissonance) because it places workers in a position where their values differ from their behavior.^{xcvii} Workers resort to silence strategies when they believe that speaking up will not make any difference.^{xcviii} Over time, this dynamic (silence = inaction = more silence) has the potential to create a form of learned helplessness (or hopelessness).^{xcix}

I’ve never heard management say based on the (Joint Hazard Assessments) that we need to get new tooling that is designed to do a job better or we need to change a procedure. If somebody gets really hurt, they’ll jump (Focus Group).

Workers may also attempt to resolve the dissonance caused by working in unsafe conditions by adjusting their safety-related expectations downward. Indeed, routinely hazardous jobs (such as being a rig hand in Alberta’s oil patch) may result in workers adopting a fatalistic attitude about workplace injury.^c This normalization of hazards may

not only reduce workers' willingness to participate in hazard assessment, but it may so desensitize workers to hazards that they no longer attend to various hazard control mechanisms, such as administrative and PPE controls.

Pace of work and compensation schemes

Piece-rate compensation is associated with higher levels of injury.^{ci} This may reflect various factors, such as relative levels of training and experience, (un)willingness to refuse unsafe work, and incentives to work quickly. As noted above, piece-rate compensation incentivizes haste and thus may limit the opportunities employers make available to workers to participate in hazard assessment. Similarly, where some or all of workers' salary is paid on a piece-rate basis (including bonus and/or penalty schemes), workers may be less willing to participate in hazard assessments, reflecting their trading off their interest in a safe work environment against their desire to maximize their pay.

Less obvious is how piece-rate pay and competitive subcontracting systems can displace worker interests with employer interests.^{cii} Interviews with workers indicate that workers may discount their interests in a safe work environment (by remaining silent about hazards) if they feel that raising such issues will jeopardize their employer's ability to maintain a contract. Interviews also suggest that employers sometimes work around such concerns if they are raised.

You can refuse unsafe work. But someone else will get sent to the site to do the work... because the subcontractor doesn't want to lose the business. So another worker gets sent in to do the job (Focus Group).

I said 'sorry, you can't do that.' The guy was barred from the worksite.... Sadly his company wouldn't have dealt with (behavior). They just would have reassigned him and he's somewhere else doing the same thing (Interview 13).

This dynamic of worker replacement to avoid work refusals is a recurring management strategy.^{ciii} This dynamic may then reduce workers' willingness to engage in meaningful hazard assessment. Workers may also be reluctant to participate in hazard assessments when the assessment occurs during workers' rest breaks. These dynamics may be particularly evident in cases where field-level hazard assessments are necessary.

Precarious work and worker vulnerability

The (re-)organization of work towards an increasingly contingent workforce (e.g., temporary employees, subcontracting) reduces workers' willingness to exercise statutory rights, including their right to participate in hazard assessments.^{civ} In effect, workers whose employment must be periodically renewed are more vulnerable to employer reprisals and are, therefore, less likely to voice concerns about their working conditions. The development of a secondary labour pool may also affect the willingness of workers in standard employment relations to participate in hazard assessments for fear of replacement with less expensive and more acquiescent workers. For example, a (fairly common) worker phone call received by the AHCW during this study reported that an employer responded to worker safety concerns raised at a tailgate meeting by saying "There is a long list of people waiting to take your job if you don't want to do it."

The growing use of migrant workers, whose residency is contingent upon their employment and who have effectively no labour mobility, creates a significantly vulnerable group of employees who may be unwilling to participate in hazard assessments.^{cv} One interview subject was quite explicit about the interaction between

the precarity of temporary foreign workers and their willingness to participate in the hazard assessment process:

You have workers who are not Canadians.... Those guys get pushed really hard so they won't say anything. They will just do the work and that is. Because if they go challenge their boss, some bosses are like "so remember you are under the work permit so anytime ...you keep telling me (it) is unsafe and you don't want to work and then you go back to your country." ...Some of them don't know if their supervisor will act in the correct, responsible way but they don't want to take the risk. The same things happens with Canadian citizens. Nobody will challenge the supervisor (Interview 10).

There are also significant questions regarding the effectiveness of Alberta's OHS enforcement efforts, including questions about regulatory capture.^{cv} This perceived ineffectiveness may further reduce the willingness of workers to enforce their right to participate in a hazard assessment.

Gender, discrimination and harassment

Women may face gender-specific barriers to participating in hazard assessments. Women remain disadvantaged in the Canadian workforce and are more likely to be employed precariously.^{cvi} Women are also more likely to have the hazards they face dismissed by employers, regulators and health-care providers, reflecting the long-term devaluing of female work.^{cvi} The gendered nature of workplaces (which sometimes manifests itself in harassment and discrimination) may reduce the willingness of women to participate in hazard assessments.^{cix} This dynamic is problematic because hazards may sometimes be gender specific.

Reproductive hazards are the most commonly identified gender-specific hazards. But emphasizing reproductive hazards tends to obscure other gender-specific hazards.^{cx} These "other" hazards tend to be embedded in technology and/or work process based on male anthropometry. For example, machinery and processes may all contain assumptions about operator height, weight and strength.^{cx} These assumptions are disproportionately based upon a male norm and pose ergonomic and other hazards to workers who do not fit this norm.^{cxii} This male norm is often invisible (to men) and must be pointed out (by women) or it will go unrecognized and the resulting hazards uncontrolled. The assignment of work tasks may also be gendered, resulting in effectively gendered hazards.^{cxiii} Employers frequently design jobs to be performed at near the limit of (male) worker's capacity in order to minimize labour costs. Controlling gendered hazards may require expensive changes to work processes. Consequently, employers have little incentive to engage in gender-based hazard assessment and may indeed participate in or condone the suppression of identifying such hazards.

The gendered nature of hazard assessment (including suppression of concerns) suggests other personal characteristics of workers may also limit their willingness to participate in hazard assessment. As noted above, inter-related issues around language, literacy and ethnicity may limit workers' capacity to participate in hazard assessment. But they may also limit their willingness to do so. Similarly, workers requiring particular workplace accommodations due to disability, religious, family or other requirements may decline to meaningfully participate in hazard assessment as a way to reducing their exposure to harassment and discrimination.

Size of enterprise

Smaller workplaces sometimes report less-than-optimal worker participation in OHS activities. It is unclear whether participation in smaller firms is lower than in larger firms and what the cause of non-participation is, although opportunities for participation exist so it may be capacity or willingness.^{cxiv} Smaller workplaces may create social dynamics not conducive to hazard assessment. “Family” businesses blur the lines between employment and family relationships.^{cxv} This may reduce the willingness of employers to conduct and workers to participate in hazard assessment and control because the purported economic needs of the “family” may come first.^{cxvi} That said, smaller workplaces may also generate close interpersonal connections among workers and between workers and employers that increase the willingness of both sides to identify and mitigate hazards.

Table 4 outlines the percentage of those workers (reported by workplace size) who wanted to be more involved in workplace safety and agreed that a barrier is safety is someone else’s responsibility.

Table 4. Agreement that Safety is Someone Else’s Responsibility

<20 workers	18%
20-99 workers	24%
>99 workers	36%

Alberta workers employed in workplaces with fewer than 20 workers were more likely to be involved in the four OHS activities set out in Table 3 than were employees in workplaces with 20 or more employees. This may reflect that, in larger workplaces, Alberta workers are more likely to have some form of formal safety representation. For example, survey data indicates that 82% of workers who indicated they were very or moderately active in OHS were employed in workplaces with 500+ workers.

Barriers to Worker Participation When Work Changes

All change in the workplace originates with the employer because work is carrying out the employer’s direction. Consequently, Section 7.4 of Alberta’s *OHS Code* requires employers to make a further hazard assessment when new work processes are introduced, when work processes or operations change, or when the work site is altered or added to. The survey results suggest that employers are conscious of the different ways they change work and imbed mechanisms to assess the impact potential. When new materials or equipment is first used, 71% of workers indicated that a supervisor or other more experience employee pointed out hazards or dangerous working conditions. There were significant industry differences: 91% of workers in construction and 83% of workers in oil/mining agreed with this statement while only 42% of workers in finance did.

Similarly 73% of workers agreed that, when work changes, a supervisor or another employee points out hazards or dangerous conditions that might result from the change(s). Workers exposed to more potential hazards (regular exposure to 10 or more hazards) agreed with this statement 90% of the time. The workers least likely to agree with this statement include women (69%), office workers (69%) and workers in health care (67%), government (64%) and financial services (67%).

Many of the barriers to workers' opportunity, capacity and willingness to participate in hazard assessments set out above are also relevant to hazard assessments when work changes. For example, as organizations make greater use of subcontracting arrangements, the greater number of actors and interfaces may obscure changes to work necessitating a new hazard assessment.^{cxvii} The responsibility for identifying the need for new hazard assessments and ensuring that such assessments allow workers a meaningful opportunity to participate is the employer's responsibility.

Similarly, a shift-schedule change (e.g., moving from working five eight-hour shifts to four ten-hour shifts) may introduce or intensify fatigue-related hazards. Yet employers might not recognize that such a change requires a new hazard assessment because (1) it is an incremental change, (2) that has little affect on work processes, and (3) might be driven by financial imperatives. Employers may also consider hours of work a matter of labour relations rather than health and safety. The absence of organizational triggers that lead to a review of existing hazard assessment and control strategies may result in employers failing to provide opportunities for workers to participate in hazard assessments.

The opportunity for and willingness of workers to participate in further hazard assessments following work change may also be affected by the industrial relations context of a change. Workers have a variety of reactions to workplace change (e.g., acceptance,^{cxviii} resistance,^{cxix} cynicism^{cxx} and commitment^{cxxi}). The context of a change (e.g., expected or real resistance) may reduce the opportunities employers offer workers to participate in hazard assessment, as well as how seriously employers take workers' comments. Similarly, workers' willingness to participate may be affected. Further, conflict over workplace change may distract both employers and workers from the safety implications of a change.

Conclusion

The literature and data clearly demonstrate that worker participation enhances workplace health and safety. The data also suggests that a significant number of employers are not compliant with the provisions of Alberta's *OHS Code* regarding hazard assessment and control. Particularly troubling is the low level of reported worker involvement in the hazard-assessment process. These gaps are more prominent in small workplaces and among part-time and younger workers—findings consistent with the literature about OHS representation.

The literature suggests several strategies to increase worker participation in the hazard assessment and control process. Most importantly, employers must consistently perform hazard assessments. This includes allocating adequate work time for workers to participate in hazard assessment activities. It also requires consistently involving workers in the hazard assessment. Employers must also create systems by which to identify instances when work has changed and a new hazard assessment is required. These actions by employers are a basic precondition for worker participation in the hazard assessment process. If employers will not voluntarily perform hazard assessments and involve workers, proactive state inspection to identify and target such employers will be necessary.

Workers' capacity to participate in hazard assessment turns, in part, upon their knowledge of hazards and the hazard assessment process. Providing such training to workers in a high-engagement format will enhance their capacity to participate in hazard assessment. Training will also offer opportunities for workers to understand the full spectrum of hazards, their rights around hazard assessment and control, and consider

ways in which they can support one another effectively in the face of employer resistance. Supervisors also require adequate training in order to effectively manage the hazard assessment process (e.g., conducting a hazard assessment while in visual contact with the worksite), interact with workers (to prevent silencing), and respond to worker contributions to hazard assessments.

Periodic retraining or reinforcement of hazard assessment principles (particularly where hazard assessments are infrequent) may be necessary to maintain worker skill levels. Where literacy- or language-based barriers exist, remediation or accommodation will be required. Workers' participation tends to be more effective if it occurs within a formal structure within which to raise and address workplace hazards, such as a JHSC. Further, workers may benefit from hazard assessment training and resources provided by organized labour or third-party organizations (e.g., workers' clinics or centres).

When workers identify hazards, employers must both take action and communicate the results of that action to workers. These behaviors are required to prevent worker cynicism and withdrawal. Further, workers are unlikely to meaningfully participate in hazard assessment when they fear reprisals for identifying hazards. When incidents occur, a review of the hazard assessment may be in order. Injury and/or near-miss investigations should look beyond worker behavior to identify systemic contributions to the injury or near miss. Hazard assessments should not be used for disciplinary purposes or to deflect liability.

Some workplace characteristics create additional challenges to effective worker participation in hazard assessment. Extensive subcontracting can blur who is responsible for, and whether they have complied with, the hazard-assessment provisions in Alberta's *OHS Code*. It can also pressurize firms to minimize OHS-related costs and increase the pace of work. Altering compensation schemes (i.e., moving away from piece-rate methods, including bonuses and penalties for timely performance) might reduce work-hastening pressures that appear to constrain workers' opportunities for and willingness to participate in hazard assessment. Altering bid requirements to compel adequate worker training in hazard identification and a standardized hazard-assessment procedure might serve to enhance worker opportunities to participate in hazard assessment, as well as broaden employer views of incident causation that appear to be a barrier to worker participation.

Changing compensation schemes and altering bid requirements might also generate pressure on smaller firms (which pose particular OHS challenges) to train workers in hazard assessment and provide workers with opportunities to participate. Approximately 60% of Alberta firms have 5 or fewer employees. Small firms are less likely to comply with OHS requirements (e.g., hazard assessments) unless compelled to do so and are less likely to have adequate OHS expertise on staff. Additional enforcement and contractual requirements (for small subcontractors) may increase the opportunity and willingness of workers in small firms to participate. Mandated hazard assessment training for workers (akin to H₂S and fall protection training) would increase workers' capacity to participate in hazard assessments.

Some workers (e.g., temporary foreign workers, precarious workers) are less likely to participate in hazard assessment due to their labour-market vulnerability. Meaningful state enforcement of employers' obligations to conduct hazard assessments may (partly) offset silence created by worker vulnerability. Employer responsiveness to concerns may also reduce the risk workers associate with raising safety concerns. Mandating JHSCs

would also create a structure through which vulnerable workers could route concerns about workplace hazards.

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^{iv} Occupational Health and Safety Regulation, BC Reg 296/97ss.4.13, 4.20.2, 4.28, 4.48, 5.99, 6.118, 9.11

^v Occupational Health and Safety Act, RSO 1990, c O.1 ss.25(2)(d), 32.0.3 and 34

^{vi} An Act Respecting Occupational Health and Safety, RSQ, c S-2.1 (Quebec OHS) ss 51(3), (5) and 52.

^{vii} Occupational Health and Safety Act, 1993, SS 1993, c O-1.1 s 19(a)

^{viii} Canada Occupational Health and Safety Regulations (Can Regs), SOR/86-304 ss 19.3-19.4.

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WORKER PARTICIPATION IN HAZARD ASSESSMENTS

Recommended Practices

Darren Puscas

June 2013

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**Worker Participation in Hazard Assessment:
Recommended Practices**

June 2013

Darren Puscas

This research paper was commissioned by the Alberta Workers' Health Centre. The research was carried out as part of a broader AWHC project on worker participation in the hazard assessment process.

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Worker Participation In Hazard Assessment – Recommended Practices

Review of Literature

In order to inform the development of guidelines to promote worker participation in hazard assessment, the Alberta Workers Health Centre commissioned a review of recommended practices. This paper draws from currently recommended practices to promote worker participation in occupational health and safety (OHS). The review encompassed Canadian jurisdictions (Alberta, BC, Ontario), CSA standards and the European Union. A complete list of all documents consulted is found in Appendix 1.

Worker participation is generally recognized as fundamental to effective hazard assessment as they are most directly involved in the processes to be assessed. In most Canadian jurisdictions, hazard assessment is the responsibility of worker OHS representatives and/or joint committees. Worker participation in hazard assessment is viewed as not simply a right but as fundamental to effectively assessing hazards in the workplace. In this way, it is of value to all stakeholders, including workers, management and the broader public.

While there has been a stronger emphasis on worker participation in hazard assessment (also referred to as risk assessment) throughout Europe, Canadian organizations have become more and more aware of its vital importance, dedicating resources to develop further understanding. For example, the Worker Safety and Insurance Board (WSIB), in its Musculoskeletal Disorder (MSD) Prevention Guideline for Ontario, acknowledged the fundamental need for worker participation in assessing MSD hazards: “Workers can play an active role in the MSD prevention process by using their experience and knowledge to recognize and assess MSD hazards and to suggest effective solutions to manage and control them... [and by] being involved in planning and implementing changes to work tasks or jobs.” This acknowledges workers as active participants in all aspects of the assessment process, including finding solutions and actively implementing needed changes.

Following are further arguments for implementing worker participation in hazard assessment:

“It is important that workers participate in the risk assessment. They know the problems and the details of what really happens when they perform their tasks or activities, so they should be involved in the assessment. Their practical knowledge or competence is also often needed to develop workable preventive measures. Workers’ participation is not only a right, it is fundamental to make the employers’ occupational health and safety management effective and efficient.”

--- European Agency for Safety and Health at Work - Workers’ roles and responsibilities in Risk Assessment

“It has been shown that successful Health and Safety Management Systems have high levels of worker involvement. Worker participation in the development of the system is particularly important to create ownership and overall buy-in into the system. Additionally, worker participation in the development of the Health and Safety Management System will help ensure a better fit with the culture of the organization. To promote worker participation, actively involve them in the development of hazard assessment, inspections, preventative maintenance, training, emergency response, and incident reporting systems. Look for opportunities to get workers from all areas of the organization involved, and provide regular updates on the progress of system development to keep the feedback loop open.”

--- Government of Alberta, *Building an Effective Health and Safety Management System*

“A participatory approach is more productive than an officialistic [sic], rulebook-bound risk assessment. Working conditions contribute significantly to wide health inequalities. Workers with least control over their working conditions are more apt to face multiple risks. Participatory assessment can help to turn that trend around by giving a voice to those that currently lack one. They can inform changes to working conditions from their knowledge of what they are really like. Systematic participation by workers and workers’ reps at all stages of risk assessment ensures that all risks will be properly considered and makes it easier to draw up a workable prevention plan.”

--- European Trade Union Institute

The search for concrete examples of worker participation in hazard assessment produced two documents from the European Union: (1) the SOBANE participatory risk management strategy developed by Prof. J. Malchaire at the Unité Hygiène et Physiologie du travail at Université catholique de Louvain (UCL) in Belgium; and (2) a review of the European Union’s Occupational Safety and Health Administration (EU-OSHA) case studies completed by the European Agency for Safety and Health at Work. This report will look at each of these ‘best practices’ studies in turn.

1. Malchaire, J. *The SOBANE Risk Management Strategy and the Déparis method for the Participatory screening of the risks*. FPS: Employment, Labour, and Social Dialogue Unité Hygiène et Physiologie du travail at Université catholique de Louvain (UCL) Belgium.

What is it?

The SOBANE is a risk management strategy developed by Prof. J. Malchaire at the Unité Hygiène et Physiologie du travail at Université catholique de Louvain (UCL) in Belgium. It is a progressive approach to risk management involving four levels: Screening (S), Observation (OB), Analysis (AN) and Expertise (E). The focus of the strategy is less on recognition of problems and more on finding solutions through the involvement of various partners in developing strategy, specifically employees, management, OHS practitioners and experts. This global approach to problems sees the whole (partners working together) as greater than the sum of the parts (individual partners). It stresses the absolute necessity of a participative approach where workers and local management are the main agents of assessment and partners (OHS practitioners and experts) play a complementary role.

When is worker participation encouraged?

Through the work collective (workers and local management), worker participation is encouraged at all four levels of the SOBANE approach. Worker participation is the sole means of risk assessment at both Level 1 (Screening) and Level 2 (Observation). Worker/local management participation is combined with involvement of OHS practitioners at Level 3 (Analytical) and with experts at Level 4 (Expertise). Level 1 Screening always takes place regardless of the nature of the problem. The other levels only take place if the previous level leads to a need for further assessment.

Table 1: Characteristics of the four levels of the SOBANE strategy

	Level 1 Screening	Level 2 Observation	Level 3 Analysis	Level 4 Expertise
When?	All cases	If problem	In difficult cases	In complex cases
How?	Simple observations	Qualitative observations	Quantitative observations	Specialized measurements
Cost?	Very low 10 minutes per factor	Low 2 hours	Average 2 days	High 2 weeks
By whom?	Work collective	Work collective	Work collective + OHS practitioner	Work collective + OHS practitioner + Expert
Qualifications • work situation • health at work	Very high Low	High Average	Average High	Low Specialized

As shown in Table 1 (p. 14), the work collective is involved at every level regardless of the level of expertise needed. The process accepts that workers have inherent expertise as the people performing the tasks, even if additional outside experts are required. Note that it is possible for only workers and local management to participate in the entire process without outside help if screening and/or observation solve the problem.

Fundamental Concepts of SOBANE strategy

The SOBANE strategy has a number of key concepts and assumptions which underpin it and must be understood and accepted for the process to be effective:

1) Focus on work situations - The aim is to get beyond looking simply at the tasks at hand and their potential risks to looking at the whole of worklife. This holistic approach focuses on the work situation which includes:

- all physical, organizational, psychological and social aspects of working life.
- all workers and management who depend on each other.

2) Risk factors - Risk factors refer to all aspects of the work situation that could cause damage. Risk is broader than hazard (which focuses on safety only), and those involved should have this broader understanding of risk.

3) Multidisciplinary approach - A multidisciplinary approach involves joint actions of several experts/practitioners moving towards the same goal. There can be different levels of integration of the multidisciplinary approach, but it needs to be a fundamental concept and requires a team spirit.

4) Main actors in prevention - Employees and local management must be main actors of prevention. No one has the knowledge of the work situation that workers and local management have. They know the situation, how things have worked and what they want.

5) Role of OHS Practitioners and Experts

a) Who are they? OHS practitioners include safety officers, occupational nurses, physicians, ergonomists and others who have been trained in Occupational Health and Safety. Experts are people from specialized labs (e.g. toxicology, mental load, stress).

b) Role - The OHS practitioner or expert brings her/his skills to a process that is already happening. Workers may have limited knowledge of risks but leading them will give them the impetus to figure out ways to work better and safer.

6) Special understanding of Small and Medium Sized Enterprises (SMEs)

SMEs have a greater risk factor, including higher accident rates. They are also often more reticent to make change than are larger enterprises. In attempting to get SMEs on board with participatory hazard assessment, special focus should be placed on the benefits to SMEs of having a Health and Safety strategy, such as better health, quality, production, safety and bottom line.

Participation of Workers

Participation should take place continually rather than only at specific moments and should be related to the whole process of work and the work situation. There are numerous imperatives that must be followed if the SOBANE strategy is to be effective.

It must be:

- voluntary - workers take part of their own free will without coercion

- direct - workers are directly involved
- active - partners must take part in local working groups

It must involve:

- partners on equal terms willing to be partners in participation
- building negotiated consensus with each other
- the "whole system of work" and the work situation
- a continuous process integrated into daily work
- employers unambiguously declaring objectives
- employers 'scrupulously respecting' the labour-management health and safety committees

It also must be combined with a verification system utilizing an OHS practitioner for technical risks to ensure they are not forgotten by new worker participants. This is because technical risks are high (e.g. fire risk).

One of the key questions the SOBANE method asks is whether or not a risk management process is consultative or participatory. Understanding the difference between consultation (e.g. questionnaires, surveys) and participation (worker control over issues discussed, steering of discussions, and decision making power) helps to clarify and to better assess the effectiveness of the hazard assessment process. A consultation process has workers naming the risks for management to make decisions on later. Both approaches are valuable if working in tandem, but if using consultation in isolation, it should not properly be considered full worker participation. (p.7-8).

Déparis (Level 1) Methodology

The paper goes most in-depth in laying out the methodology of Déparis (Level 1 of the SOBANE strategy). The Déparis method is simply the screening process used to initially determine risks and to review the work situation. A Déparis meeting involves both workers and management in determining potential hazards in the workplace. All aspects of work life

(technical, relational and organizational) are reviewed in the meeting. A coordinator is designated with agreement and direction of the employees.

The two main aspects of the Déparis method are:

1) Déparis Systematic Review

At Level 1 a systematic review by employees and technical management takes place. Eighteen aspects of the work situation are reviewed in order as they move from the general to the specific and they are addressed one-by-one. The 18 aspects to be reviewed are as follows:

Focus on the overall organization

1. Premises and working areas
2. Work organization

General security risks

3. Work accidents
4. Electricity, fire and explosions

Focus on individual workstations

5. Controls and signals
6. Work material, tools, machines
7. Work postures
8. Efforts and handling operations

Environmental hazards

9. Lighting
10. Noise
11. Radiations
12. Chemical and Biological hazards
13. Thermal environments

Psychosocial

14. Autonomy and individual responsibilities
15. Work content
16. Time constraints
17. Relationships between workers and with the hierarchy
18. Psychosocial environment

2) Formation of a discussion group/working group

The formation of a discussion group or working group is the main locus of participation. The discussion group is made up of two to four key workers designated by their colleagues. Other discussion group members designated by the employer must be accepted by the employees.

Participants are asked to consider the cost solutions proposed by the coordinator and their impact as well as who could implement the solution, how and when. After the meeting, the coordinator writes a synthesis which participants review.

For each facet of worker participation, the Déparis guide lists a series of points for workers and local management to follow, discuss and take notes on:

- 1) Who can implement improvements and when.
- 2) How much changes and improvements will cost. Workers are encouraged to look for cost solutions.
- 3) What needs to be studied further.
- 4) An overall assessment of priorities; which changes need to be acted upon with greater urgency utilizing a "green" "amber" and "red" system.
- 5) Who is to do what and when. This is done using already developed Déparis worksheets which contain numerous areas of focus for the groups to discuss. Some of the areas include workshops, work organization, falls, mechanical risks, loads, hand effects, lamps and noise.

Results:

Between 2003-2005, the Déparis guide was used in 80 meetings in 80 companies from nine different industrial sectors. The meetings led to an average of 12 proposals for improvement per meeting. Seventy-six percent of these proposals had little or no cost.

Sixty percent of the solutions were very practical while the other 40% went beyond ordinary health and safety issues to work procedures, work quality and productivity.

There is a degree of time needed to complete this process that factors into how strong the results are. It takes time to convince employers and employees alike of the importance of the process. The meeting itself takes two hours and the time needed to complete the meeting report an additional two hours. Though this time commitment is significant, it is “definitely lower than the cost of interventions of consultants.” (p.25).

B. 2012 European Agency for Safety and Health at Work, Members of the Topic Centre on Occupational Safety and Health, *Worker Participation Practices: A Review Of EU-OSHA Case Studies*. Contributors: Juliet Hassard, Dan Dan Wang, and Professor Tom Cox CBE (I-WHO), United Kingdom (Task leaders); Marie-Amélie Buffet, (EUROGIP), France; Roxane Gervais and Nikki Bell, (HSL), United Kingdom; Ferenc Kudász (OMFI), Hungary

While the SOBANE strategy described above provides a methodology for worker participation in hazard assessment, the EU-OSHA case studies provide a much more robust description of examples of worker participation in practice. Further, while not taken directly from the SOBANE strategy per se, many of the key methods of worker participation utilized throughout the case studies are similar to those advocated by SOBANE. This is especially true when looking at the large number of EU-OSHA cases utilizing work teams, as work teams are also central to the SOBANE approach.

Methods of Worker Participation

Effective worker participation is consistently shown to be a basic requirement for the successful identification of problems and implementation of practical solutions, regardless of the size or type of workplace or type of problem. The case studies exemplify this. Involvement of employees and their representatives to identify problems and develop solutions is crucial to success, as workers have firsthand experience of the work situation (p. 8).

Surveying the 161 case studies showed that the following are the most frequently employed means of worker participation:

- Work-teams, including such activities as meetings to discuss analysis results and analysis method solutions, trials to test teams' proposals and team presentation of ideas to management
- Surveys
- Workers council
- Local steering committee
- Interviews with worker representatives and workers in general
- Testing
- Workshop sessions
- Project evaluation questionnaires
- Staff representative survey
- Health circle meetings

Other worker participation methods utilized included:

- New management system incorporating staff involvement and communication
- Self assessment questionnaires
- Staff consultative meetings
- Workplace awards
- Brainstorming with workers
- Logbook for workers' ideas

- Ergonomic working group/improvement team
- Information exchange between workers
- Brainstorming with workers
- Workers consultations
- Course materials
- Joint prevention committee
- Trials and mock-ups involving employees
- Participation of representatives from different companies
- Discussion committees
- Testing of solutions by workers
- Demonstrations, information days, news articles
- Joint management–worker representative training
- Employee ambassadors
- Employee feedback
- Interactive training sessions
- Contracts between labour and management to guarantee commitment
- Meetings with employees
- Employees were encouraged to share their stories
- Consultation with labour councils and employees' representatives
- Benchmarking and risk-assessment questionnaire
- Field studies
- Problem solving teams
- Staff meetings

- Health day
- Experience exchange groups
- Safety meetings
- Updating materials and manuals
- Participatory discussion
- Identify stresses
- Transparent communication channels
- Designated spokesperson for the workers
- Quality circles
- Testing new specifications
- Workshop design
- Joint brain storming
- Project implementation group
- Communication route for employee OHS concerns
- Collection of data
- Development of prevention strategies
- Formalized discussion of attitudes, awareness, knowledge of hazards
- Open and transparent policy for dealing with bullying, harassment and threats
- Tailor made questionnaires to obtain annual feedback
- Participation system
- Multidisciplinary working group to bring forward recommendations for action

Many of the cases involved consultation rather than participation according to the SOBANE definition. Surveying the 161 cases, it appears that 43 (26.7%) could be said to be consultative only while 118 (73.3%) would have at least one major participatory aspect.

Hazards Addressed

The numerous case studies give an extensive overview of the variety of means of worker participation in hazard assessment and the strategies employed to improve the process and improve health and safety in the workplace. A large variety of risks were seen to require worker participation throughout the case studies. A review of the 161 case studies shows a wide variety of types of risks:

- 39 - High accident risk/frequency, physical danger
- 31 - Mental strain or stress or burnout
- 28 - MSDs
- 12 - Multiple psychological and/or physical risks
- 12 - Chemical hazards
- 12 - Physical strain
- 9 - Health/lifestyle risk
- 8 - Violence, bullying, intimidation, and harassment
- 8 - Noise
- 7 - Psychosocial risks
- 7 - Youth specific accident risks
- 3 - Work-life balance
- 3 - Disadvantaged groups specific risks (e.g. the temporary unemployed, underprivileged, immigrants and part-time students)
- 2 - Addiction
- 2 - Gender risks
- 2 - Older worker specific risks
- 1 - Fatigue

1 - Physical violence

1 - Mental intimidation or violence

Sample Case Studies

Case Study 9 - Programme for a safety hospital - 'safe care'

Sectorfondsen Zorg en Welzijn - hospital in Netherlands

Main problem: High incident rates of mental and physical violence, sexual intimidation and threats

Main action: Introduction of a zero-tolerance of violence scheme

Worker participation

1. The management and works councils agreed on the framework for action.
2. A working party comprised of staff from at-risk departments was created..
3. The working party created a risk inventory. Rooms were coloured based on risk level (red, yellow, green).
4. A 'card system' was used to break down the types of aggression.
5. A survey was carried out to find out when most incidents occurred.
6. Meetings every six weeks between management and staff were held to consult on risks and progress.
7. Training in customer relations, dealing with aggression and self-defense were provided.

Result: 30% drop in physical aggression and 27% drop in verbal aggression.

This case involved a very thorough use of worker participation focused on working group participation and a detailed process. They used a multitude of techniques, both consultative and participatory. The key appears to be the extent to which workers are involved at every step

through the working group. This fits with the SOBANE ideal of dedicated working groups at the core of recommended practices.

Case Study 16 - 'Work positive' – a stress management approach for SMEs – Health Education Board of Scotland (HEBS) and Health Safety Authority (HSA) in Ireland

United Kingdom - ENTEC UK

This was a case using a consultative approach, but it is included here because it is one of the few participation efforts focused on Small and Medium Enterprises (SMEs), though it was not implemented by a SME itself. It was commissioned by the HEBS and the Irish HSA which hired a consultancy company to carry out the project.

Main problem: Work related stress

Worker Participation

Workers were asked to complete benchmarking and risk-assessment questionnaires regarding the stressors experienced in the workplace. A smaller number of workers were asked to complete risk assessment interviews.

Result: "97% of coordinators found the benchmark questionnaire was useful in identifying improvements in systems to reduce stress. 64% of all those who completed the risk-assessment questionnaire thought the questionnaire covered all the potential sources of stress in their organisation."

This case provides a possible way forward on workers' participation in hazard assessment in SMEs. Through government initiative, worker participation could be pooled beyond single enterprises which may not have the resources to plan and implement such a program.

Case Study 24 - 'Take care' – a team-based burnout intervention programme for oncology care providers

29 oncology wards in Netherlands

Main problem: Work related stress

Worker Participation

1. All staff members of the participating 29 oncology wards participated the questionnaire survey.
2. Staff support groups were created with the aim of finding solutions collectively for prevalent work stressors.
3. Training developed: small teams were formed that collectively designed, implemented, evaluated and re-formulated plans of action; trained in general communication and collaboration skills. The participants were their own 'agents of change' and the counselors their 'coaches'.
4. Kick-off meetings were held on each ward to increase the staff's commitment to participate.

Results: A bit more subjective, but a qualitative evaluation showed that participants considered the approach to be useful for understanding work stressors and for building plans of action.

Again, there was a focus on working groups where workers collaborate.

Case Study 46 - Avoiding manual handling using a vacuum device to lift meat

Denmark - Slagteriselskabet DANISH CROWN a.m.b.a. Meat Processing Plant

Main problem: Heavy meat lifted frequently was causing back problems for numerous employees. The aim was to develop a "meat magnet" to lift the slabs of meat based on worker participation in its development.

Worker Participation

Multi-pronged approach

- Consultative: Worker consultation and feedback throughout the project
- Participatory: Occupational Health Service worked with a special project group and the company's joint prevention committee. Safety representatives were involved in testing and then all employees were able to both discuss the project and test the new meat magnet.

Nearly all employees said the magnet was helpful for the tasks and 60% said it was reducing the strain on their backs, shoulders, wrists and other parts of their bodies.

The process used also had effects beyond the meat magnet. The interest of workers in participating in work environment improvement activities increased and ideas put forward by employees for technical innovations were implemented. The work environment and interactions between staff were also seen to have improved.

Case Study 56 - Use of participatory ergonomics to identify and solve high-risk tasks

United Kingdom - GlaxoSmithKline - Employee Health Management

Problem: MSDs were affecting workers at a pharmaceutical plant.

Worker Participation

Working group of workers - A dozen experienced workers were trained and formed the Ergonomic Improvement Team (EIT). They met regularly and sub-groups investigated specific aspects of the problem. The EIT investigated ergonomic problems in a variety of work settings and used video observation. Measures were launched with the full participation of the workers concerned.

This was a particularly effective example of worker participation. Within a year, 31 work system improvements had been achieved: "Twenty-five reduced workers' exposure to multiple risk factors through the introduction of new work equipment and ways of working or modifications to

the existing equipment or work layout. A 40% reduction in the number of MSDs attended to on site by the company physician was achieved."

Case Study 104 - Protocol for safe building renovation

Italy - Unità Funzionale di Prevenzione Igiene e Sicurezza nei Luoghi di Lavoro Alta Val d'Elsa, Azienda USL 7 di Siena

Renovation of a historic building into a luxury hotel complex

Worker Participation

Created a protocol agreement involving the workers and their representatives, the companies involved, and the contractors. Proposed measures for coordination on accident prevention. Involved workers and their representatives in the design stage to determine the nature of the work itself, the steps needed to be taken, and the risks to the workers' safety. Site technicians were involved in developing training on occupational safety and health. Trade unions were also involved in project development.

Results: Considerably lower accident rates than average at other construction sites.

Key quotations from the study's conclusions

The following quotations demonstrate the importance of active worker participation from the beginning to the end of the risk assessment process.

Managing risks to drivers in road transport (p. 151)

"The active participation of workers from the beginning and throughout the intervention was highlighted as a key success factor in a number of cases. In particular, it was found to increase the interest, engagement and motivation of drivers in participating in the programme and

changing/adapting their working behaviours. Increasing the participation of workers was accomplished in a number of ways; for example, by having more experienced drivers deliver training and feedback sessions, and providing commentary on the development of OSH policies and organizational practices through surveys and focus groups.”

Prevention of risks in construction (p. 152)

The case ‘achieving employee participation in health and safety management systems’ demonstrated that with commitment, and by making available adequate time and resources, cooperation with employees can be achieved, to the benefit of all concerned. A participative approach between the company and the workers council is a critical factor in the successful outcome, as was cooperation with outside experts.

In this case, employees were actively involved in the project from the very early stages and they were consulted throughout the process (e.g. launch event, analyzing the existing problems, proposing solutions, evaluating the results).

Safe maintenance in practice (p. 153)

“Although it is always good practice to involve the employees in the process of risk assessment, cases clearly demonstrate that for maintenance operations it is all the more necessary to involve in the process those who will carry out the work. Without their input, it is difficult to identify all hazards, analyze all the various aspects of the work and situations that might arise, and to decide on the most effective and suitable methods to control the risk involved.

It is important to involve workers in the maintenance management during the whole process, from planning to the final evaluation. Active employee participation in safety and health management is important to build ownership of safety at all levels and exploit the unique knowledge that employees have of their own work. Quite often they already know and can suggest practical ways of eliminating or mitigating the risks.”

Prevention of risks in construction in practice (p154)

“A participative approach between the company and the workers council is a critical factor in the successful outcome, as was cooperation with outside experts. (page 52) In this case, employees were actively involved in the project from very early stages and they were consulted throughout the process, i.e. launch event, analysing the existing problems, proposing solutions, evaluating the results.”

Conclusion

The above EU-OSHA case studies, the quotations and the authors' findings were chosen to offer a snapshot of the various types of hazards dealt with in workplaces and to show a variety of means of participation that have proven effective in assessing these hazards. Work-team assessment was proven to be effective in a number of the cases, as were questionnaires, risk assessment interviews and surveys. Many of these sample cases and quotations showed the value of having worker participation take place throughout the process and in a collegial, non-threatening atmosphere. For example, Case Study 9 - Programme for a safety hospital, shows the importance of working group participation and a detailed approach that workers are directly involved in from the very beginning of the hazard assessment process.

The cases and quotations further show the importance of collaboration between workers, management and outside experts as suggested was necessary in the Déparis methodology in the previous section. For example, Case Study 56 (use of participatory ergonomics) shows the value of having management, workers and outside experts involved in the process from the beginning. Further, it shows the value, indeed necessity, of voluntary, direct and active participation of workers.

Some conclusions of the authors:

"Clear evidence to suggest that organizations, irrespective of their size or type of industrial activity, that have good worker participation as a key component of their health and safety system are safer and healthier places to work" (p.160).

"does not have to be complex; indeed often simple approaches and measures can be effective" (p.160).

"benefits beyond improving health and safety management: higher motivation and performance, fewer intentions to quit, and decreased turnover" (p.160).

Active worker participation in the interventions reviewed can be linked with:

- significant observed reductions in injuries and enhanced occupational health [reduced costs];
 - decreases in sickness absence;
 - improvements in employee morale and generation of practical solutions to workplace problems;
 - enhanced organizational communication and clearer objectives; and
 - assisting in the development of safe systems at work that are shaped by operational reality.
- (p.160)

C. Conclusions from the two studies

There is a significant amount of support for worker participation in hazard assessment in Europe and there are numerous examples of its successful implementation. Both studies made clear that effective worker participation would include active participation from beginning to end, make available adequate time and resources and involve cooperation of outside experts. It also must involve "whole system of work" and the work situation.

The most successful implementations are those that included a multitude of strategies, both consultative and participatory. This includes work-teams, surveys, local steering committees, testing, workshop sessions, questionnaires and health circle meetings. That said, the single most effective means of worker participation in hazard assessment is through dedicated work teams with real decision making power, joint decision making power or, at minimum, channels of strong influence that go beyond basic consultation.

Worker participation must be voluntary, direct and active with all partners on equal terms as they build a negotiated consensus. It became clear that for any participatory assessment strategy to work, workers had to feel they could trust management when they spoke up and, as a corollary, employers needed to 'buy in' and 'scrupulously respect' the labour-management health and safety.

It is important to highlight that the vast majority of these cases involved large scale enterprises with the means to implement these sometimes elaborate worker participation schemes.

Nevertheless, there were a few cases that provided a bit of a roadmap for workers' participation in hazard assessment in SMEs. One case in particular, coordinated by the Irish and Scottish governments (profiled in this report), showed how government involvement and pooling of resources could alleviate some of the limitations faced by SMEs in implementing workers' participation initiatives. There was also a successful ergonomics program set up for Finnish SMEs (Case Study 48) by the Finnish Institute of Occupational Health that also used this 'pooling' approach.

Appendix A: Documents Consulted

Danish Working Environment Council for the private sector of office and administrative work (Bar Kontor), 2005. Workplace Assessment in Place? Sector Guidance on Workplace in Office Workplaces

http://www.barkontor.dk/Files/Billeder/BARkontor/pdf/Sector_Guide_on_Workplace_in_Office_Workplaces_netudgave.pdf

European Agency for Safety and Health at Work "Worker Participation in safety and health" https://osha.europa.eu/en/topics/worker-participation/index_html#Risk_Assessments

European Agency for Safety and Health at Work, 2012. "Worker participation practices: a review of EU-OSHA case studies Literature review". Ed. Juliet Hassard, Dan Dan Wang, and Professor Tom Cox CBE (I-WHO), United Kingdom (Task leaders), Marie-Amélie Buffet, (EUROGIP), France, Roxane Gervais and Nikki Bell, (HSL), United Kingdom, Ferenc Kudász (OMFI), Hungary https://osha.europa.eu/en/publications/literature_reviews/worker-participation-practices-a-review-of-eu-osha-case-studies

European Agency for Safety and Health at Work, "Workers' roles and responsibilities" in risk Assessment https://osha.europa.eu/en/topics/riskassessment/workers_role

European Trade Union Institute. "Workers' Participation and Risk Assessment resources" <http://www.etui.org/Topics/Health-Safety/Safety-reps/Workers-participation-and-risk-assessment>

Government of Alberta. "Building an Effective Health and Safety Management System." Partnerships in Injury reduction. <http://humanservices.alberta.ca/documents/whs-ps-building.pdf>

Hazards Magazine, 1997 "Mapping Out Work Hazards" <http://www.hazards.org/diyresearch/riskmapping.pdf>

Malchaire, J. "The SOBANE Risk Management Strategy and the Déparis method for the Participatory screening of the risks." FPS: Employment, Labour, and Social Dialogue Unité Hygiène et Physiologie du travail at Université catholique de Louvain (UCL) Belgium

Occupational Health and Safety Council of Ontario (OHSCO), "Part 1: MSD Prevention Guideline for Ontario", Musculoskeletal Disorders Prevention Series <http://www.wsib.on.ca/files/Content/Downloadable%20FileMSD%20Guideline/OntMSDPrevGuideline.pdf>

Ontario Ministry of Labour, 2012 “Musculoskeletal Disorders / Ergonomics resources”
<http://www.labour.gov.on.ca/english/hs/topics/pains.php>

SOBANE Unité Hygiène et Physiologie du Travail DEPARIS documents
<http://www.deparisnet.be/DeparisEngl.htm>

Worksafe B.C. "What is Risk Assessment" FAQ
<http://www2.worksafebc.com/topics/ergonomics/FAQ.asp?ReportID=33232>