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# **Health, Safety, and Environmental Issues in Haiti**

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This paper was prepared under the direction of the Environmental and Social Safeguards Unit (VPS/ESG) of the Inter-American Development Bank (IDB). ESG works to promote the environmental and social sustainability of Bank operations. It collaborates with project teams to execute the IDB's commitment of ensuring that each project is assessed, approved and monitored with due regard to environmental, social, health and safety aspects, and that all project – related impacts and risks are adequately mitigated or controlled. ESG also helps the Bank respond to emerging sustainability issues and opportunities.

This discussion paper summarizes the major health, safety and environmental (HSE) issues confronting the textile industry in Haiti and throughout the world, the best practices which are developing around these issues, the role of the Better Work program in Haiti, and recommendations and proposed actions to enhance HSE performance in the Haitian apparel industry.

This paper was prepared under the supervision of Janine Ferretti, Chief of the Environmental and Social Safeguards Unit (VPS/ESG). Serge-Henri Troch, Environmental Specialist, VPS/ESG, was the liaison from the IDB for purposes of creating, implementing and funding this project. Richard Lavallée, Program Manager, was the liaison from Better Work Haiti for the purpose of supporting the delivery of the training workshops. The Cahn Group, LLC, a corporate responsibility consultancy, was selected to lead the training workshops and draft this discussion paper. Doug Cahn, principal of The Cahn Group, and Bob Clifford, senior advisor to The Cahn Group and industrial hygienist, comprised The Cahn Group project team.

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## Acronyms

AAFA	American Apparel and Footwear Association
AIHA	American Industrial Hygiene Association
BWH	Better Work Haiti
BSR	Business for Social Responsibility
CAT	Compliance Assessment Tool
dBA	Decibels on the A-scale
EU-OSHA	European Agency for Occupational Safety and Health at Work
GRI	Global Reporting Initiative
HOPE II	Haitian Hemispheric Opportunity through Partnership Engagement
HSE	Health, safety and environmental issues
IDB	Inter-American Development Bank
IFC	International Finance Corporation
ILO	International Labor Organization
LO/TO	Lockout/Tagout
MSD	Musculoskeletal Disorders
NFPA	National Fire Protection Association
NGOs	Non-governmental organizations
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment

## **A. Introduction: Assessment and Mitigation of Health, Safety, and Environmental Risks in the Garment Assembly Industry in Haiti**

This discussion paper is the result of the Inter-American Development Bank's (IDB) efforts in identifying the need for Occupational Safety and Health (OSH) training as a priority to support its private sector lending investments in Haiti and elsewhere in the region. As a result thereof, the IDB conceptualized an approach to training that included both managers and OSH committee members in the Haiti garment sector industry.

The first workshop was held at the SONAPI Industrial Park in Port-au-Prince on May 15, 2012. The audience consisted of thirty-five management representatives from twelve factories located in the SONAPI Industrial Park. The introductory remarks on this day included a request to each of the attendees to identify briefly their perspective on the respective roles of managers and workers in the very broad sense of factory operations, and their comments were documented. These then were referenced during the mid-afternoon sessions which addressed the possible activities and benefits of a functional OSH Committee in a factory, and the relationship among worker safety at work, general worker health and worker productivity. Emphasis was given to two key elements which have been identified as essential to successful performance: management commitment to health, safety and environmental (HSE) issues and worker participation in HSE issues.

The morning session dealt predominantly with the identification of the generally recognized OSH issues in the apparel industry, and then specifically with the Better Work Haiti (BWH) experience in the apparel factories in Haiti. The BWH OSH experience then was compared to the findings in two other countries with Better Work programs: Vietnam, whose program also was begun in 2009, and Cambodia, the first and most mature of the Better Work programs, initiated in 2001 under the name Better Factories Cambodia. The message was simple: OSH performance in apparel factories in Haiti appears to be similar to that in Vietnam, and generally, compliance with the Compliance Assessment Tool (CAT) OSH questions is very difficult to achieve.

A review of best OSH practices in the global apparel industry was then presented. This material was based largely on the expectations of major brands in the apparel industry for their vendor factories, which may be gleaned from their codes of conduct and/or related guidance documents.

The early afternoon was spent with the attendees divided into groups consisting of members from different factories, and working on hypothetical case studies on various relevant OSH scenarios. The scenarios were presented to the groups in such a way that they were to consider planning activities as well as the eventual actions necessary to move forward on each particular OSH issue. The case studies were created so that the attendees would draw on information which had been presented previously in the discussion of best OSH practices, and in some instances would consider defining a specific role for the factory OSH Committee.

As a final exercise, the attendees met in groups consisting of their own factory colleagues and were asked to create an action plan for as many as five OSH priorities at their factories. It was intended that these plans would be communicated to the relevant factory management and to the BWH advisor for each factory.

An evaluation form with the opportunity for written comments was distributed by electronic mail to the attendees after the workshop. Overall, 77 percent of respondents found the workshop 'very useful' with 23 percent finding the workshop 'mostly useful.' As a result of the workshop, 77 percent felt that they were better able to develop and participate in OSH committees. Additional training requests included some for more training in general – OSH and other topics - as well as more specific training on ergonomics, the rights and duties of workers, and OSH protective equipment.

The second workshop was conducted at the same location on the following day - May 16, 2012. The audience consisted of fifty-seven worker representatives from the OSH Committees of twelve local garment factories in Port-au-Prince. The introductions on this day included a compound question to each member of the audience: did they consider their factory to be safe, and why or why not? Again, their responses were documented with the intention that the question would be revisited at the end of the workshop to see if any opinions had been changed, and if so, on what basis.

The morning session included a condensed version of the morning topics of the first day: the commonly recognized OSH issues in the apparel industry, the BWH experience in factories in Haiti, and some best practices on these common OSH issues. The end of the morning session was devoted to worker input in regard to their recent activities as members of their factory OSH Committee. In turn, this set up the first afternoon session, which was a discussion of the usual activities of typical OSH Committees, as well as consideration of the composition of Committee



membership and possible roles of individual Committee members. This information was compared to the morning input from the attendees, both to confirm that their Committees are headed in the proper direction and to broaden their perspectives on the roles of Committee members and of Committees as a whole.

Mid-afternoon was spent in groups of mixed composition across factories. First, the terms “Risk”, “Harm” and “Hazard” were defined and several simple examples were provided to illustrate the relationship among these terms. Then a series of ten workplace situations, described in text and/or by photographs, was presented to the groups of attendees. Each group had responsibility to identify the potential OSH risks which were associated with one of the situations, and to present their “risk assessment” to the entire audience for critique.

The workshop concluded with a group exercise for each of the OSH Committees which were represented. They were requested to develop an action plan with at least two or three suggestions to improve the effectiveness of their OSH Committee, which they could present to their factory management or to the OSH Committee as a whole.

An evaluation form with the opportunity for comments was distributed to the attendees at the end of the workshop and was collected upon departure. Overall, 84 percent of respondents found the workshop ‘very useful,’ 12 percent finding the workshop ‘mostly useful’ and 4 percent found the workshop ‘useful.’ As a result of the workshop, all participants felt that they were better able to participate in OSH committees. In addition to the general request for more training opportunities at regular frequencies that would reach more workers, training was requested on the specific topics of water treatment, first aid, effective communication, precautions for pregnant women, the proper role of human resources professionals, appropriate treatment toward workers and appropriate worker behavior, among others.

In sum, in order to ensure the economic growth of the apparel sector and to protect the workers who are employed in it, it is prudent to increase the capacity of garment factory managers and workers to adhere to internationally recognized standards and applicable Haitian law in the area of OSH, as well as to other labor standards. With support from a variety of stakeholders, including the IDB, BWH is in a position to facilitate the improvement of OSH conditions in Haitian garment factories.

This Discussion Paper is based largely upon and adheres to the framework of the information and materials which were presented in the workshops in Haiti. It is intended that the paper will serve several purposes:

- Provide basic information on HSE issues in the apparel industry, including generally recognized best practices;
- Discuss the capacity of BWH in regard to the current and future HSE issues likely to be encountered in the apparel industry in Haiti;
- Identify general recommendations for improvement on HSE issues and propose a specific action plan for future steps to enhance HSE performance in the apparel industry in Haiti; and
- Lead to the recognition of potential opportunities for improvement on HSE issues in IDB investments related to the apparel industry.

As a preliminary matter, two terms should be defined: “garment assembly industry” and “apparel industry.” In the context of this document, the term “garment assembly industry” refers to the limited industrial operations resulting in the export of clothing that currently exist in Haiti, i.e., virtually all “cut and sew” operations in which garments are assembled with few, if any, finishing operations. The term “apparel industry” is used to refer to manufacturing which encompasses the entire gamut of processes which may be involved in the production of apparel including dyeing, printing, and washing. “Garment assembly industry” should be viewed as a subset of the “apparel industry.”

## **B. Current Status of Health, Safety, and Environmental Issues in Garment Assembly Factories in Haiti**

Before the specific status of the factories in Haiti is discussed, some basic information on the common HSE issues which are generally encountered in the apparel industry is appropriate. The list is not intended to be exhaustive, but simply to provide an overview of the major HSE issues which are encountered in apparel factories throughout the world.

## **B.1. Common Health, Safety and Environmental Issues in the Apparel Industry**

A brief discussion of the following issues may provide some context before the experience of BWH is presented. These HSE issues have been identified as pervasive throughout the apparel industry and certainly are concerns in Haiti:

- Fire and Life Safety;
- Machine Safety issues;
- Chemical Use for spot cleaning;
- Ergonomics; and
- Personal Protective Equipment (PPE).

Again, other HSE issues beyond those on this list exist in the apparel industry in developing countries: electrical safety issues, noise, first aid and health services, the need for safe drinking water, toilets and associated facilities, among others. The major environmental issue is wastewater effluent, but because it is not currently a significant concern in Haiti, no discussion is presented here, but appears instead in section I. B.

**B.1.1. Fire and Life Safety** are actually two distinct issues, although often considered as one. Fire safety involves the protection of persons and property from a single type of harm – fire – while life safety addresses the protection of persons from harm associated with many types of potentially catastrophic events, including fire, but also encompasses natural disasters such as hurricanes, floods or earthquakes, and other incidents such as large-scale chemical spills or releases. Consideration of Fire and Life Safety as a single issue creates the possibility that factory planning related to other life-threatening events such as natural disasters is neglected.

Fire Safety issues include the fire detection and alarm systems in a factory, the fire-extinguishing equipment which is available, and the role of personnel in the event of a fire. The availability of appropriate fire-extinguishing equipment, such as portable extinguishers, fire hoses, and sprinklers, is merely one of the necessary elements of a fire safety program. Factory personnel must understand the expectations associated with a fire, and must be prepared to fulfill those expectations. Planning is critical in several respects, such as coordination with local community services in the event of an incident and the appropriate placement of high fire hazard areas, such as flammable liquid storage, within the facility.

The related issue of Life Safety has a history which is intertwined with that of the apparel industry, as several of the greatest workplace tragedies are associated with inadequate Life Safety measures in that industry. The Triangle Shirtwaist factory fire in Manhattan in 1911, in which 146 workers perished, raised awareness of the need for life safety precautions and led to the development of the Life Safety Code in the United States.<sup>1</sup> However, this issue continues to warrant concern a century later: in 2010, a fire at a sweater factory in Bangladesh killed 21 workers and injured 50 others, while later that year a similar incident in the same country resulted in 29 more worker fatalities.

A fundamental term in the subject matter of Life Safety is “means of egress,” which has been defined by the National Fire Protection Association (NFPA) as: “a continuous and unobstructed way of travel from any point in a building or structure to a public way consisting of three separate and distinct parts: (1) the exit access, (2) the exit, and (3) the exit discharge.”<sup>2</sup> Hence, the concern is not merely with the exits, but also with the egress paths by which to reach the exits and the safe assembly areas beyond the exits.

The spectrum of considerations surrounding “means of egress” is quite broad: the number, spatial distribution, and width of exit doors and stairwells, the nature of the floor surfaces, the arrangement of the main egress aisles leading to exits, and components such as signage and emergency lighting, among others. Generally, these are best planned and provided for during the pre-construction phase of a factory, since it becomes difficult to remedy some deficiencies after construction.

Preparation remains a significant continuing element of Life Safety in a factory even after its construction, and includes both planning and practice. The layout of equipment and operations on the factory floor should be consistent with the convenient evacuation of workers from the space. Good housekeeping is a continuing obligation. Workers should be familiar with the evacuation procedures and should practice various scenarios, since disasters are usually not predictable.

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<sup>1</sup> For more information about the Triangle Shirtwaist Factory fire, see: <http://www.dol.gov/shirtwaist/>.

<sup>2</sup> NFPA, Life Safety Code Handbook, Chapter 7, page 99 (2003).



Figure 1. Examples of poor (on the left) and good (on the right) housekeeping and workplace organization, and how these factors may impact means of egress on the factory floor and the ability of workers to evacuate the building. Note on the left how the manufacturing equipment has been allowed to encroach upon the designated egress aisle.

Finally, evacuation plans for all reasonably foreseeable disasters should be developed, since one plan may not fit all. Simply getting the workers to the nearest exit door is not sufficient.

For a brief description of best Fire and Life Safety practices in the global apparel industry, see section C.1 on page 20.

**B.1.2. Machine Safety** issues constitute an obvious concern in an industry where so many workers operate machinery or use tools. The two principal sources of risks to workers are sewing machines and band knife cutters.

Sewing machines present a range of risks to the operators, both at the point of operation, that is, the needle, and the means of power transmission (the pulley and wheel arrangement). The needle presents a puncture risk as well as a risk to the eyes of a flying sharp in the event of breakage. At the two in-running points of the pulley (one at each wheel), there is a risk that fingers, hands, long hair, other body parts, or loose clothing can be caught and pulled between the belt and the wheel. Generally, all of these hazards can be mitigated by the installation of appropriate guards.



Figure 2. On the left is an example of a needle guard, which protects against puncture injuries, while on the right is an example of an eye guard, which would shield the worker from any flying shards of needle if it should break. Note that the machine on the left is not equipped with an eye guard.

Blade knife cutters present an obvious hazard to users and even some degree of risk to other workers in the vicinity. Typically, a combination of blade guard and appropriate PPE for the hand(s) of the operator is utilized to reduce the risk of injury (see Figure 5, page 14).

Other machines may present similar hazards. An appropriate risk assessment focuses on the moving parts, which are generally the point of operation and the means of power transmission. If these moving parts are easily accessible to the operator or other workers, then guards or other protective measures may be warranted. Suitable guards should eliminate access to the hazard location while creating no new hazards of their own or interfering with the job performance of the worker.

A related aspect of Machine Safety is the awareness which workers should have of the various risks and of the purpose of the machine guards. In the absence of such awareness, workers may remove or override the guards, thus exposing themselves to the hazard.

For a description of best Machine Safety practices in the global apparel industry, see section C.2 on page 21.

**B.1.3. Chemical Use for Spot Cleaning** in the apparel industry is an HSE issue which is often addressed inappropriately by factories. An emphasis on the use of PPE as the primary means of exposure control seems to “jump the queue”: the preliminary focus should be on the selection of the specific chemical cleaner (and its inherent toxicity) and on the available ventilation at the process location.

Chlorinated solvents such as trichloroethylene, perchloroethylene (tetrachloroethylene), and methylene chloride (dichloromethane) are generally effective in removing oil spots from apparel materials but present the risk of inhalation and skin and eye exposure. The potential adverse health effects associated with exposure to these three chemicals are significant: all three are associated with some degree of increased risk of cancer, in addition to other toxic effects.

Alternative cleaning solvents which are composed of petroleum-based hydrocarbons may contain Benzene, Toluene, and/or n-Hexane, often without specific identification on the Safety Data Sheet of their presence in the solvent (if such information is available). These chemicals also are highly toxic, and do not represent an improvement over the chlorinated solvents.

The location(s) of spot cleaning operations within a factory often determines which workers are exposed to the chemicals and to what extent. When spot cleaning work stations are spread throughout the factory floor, then most workers will receive some degree of exposure to the cleaning solvent vapors. Generally it is preferable that these operations be conducted at a location which is relatively remote from other workers who are not involved directly in chemical use. The availability of effective local exhaust ventilation, such as a fume hood or spray booth, or nearby general exhaust ventilation, such as a window or wall fan, should reduce the potential inhalation exposure to the chemical vapor emissions.

It seems that the informed selection of low-toxicity chemical solvents and their use at well-ventilated locations in the factory would be more advantageous as a means of exposure control to the regular use of respiratory protection by workers. The reasons for this statement will be expounded in the discussion on PPE.

However, chemical selection and adequate ventilation do not completely obviate the need for PPE use. If the chemical solvent is applied by spraying, then eye protection is warranted. Also, the likelihood of hand contact with the solvent creates the need for the use of chemical-impervious gloves.



Figure 3. An example of a spot cleaning operation: the respirator is presumably the proper type; that depends upon the specific type of air-purifying cartridges which are provided (vertical arrow). Eye protection is provided, but note that gloves are missing. The ventilation at this work station is questionable: while there appears to be some type of local exhaust ventilation provided via the white pipe (horizontal arrow), the operation of the white fan on the right of the worker would likely disrupt any chance of its effectiveness, and appears to be positioned so that it will blow chemical vapors directly at the worker. Proper chemical selection, location and ventilation could eliminate the need for use of that respirator (imagine wearing it throughout the workday during the summer in Haiti).

For a description of best practices in the global apparel industry associated with Chemical Use for Spot Cleaning, see section C.3 on page 22.

**B.1.4. Ergonomics** and the associated risks of physical injury (known as Musculoskeletal Disorders, or MSDs, and alternately referred to as Cumulative Trauma Disorders or Repetitive Strain Injuries) is a recently recognized HSE issue in the apparel industry. Ergonomics has been described briefly as “fitting the task to the worker.” It involves matching the work environment, equipment, tools, and task activities to the physical capabilities, dimensions, and needs of the worker. Attention has been called to this issue during the past decade largely through an alliance between the Occupational Safety and Health Administration (OSHA; see [www.osha.gov](http://www.osha.gov)) in the United States and the American Apparel and Footwear Association (AAFA; see [www.apparelandfootwear.org](http://www.apparelandfootwear.org)). Awareness and assessment of ergonomic risks in the apparel industry have been a primary focus of this alliance.

Ergonomic risks and their associated MSDs are often difficult to recognize in the apparel industry, which obviously makes their mitigation unlikely. Several reasons for this situation are:

- Traditionally, the ergonomic risk factors have been considered to be “part of the job” (which they are, but need not be);



- The range of activities which may be associated with ergonomic risks is incredibly broad; and
- The physical injuries or MSDs generally begin with reversible symptoms and occasional pain, and develop slowly and progressively over time, so that the associated risks may not be recognized, if at all, until after the injury has occurred.

Three examples of activities in the apparel industry with possible ergonomic risks are:

- Sewing: the risk factors are the repetitive motions associated with the shoulders, elbows, wrists and hands; posture associated with sitting for long periods; and fine work by the fingers, hands, and wrists which may involve the application of pressure and non-neutral positioning.
- Cutting: the risk factors include postural considerations again, although in this case they are associated with standing and bending for long periods, which creates strain on the legs, knees, and lower back, and the bending and reaching that may be integral to the task, which creates strain on the back and shoulders.
- Manual Material Handling: generally the movement of fabrics and other bulk materials, with risk factors associated with the various lifting, bending, and twisting activities.



Figure 4. In the illustration on the left, the operator demonstrates poor posture that can lead to strain on the back, neck and shoulders. On the right, the operator achieves good posture with the use of an adjustable chair and a footrest, supporting the upper and lower back and the legs. Task lighting is provided to reduce the tendency to bend in order to inspect the work.

In general, ergonomic risks demand a relatively thorough yet common-sense approach to assessment and mitigation, and such risks are not easily recognized in the traditional compliance auditing process of apparel brands and non-governmental organizations (NGOs).

For a description of best ergonomics practices in the global apparel industry, see section C.4 on page 23.

**B.1.5. Personal Protective Equipment (PPE)** is the last of the common HSE issues for discussion. The range of PPE options is as broad as the range of the health and safety risks which are encountered by workers. As a threshold consideration, it should be acknowledged that in the hierarchy of hazard control measures PPE is the least favorable since it is the last resort to protect a worker from a particular hazard before there is “exposure” to the body. So for example, an eye guard on a sewing machine is a preferable control to the use of safety glasses in protecting against the risk of flying needle fragments, though they need not be mutually exclusive alternatives.

The need for the use of PPE ideally should derive from a hazard assessment and, as mentioned, only after consideration of other hazard-reduction alternatives. Selection of PPE encompasses the following factors:

- The proper type of PPE should be selected; that is, the protective characteristics of the PPE should be consistent with the specific hazard against which its use is intended to protect. Not all types of gloves are intended to protect against the same hazards, nor are all types of respiratory protection alike;
- The PPE must fit the workers properly; and
- Depending upon the type of PPE, regular replacement may be necessary to ensure its effectiveness (e.g., respirator cartridges or chemical-impervious gloves).

Not only must the PPE be the proper type, but it must be used properly by the workers. When provided with PPE, workers should receive training on three related points: how the PPE should be worn or otherwise used, what hazard the PPE is intended to eliminate, and how the PPE accomplishes this. Without such information, workers are less likely to actually use the PPE.



Figure 5. A cutting area in an apparel factory where workers are wearing metal mesh gloves while using blade knife cutters on sheets of fabric. The risk to their hands in the absence of such PPE is clear from the proximity of the hand to the moving blade (arrow).

The common types of PPE utilized in the apparel industry are gloves, eye protection, hearing protection, and respiratory protection. Two quite distinct types of gloves are used: chemical-impervious, such as rubber gloves, for chemical spot cleaning, and metal mesh gloves for cutting tasks which involve the use of a blade knife cutter. Hearing protection may come in the form of either ear plugs or ear muffs. Eye protection (safety glasses or goggles) is used at chemical spot cleaning operations to prevent the inadvertent spraying of solvent into the eyes, and the use of safety glasses by workers is a less preferable alternative to eye guards on sewing machines, since they protect only the eyes and not the entire face.

Respiratory protection is accompanied by a number of issues which comprise a reasonable argument against its use, and it seems to be the type of PPE which is most often misused in the apparel industry. The use of filtering face pieces, or loose-fitting disposable dust masks, is appropriate only for protection against relatively low-toxicity dusts associated with fabric material handling or general housekeeping activities. These provide virtually no protection against the chemical vapors associated with spot cleaning.



Figure 6. This illustrates the problem which is discussed in the preceding paragraph. The workers at this spot cleaning operation have been provided with loose-fitting dust masks (arrow), which are ineffective against chemical solvent vapors. However, it should also be noted that this location, with windows and overhead exhaust fan, may be preferable for these activities than the location in Figure 3.

The proper type of respiratory protection against solvent vapors, if needed by virtue of inadequate prevention of exposure by other means, is either a half-face or full-face air purifying respirator with cartridges which are approved for organic vapors. The full-face option provides eye and face protection as well as respiratory protection. The use of these respirators is associated with a number of related obligations or requirements for successful protection of the worker, and regular use is uncomfortable and burdensome to the worker. Unfortunately, even if a factory provides the proper type of respirator and cartridges, it virtually always ignores these other issues. These include, in no particular order:

- Determination of the proper fit of the respirator to the worker's face;
- Medical clearance of the worker for fitness to wear the equipment on a regular basis;
- Frequent replacement of the organic vapor cartridges (generally more often than once per week, depending upon the duration of use); and
- Worker training to ensure proper use, cleaning, maintenance and storage of the respirator.

Refer back to the worker in Figure 3 on page 18. While he appears to be protected against exposure to chemical vapors, this actually can only be true if the factory has properly addressed all of the bullet points listed directly above.

For a description of best Personal Protective Equipment practices in the global apparel industry, see section C.5 on page 24.

## **B.2. The Experience of Better Work Haiti in Haitian Garment Assembly Factories**

The current status of HSE issues in the garment assembly industry in Haiti is reflected in the most recent Synthesis Report released by BWH in April of 2012, which presents the audit findings of the BWH monitoring team in twenty factories during the preceding six months. One caveat must be acknowledged: while their approach provides adequate coverage of the common H & S issues, the E -environmental issues - are not evaluated by BWH in their monitoring process.

As described previously on page 5, the BWH CAT, or Compliance Assessment Tool, contains eight clusters of labor-related issues, one of which is Occupational Safety and Health. The OSH benchmarks in the CAT are drawn from the Haitian Labor Code or from OSH-related ILO Conventions, none of which are considered to be a core labor standard. In a very few instances, the OSH audit benchmarks are derived from other sources. This cluster has the highest percentage of noncompliance findings among all the clusters of the CAT. The BWH Report further breaks down the audit data by compliance point (eight in the OSH cluster), and ultimately by individual audit question within the more problematic OSH compliance points. While comment on the Better Work method for determination of compliance is withheld for a later section in this paper (see section D), the details of the BWH Report are useful for the identification of pervasive OSH deficiencies in this set of factories. Suffice it to say that the summary statistics used in Better Work compliance reporting are more dismal than the factory performances on any particular CAT question.

The relevant compliance points are: worker protection, health services and first aid, emergency preparedness, welfare facilities, working environment, chemicals and hazardous substances, and OSH management system. The eighth compliance point – worker accommodation – addresses issues related to worker dormitories and associated facilities, and is not yet relevant for the industry in Haiti.

The “Worker Protection” category encompasses PPE, machine guarding, and several issues which are related to ergonomics. More than half of the factories were not compliant on the following issues: machine guarding, provision and use of PPE, and accommodation of standing workers. The machine guarding deficiencies were related principally to the absence of eye, needle, and/or pulley guards on sewing machines. PPE deficiencies were associated with the

absence of hearing protection, respiratory protection, and belts for workers who were involved in lifting, although without any mention of specific types of PPE or possible risk reduction alternatives to the use of PPE.

“Health Services and First Aid” included three audit questions on which at least two-thirds of the factories were found wanting. The relevant issues were on-site medical facilities and staffing, first aid training for a sufficient number of workers, and initial and annual medical examinations for workers.

The “Emergency Preparedness” compliance point addresses some of the fire and life safety issues which have been discussed. More than half of the factories failed to satisfy the following CAT benchmarks: clear and accurate marking of emergency exits and routes of egress, and posting of maps in the workplace; and insufficient numbers of workers who are trained in the use of fire-extinguishing equipment (a target of 10 percent of the workforce). While operational and equipment issues are evaluated, there appears to be no assessment of the overall factory planning function.

“Welfare Facilities” encompasses toilets and hand-washing facilities, designated eating areas, and the availability of free and safe drinking water. The major point of noncompliance (90 percent of factories) was the number of toilets, which according to BWH is the result of a rather demanding requirement of the Haitian labor code. The code requires separate toilet facilities for each gender, with at least one toilet for every 25 men and one for every 15 women.<sup>3</sup>

“Working Environment” broadly includes the issues of noise, lighting, heat and ventilation. More than half of the factories were compliant on all of the audit questions. The two issues with the highest rates of noncompliance were noise (areas with sound levels in excess of 90 decibels on the A-scale, or dBA) and lighting, which may well be more of a product quality issue than an OSH issue.

The compliance point “Chemicals and Hazardous Substances” covers a number of aspects of chemical usage, including storage, container labeling, information (e.g., Safety Data Sheets and a chemical inventory), training, and eyewash station availability. The only issue on which half of the factories were noncompliant was the availability of eyewash stations. However, the related issues of the availability of a chemical inventory and of Safety Data Sheets in the

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<sup>3</sup> Code du Travail (1984), Chapter V, articles 469-470.

language of the workers were deficient in approximately one-third of the factories, and this finding earned specific mention on the Synthesis Report.

On the same compliance point, there is a quite broad audit question which inquires about factory action to “assess, monitor, prevent, and limit workers’ exposures.” Reportedly, there was 95 percent compliance with this question, yet the use of “and” requires all four actions to have occurred for compliance, and it is doubtful that any of the factories have actually monitored worker exposures in any meaningful way.

The final compliance point, “OSH Management System,” touches on four elements of an OSH management system: documentation and reporting of injuries and illnesses, availability of a written OSH policy, mechanisms to ensure cooperation between management and workers on OSH issues (which envisions the existence of an OSH Committee), and performance of an OSH hazard assessment in the factory. Approximately two-thirds of the factories were compliant on the first three of these questions, but more than half had failed to conduct regular OSH assessments. BWH clearly states that this should be a role for the factory OSH Committees.

The summary table on compliance in the Fourth Synthesis Report<sup>4</sup> portrays a rather bleak picture of OSH conditions in Haitian apparel factories: for the seven relevant compliance points, at least 70 percent of the factories (14 of 20) are considered to be noncompliant on each point. On four of these compliance points (Worker Protection, Welfare Facilities, Health Services and First Aid and Emergency Preparedness), the noncompliance rate is 95 percent or greater. As pointed out by BWH in the Report, this phenomenon is due at least in part to the method by which Better Work calculates and reports noncompliance. If a factory is found deficient on any one question, or aspect, of a compliance point, then it is considered to be noncompliant on the point. So for example, if a factory was compliant on six of the seven questions pertaining to Emergency Preparedness, but noncompliant on the other question, it would be considered noncompliant on that point as a whole.

A comparison of these summary statistics on OSH compliance to those in a different Better Work country—Vietnam—may be useful in attaining some appreciation of their meaning. The Better Work program for the apparel industry in Vietnam was also begun in 2009, and its Fourth Synthesis Report was released in March 2012, one month before the BWH Report. The OSH compliance points are identical, although specific questions within each point may vary

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<sup>4</sup> Better Work Haiti, *op. cit.*, page 15.

depending upon differences in the Vietnamese labor code. As in Haiti, the OSH cluster had the highest rates of noncompliance. The following table presents the noncompliance rates on the seven relevant compliance points which are revealed in their most recent Synthesis Reports:

Compliance Point	Haiti Noncompliance Rate	Vietnam Noncompliance Rate
OSH Management	70 %	68 %
Chemicals & Hazardous Substances	70 %	92 %
Worker Protection	100 %	80 %
Work Environment	75 %	23 %
Health Services & First Aid	100 %	97 %
Welfare Facilities	95 %	97 %
Emergency Preparedness	95 %	58 %

Based on the summary statistics utilized by Better Work, OSH conditions in the two countries seem to be reasonably similar in their relatively high rates of noncompliance. Work Environment is the only compliance point with a noticeable difference between the two countries. Clearly, there must be some findings of deficient conditions in the apparel factories in both countries that form the basis for these unfavorable percentages. On the other hand, the fairly stringent method by which Better Work calculates factory compliance may contribute to the obvious difficulty which apparel factories seem to have in achieving compliance in Better Work assessments, and this may obscure some very real differences in the status of OSH performance among the factories.

### **C. Best Health, Safety, and Environmental Practices in the Global Apparel Industry**

As the apparel factories in the BWH program develop increased internal OSH capabilities and achieve improvements in both factory conditions and BWH assessment performance, what should their future aspirations be? Ideally, these will evolve from considerations of their corporate HSE priorities, relevance to the particular circumstances and needs of the industry, their customers and the workforce in Haiti, and other appropriate factors.

Presumptive “best” HSE practices in the industry can be identified from the expectations of the major global apparel brands. These can be found in documents such as the Guidelines or



Standards which support their Codes of Conduct for vendor factories, and which form the basis for their own factory monitoring efforts.

Other useful sources of information on best practices are the HSE Guidelines that have been developed by the IFC and similar global investment institutions. The IFC has a set of General Environmental, Health, and Safety Guidelines as well as a specific set of Guidelines related to Textile Manufacturing.<sup>5</sup>

There appears to be nearly universal agreement on one aspect of HSE best practice, not only for the apparel industry but for all types of operations: a systematic approach to the management of HSE issues at the factory and the corporate level. HSE management systems focus on accountability and documentation, and operate on the activity cycle of “Plan – Do – Check – Act/React,” which is the core scheme of every management system. However, a cautionary note is warranted: the imposition of a generic written management system on a factory whose staff lacks the necessary HSE capabilities, and which generally is deficient on HSE operational issues, is likely to be of little benefit.

This is not intended to be an exhaustive review of HSE best practices in the apparel industry, but rather a brief overview. Five categories of common OSH issues in the apparel industry were identified and discussed in Section II.A. For these, what best practices are recognized which may serve as guidance to the apparel factories in Haiti? And while significant environmental issues may not yet confront these factories, what best practices are identified to address these issues in the global apparel industry?

### **C.1. Fire and Life Safety**

Fire and Life Safety issues require the type of planning and preparation which are best served by documentation, such as that which would be an element of a management system. The significant roles and responsibilities of factory personnel in the event of a fire or other emergency situation should be defined clearly and should be understood by the relevant personnel. Those workers who are designated to use fire-extinguishing equipment, such as portable extinguishers or fire hoses, should be trained periodically in its use; such training should include the opportunity for actual use of the equipment. Regular inspection and testing of the

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<sup>5</sup> For information on these IFC Guidelines, see [http://www1.ifc.org/wps/wcm/connect/Topics\\_Ext\\_Content/IFC\\_External\\_Corporate\\_Site/ifc+sustainability/sustainability+framework/Sustainability+Framework+-+2006/Environmental,+Health,+and+Safety+Guidelines/ehsguidelines](http://www1.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/ifc+sustainability/sustainability+framework/Sustainability+Framework+-+2006/Environmental,+Health,+and+Safety+Guidelines/ehsguidelines)

equipment and of fire detection and alarm systems should be conducted to ensure their performance in the event of an actual fire.

Best practices in Life Safety are not limited to factory operations; they encompass construction and equipment layout considerations. A comprehensive, detailed guide to such practices would be the Life Safety Code in the United States, which is published by the NFPA (Code 101). Similar codes exist in other jurisdictions.

Construction considerations include the number, location, and width of exits and stairwells from each level of the building, and the distances from occupied locations on the floor to the nearest exit. Two available exits are considered the minimum acceptable; more may be necessary depending upon the total width of the exits, the floor area of the space, and the anticipated number of occupants. It becomes quite difficult to address inadequacies in regard to these issues after building construction has been completed.

The arrangement of the occupants and the equipment on the factory floor, and their relationship to the exit locations, is another consideration. There should be wide (generally 36 to 42 inches or more) aisles which provide relatively direct egress to the exits. Workers should not have to follow circuitous routes to evacuate the building.

Planning for factory evacuation should extend beyond the exit doors of the building, and safe assembly areas for workers should be identified for the various types of foreseeable emergencies, such as fire, hurricane, flood, earthquake, and others, since presumably there may be some differences in the locations where workers can safely assemble. The location of these safe assembly areas should be coordinated with the corresponding emergency services and with other factories in the vicinity, as in the case of an industrial park. Evacuation drills, both announced and unannounced, should be conducted periodically and should simulate various emergency scenarios so that routes may differ, and all workers should be familiar with at least two evacuation options.

## **C.2. Machine Safety**

Machine Safety practices are closely associated with a key element of any good HSE management approach, such as the systematic identification and mitigation of safety risks. To a great extent, the practices can only be as effective as the risk assessment permits. Existing, modified, and new machinery and equipment should be evaluated for potential risks to workers,

beginning with the moving parts. Fixed physical guards which prevent exposure to the hazard are the typical means of protection, but more sophisticated guarding may be necessary if physical barriers would interfere with the operation or the worker. Worker instruction on the identified risk and the purpose of the guards will increase their acceptance and proper use.

Sewing machines should have needle and eye guards, as well as guards at the in-running points of the two wheels of pulley systems. Blade knife cutters should have blade guards. While these may be considered best practice, it really is simply the avoidance of bad practice.

Best practice on this issue also includes the development and utilization of lockout/tagout (LO/TO) procedures during maintenance and repair activities on machines and other equipment. LO/TO represents a systematic approach to the identification of the risk of any type of energy release (e.g., electrical, mechanical, hydraulic, pneumatic, chemical, thermal, etc.) during such activities, and their control by methods including the placement of warning tags or locks on switches, power sources and valves, the blocking of potential moving parts, and others. Such procedures, preferably in writing, should be designed to protect workers from the unexpected activation or movement of the equipment and the release of electrical or other energy during the activities. Worker training is also an essential element of a LO/TO program.

### **C.3. Chemical Use for Spot Cleaning**

Chemical Use for Spot Cleaning in apparel factories is an OSH issue in regard to which the opportunities for best practice are often overlooked. Compliance assessment typically considers the availability of a Safety Data Sheet, the presence of ventilation, and the use of PPE. Unfortunately, this falls short by neglecting to question the preliminary selection of the cleaning solvent itself, which should be done on the basis of its chemical ingredients and their toxicity, obviously in addition to its cleaning properties. As mentioned, several of the chlorinated and hydrocarbon chemicals which are ingredients in cleaning solvents (trichloroethylene, perchloroethylene, methylene chloride, benzene, toluene and n-hexane) are potential human carcinogens and/or have significant chronic health effects associated with exposure. Best practice dictates that if the Safety Data Sheet identifies one or more of these chemicals in the cleaning solvent(s) that are in use, then the factory should make efforts to identify alternatives which are less toxic. Clearly, testing a water-based detergent product would be a reasonable first step.

Beyond chemical selection, best practice would establish conditions of use for the cleaning solvents which would eliminate the need for respiratory protection. A well-designed spray booth or other type of ventilated work station which captures the solvent vapors and discharges them outdoors should be adequate control for potential exposures to the chemical vapors. Actual monitoring of worker exposures could be performed to determine the need for respiratory protection.

Finally, an alternative approach to the production problem of machine oil stains is to consider the source of the stains, and to try to eliminate the problem at that point in the process. Improved maintenance on machines could reduce the frequency of staining. Water-based machine lubricants may be associated with stains that are easier to clean, such as with soap and water. This type of problem solving certainly constitutes a best OSH practice, although superficially it may not appear to be OSH-related.

#### **C.4. Ergonomics**

Ergonomics is another OSH issue in which competent risk assessment is often missing, yet is the key to achieving best practice. Tracking the development of possible ergonomic-related injuries may be accomplished by reviewing worker injury reports and by investigating worker concerns or complaints of physical aches and pains, which have not yet resulted in an injury report, but which may be related to particular tasks or work stations. The optimal proactive approach is the evaluation of each category of work station, such as sewing machines, cutting stations, and others, and all the tasks performed at each one.

The previously mentioned AAFA-OSHA alliance has produced a two-volume guide to the implementation of an ergonomics program in the apparel and footwear industries, which is available for purchase on the AAFA website. However, other useful information on ergonomic issues in the apparel industry, particularly related to sewing, is available at no cost on the OSHA website.<sup>6</sup> Such basic information may be particularly helpful in building the capacity for the ergonomic risk assessments which are necessary to achieve best practice at the level of individual apparel factories.

Once ergonomic risks have been identified, there are steps that can be taken to reduce the likelihood of the development of MSDs. Height-adjustable chairs and tables are appropriate

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<sup>6</sup> See <http://www.osha.gov/SLTC/ergonomics/outreach.html#etools>

since workers will present a range of physical dimensions. Also, periodic work breaks with the opportunity for stretching and muscle-specific exercises may help to reduce the risk of MSDs.

### **C.5. Personal Protective Equipment**

The lynchpin for a successful Personal Protective Equipment (PPE) program is once again competent hazard assessment, since the selection of the proper type of PPE depends upon the particular hazard against which it is intended to protect. All gloves are not alike, and the same is true for respirators. Hence, only qualified factory personnel should be involved in the selection and purchase of PPE for workers.

In best practice, hazard recognition may identify the possible need for PPE, but it should not dictate its use without a further evaluation of alternative hazard control methods so that the use of PPE can be avoided. As mentioned, in the hierarchy of control measures, PPE should be considered the last resort, to be used only when other means of hazard control are not feasible. This is particularly true in the case of respiratory protection, where the opportunities for mistakes and misuse of the PPE are numerous and the likelihood of the existence of a comprehensive respiratory protection program with medical evaluations, fit testing, training, and regular cartridge replacement is slim.

While hazard assessments represent the proactive aspect of a PPE program, the review of accident and injury reports can be used to identify incidents in which the absence of PPE, or the wrong type of PPE, may have been a contributing factor. Such a review will supplement the regular performance of hazard assessments on the factory floor.

Once reliance on the proper type of PPE has been deemed necessary for worker protection, then worker training becomes an essential element. Workers should receive instruction on the potential hazard, and on how use of the PPE can be expected to prevent exposure to the hazard. Training should also cover the proper use of the PPE, its limitations, and the appropriate care, maintenance, and replacement of the PPE.

### **C.6. Occupational Safety and Health Committees as a Resource**

One additional OSH best practice—the creation and utilization of OSH Committees--warrants discussion here because of its wide recognition as such, and because of the particular

emphasis which it has received in the Better Work program. Several global brands require that their vendor factories have such committees, and in fact provide detailed guidance on how the committees should be created and should function. In the Global Reporting Initiative (GRI), the most widely used reporting framework on corporate sustainability, one aspect of OSH which is reportable is “the percentage of the total workforce represented in formal joint management-worker health and safety committees that help to monitor and advice on OHS programs.”<sup>7</sup>

The establishment of such OSH Committees is also a significant element of the Better Work OSH cluster in its CAT document. One of the audit questions within the compliance point “OSH Management Systems” is: “Has the employer developed mechanisms to ensure cooperation between workers and management on OSH matters?” Clearly, the intended positive response is the existence of an OSH Committee as one such mechanism.

Worker participation in OSH issues has long been a priority for EU-OSHA (the European Agency for Safety and Health at Work), most recently evinced by a two-year campaign initiated in April of 2012 entitled *Healthy Workplaces: Working Together for Risk Prevention*. The emphasis of the campaign is the necessary contributions of both management and workers toward the achievement of a healthy workplace. A study commissioned by the agency and published in 2012, entitled *European Survey of Enterprises on New and Emerging Risks*, identified two key elements of successful OSH performance: worker participation and management commitment. Management of OSH risks is more likely, and also more likely to be perceived by workers as effective, in workplaces where both of these elements exist. Similarly, the management of such risks and its perceived effectiveness are more likely in workplaces where worker representatives have an active and recognized role and are provided with sufficient resources.

While the creation of an OSH Committee at a factory is merely the initial step towards the eventual Committee activities which would constitute best OSH practice, the composition of the Committee may have a significant impact on its effectiveness. Generally, an OSH Committee should have worker and management representatives in roughly equal numbers, of both genders, distributed across the various work departments and operations within the factory and from every work shift, if applicable. Management representatives should not only come from administrative positions such as compliance or human resources, but also from production areas. Ideally, the

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<sup>7</sup>GRI Sustainability Reporting Guidelines, version 3.1 (2011), Aspect LA6. See: [www.globalreporting.org](http://www.globalreporting.org) for further information.

members would bring different work experiences, skills, and abilities to the group. They may be appointed or elected, but should have the requisite interest level in OSH issues and the willingness to participate in Committee activities. The number of members should be appropriate for the level of activity that the Committee will perform. Typically, there should be a chairperson (or co-chairpersons). One or more of the management representatives on the Committee should have authority, or direct access to such authority within the factory, to follow-up and act, by allocation of manpower or other resources, on OSH issues which are identified by the Committee. Generally, membership terms should be established and should be staggered initially so that the entire Committee does not turnover all at once.

Members may play multiple roles during their service on the Committee. Clearly, they should represent the OSH interests of other workers at the factory beyond themselves, and serve as a conduit via which OSH concerns may be raised by workers, and hence they must function as communicator—both talker and listener—in this regard. Inspector and investigator are two more roles which members may be called upon to play as part of the overall OSH program to identify and mitigate risks at a factory. Training on various OSH issues is an important element of an OSH program, and Committee members may be both students and teachers in this regard. While interacting with other Committee members and factory management, members may play the roles of advocate and negotiator as well.

Once established, the two most common activities of any OSH Committee are to meet and to inspect. These two activities are anticipated by the global brands which are the proponents of such Committees. Meetings should be convened at regular intervals, for example monthly, and should be brief, for example 1-2 hours. An agenda should be created and distributed to the membership before each meeting, and a written summary of each meeting should be prepared and distributed to relevant management personnel and to the factory workforce as a whole, by posting in conspicuous locations. The chairperson(s) should manage the conduct of the meetings, without dominating the discussion of substantive OSH issues. Input and opinions from all members should be sought, and civility should reign. If particular OSH issues are identified as priorities which are believed to necessitate subsequent action of some sort, then perhaps a separate document identifying the issue and stating the Committee's recommendations and their rationale should be presented directly to the appropriate factory management representative with a request for a timely response to the Committee.

The inspection function of an OSH Committee may have both formal and informal components. In both cases, the usefulness of the work product depends upon the knowledge and experience of the inspectors and the manner in which the inspections are conducted and documented. Complex OSH issues may not be identified or addressed in any meaningful way by most Committee members without additional specific OSH training. On the other hand, the daily presence of OSH Committee members as workers in production areas provides the opportunity for continuing oversight of many obvious yet potentially significant OSH risks.

Periodic formal inspections of the various areas of the workplace should be conducted by groups of OSH Committee members, though it is not necessary to have the entire Committee inspect each area. A basic and brief written checklist of the OSH issues that are relevant to factory operations should be provided to the inspectors to ensure a uniform approach to the inspections. When deficiencies or unsafe conditions are identified, they should be corrected immediately by factory personnel whenever possible. If not, the findings of the inspection, with recommendations for corrective action, should be documented and provided to the relevant management personnel for resolution. The workplace inspection findings are appropriate subject matter for Committee meetings.

The extent to which these inspections can provide comprehensive coverage of OSH issues is dependent upon the level of training, skill and experience possessed by the OSH Committee members. Hazard or risk assessment in the apparel industry ranges from the simple (e.g., are the exit doors locked?) to the relatively more sophisticated (e.g., is the respiratory protection the appropriate type for the exposure?). However, some benefit to the factory is derived from the performance of even basic OSH inspections which could address the following issues (among others): adequacy of exit doors and aisles, fire extinguisher and/or fire hose readiness and access, performance of emergency lighting, basic electrical safety issues, availability of container labels and Safety Data Sheets for chemical materials, availability of appropriate PPE for worker use, general housekeeping conditions and walking/working surfaces, etc.

While formal periodic inspections have their place, risks and hazards may arise at any time during factory operations, and the informal inspection activities of OSH Committee members may be more important. During their daily activities in their own work areas, members should be vigilant in regard to unsafe and potentially hazardous conditions, operations and work



practices, and should communicate their concerns to supervisors and co-workers. For example, such OSH issues may include temporary obstructions to aisles and exits, improper use of machine guards or PPE by workers, or inappropriate use of chemicals, tools or electrical equipment. Also, they should encourage their co-workers to do likewise, in an attempt to foster the development of an active OSH culture in the factory.

Beyond “meet and inspect,” another activity which may be appropriate for members of an OSH Committee is participation in accident or injury investigations. Again, it may be most effective to involve only certain members in any particular investigation, depending upon their knowledge and work experience. The objective of such investigations is to identify the factors that may have contributed to or caused the incident, and if possible, to recommend corrective actions which might reduce the likelihood of recurrence. The report of accidents/injuries and accident investigations is also appropriate subject matter for Committee meetings.

Other Committee activities are possible as well, depending upon the priorities and particular approach of the factory management to OSH issues. Some of these are:

- Serve as coordinators during evacuation drills to ensure the orderly egress of co-workers and their safe assembly outside the building;
- Conduct proactive risk assessment of anticipated new or modified processes, equipment, tools, or chemicals so that possible hazards are identified, considered, and mitigated if warranted, before they exist on the factory floor;
- Provide training for their co-workers on basic OSH topics;
- Assist in factory activities intended to promote general worker health, such as medical screening opportunities for workers; and
- Communicate regularly on OSH Committee activities to both factory management and workers.

However, even the most enthusiastic worker participation without factory management commitment to OSH issues and support of Committee activities may eventually prove to be frustrating and lead to ineffectiveness. The extent to which management is engaged in communication with the Committee, and provides administrative, technical, and financial support as appropriate, are critical factors in determining the success of OSH Committees and the benefits which they may provide to their factories.

Management should assist in the printing and distribution of Committee meeting agendas and minutes, and in providing a suitable space for the meetings. Management personnel should respond, in writing if appropriate, to specific communications from the Committee on OSH issues which have been identified as priorities. A suitable balance of Committee activities—some requested by management and others proposed by the Committee or workers—should reflect management commitment to OSH issues and should be integrated into the factory OSH program as a whole.

### **C.7. Environmental Issues and Best Practices**

The common environmental issues associated with the global apparel industry are:

- Water management, including the various types of wastewater effluent;
- Waste management, including both non-hazardous and hazardous; and
- Air emissions from stationary combustion sources, such as electrical generators, boilers and incinerators.

Real innovation in the global apparel industry focuses on two aspects of water management: (i) water use reduction because of the scarcity of that resource in many developing countries, and (ii) the quantity and specific contaminants in process wastewater, to reduce the burden on wastewater treatment systems and to improve their effectiveness.

Concerns about wastewater discharge into nearby waterways encompass three types: water from industrial processes, particularly finishing operations such as dyeing, bleaching and printing, and laundries; sanitary sewage from toilet facilities and other sources; and finally, storm water drainage and discharge. Best practice demands that factories identify these wastewater streams, their quantities, and the likely contaminants that each contains. Characterization of the wastewater streams is necessary to determine the need for and the proper method of treatment of the water prior to discharge. The three common categories of treatment are physical, chemical, and biological, with the proper choice(s) depending upon the constituents in the wastewater.

Wastewater monitoring at the point of discharge is necessary to determine compliance with any applicable regulatory limits or guidelines. In the absence of local regulation, guidelines are available from IFC, Business for Social Responsibility (BSR), and global apparel brands.<sup>8</sup>

Waste management, covering a range of activities from generation to disposal, is a second broad environmental challenge. Many possible waste materials, both hazardous and not, should be included in a factory program. Alternatives to disposal, such as reuse by the factory, recycling, or energy recovery, should be considered, but waste minimization efforts to limit the generated quantities of all types of waste represent the best preliminary step in the management process. Pattern efficiency or control is a planning method by which major apparel brands get more usable pieces from the same amount of material, thus reducing the amount of scrap.<sup>9</sup> Development and implementation of a Restricted Substance policy is a means by which companies can reduce the toxic characteristics of their waste (and of their products as well). The accumulation of waste streams of different materials should be segregated, depending upon their eventual fate. Hazardous waste should always be segregated from non-hazardous waste.

The selection of legitimate and qualified waste transport and disposal vendors is a necessary element of the waste management program. This issue is as important for environmental protection as it is significant for the reputations of the factory and its customers. The discovery of illegal and/or improper waste disposal could create serious reputational risk if the waste can be traced back to its source. Documentation of the waste handling after it leaves the factory is critical for credibility, and a manifest or receipt for each shipment of waste should be obtained. An additional best practice would entail periodic visits by factory representatives to their waste disposal sites to verify receipt and to examine conditions.

The final environmental issue for discussion is the emission of air pollutants from stationary combustion sources which are associated with factory operations. These include generators, boilers, incinerators, and perhaps others. The principal air contaminants of concern are oxides of nitrogen, oxides of sulfur, and particulate, although depending upon the material being used as fuel, other emission constituents may require attention. Best practice dictates that the emissions be characterized via monitoring, and that appropriate pollution control devices be

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<sup>8</sup> For example, see IFC guidelines at <http://www1.ifc.org/wps/wcm/connect/2a66470048865981b96efb6a6515bb18/Final%2B-%2BTextiles%2BManufacturing.pdf?MOD=AJPERES&id=1323162617789>, and Levi Strauss guidelines at <http://www.levistrauss.com/sites/default/files/librarydocument/2010/6/global-effluent-requirements-2010.pdf>

<sup>9</sup> See Nike experience at [http://www.nike.com/nikeos/p/gamechangers/en\\_US/cd\\_waste](http://www.nike.com/nikeos/p/gamechangers/en_US/cd_waste)

installed to ensure that the emissions satisfy any local regulatory limits. In the absence of such regulation, emission guidelines are available from IFC documents as well as other sources.<sup>10</sup>

#### **D. The Capacity of Better Work Haiti in regard to Health, Safety and Environmental Issues**

The BWH approach of monitoring plus training and advisory services is appealing for an industry which is currently undergoing development in Haiti and has a need for capacity-building. The emphasis on OSH Committees and their ability to conduct regular hazard assessments in the factories is appropriate for at least two reasons: it satisfies a significant need for OSH training among workers, and it aims at creating the capacity to conduct credible hazard assessments, which is a critical element of any OSH program. It was evident during the two workshops that there is a need for and an interest in OSH training and information, at the levels of both factory supervisors and workers. Expanding the reach of BWH services in this regard would provide a significant benefit to the industry.

The OSH Guidance and Good Practice sheets which have been developed by BW provide generally useful information in a convenient format on a range of OSH topics.<sup>11</sup> However, the intended audience for these documents seems to be factory management. Regardless, the content of these Good Practice sheets could be utilized in other applications, such as analogous work practice sheets which could be used in worker training sessions, or as the basis for an OSH hazard assessment checklist for use by the OSH Committees or other relevant factory personnel. Again, the dissemination of OSH information as broadly as possible throughout the apparel industry in Haiti can only be beneficial.

The Safety and Health at Work fairs sponsored by BWH in April 2011 and 2012 in the SONAPI Industrial Park in Port-au-Prince were unique events during which OSH issues in the workplace were integrated with the concept of the general health status of workers. These two related issues, and their relationship to worker productivity, have received increased attention during the past decade across all types of industries. A developing body of evidence suggests that corporate investment in OSH and worker wellness programs can yield a significant return in

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<sup>10</sup> See: IFC emission guidelines at <http://www1.ifc.org/wps/wcm/connect/532ff4804886583ab4d6f66a6515bb18/1-1%2BAir%2BEmissions%2Band%2BAmbient%2BAir%2BQuality.pdf?MOD=AJPERES>

<sup>11</sup> See: BW OSH Guidance Sheet at <http://www.betterwork.org/EN/resources/Documents/Guidance%20%20-%20Occupational%20Safety%20and%20Health.pdf>

terms of improved productivity. This type of approach seems to offer particular benefits to both the workforce and the factory in a developing country such as Haiti, where healthcare services to the general population are often wanting. The recent fair was certainly a progressive element of the BWH program, and similar efforts should be encouraged.

The content of the monitoring aspects of BWH services derives from the ILO core labor standards and the Haitian labor code, reflecting the uniform approach of the global Better Work program. As such, there is no consideration of environmental issues in their factory visits or in their related training and advisory services. This emphasis is clear from the consistent use of “OSH” by Better Work, whereas the broader range of IDB interests is reflected in its use of “HSE.” “OSH” may be considered a subset of “HSE.”

While it may fairly be said that currently BWH has no apparent capacity to identify and mitigate environmental risks which may arise in the apparel industry in Haiti, there is some evidence that the global BW program is considering an expansion of its services. In a collaborative effort, IFC is exploring the interest and demand from BW stakeholders for the inclusion of environmental assessment in the menu of BW services. If interest is found to exist, then a pilot study may be conducted by BW Vietnam in 2013. An existing environmental compliance software tool, tested by IFC in the apparel industry in Bangladesh, could be utilized for this purpose.<sup>12</sup>

Consideration of the questions in the OSH cluster of the BWH CAT document, as discussed in the recent Synthesis Report, must be tempered by the following: the breadth of OSH issues, and the level of detail within the available benchmarks for each, could easily lead to an audit tool in which the emphasis on OSH issues dominates that which is received by the seven other compliance clusters. Any critique of the CAT in regard to its adequacy in coverage of relevant OSH issues for the apparel industry should be sensitive to the fact that OSH is but one compliance cluster of eight which demand the attention of BWH monitors.

Given this constraint on the performance of a detailed OSH audit, it may still be said that the eight OSH compliance points and their associated questions provide adequate coverage of the common OSH issues in the apparel industry so that any significant risks or imminent hazards should be identified by a competent monitor. Of the eight compliance points, it seems that “Chemicals and Hazardous Substances” may be the most problematic. There is no apparent

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<sup>12</sup>Personal communication from Eleonore Ann Richardson, Operations Officer, IFC Advisory Services, Mekong Region, September 2012.

attempt to distinguish among the relative toxicities of the various chemicals—only the requirements for a Safety Data Sheet, an inventory, labeling, storage, and training. While worker exposure risks may arise because of deficiencies in any of those requirements, it seems that the risk is most directly related to the specific chemical, its inherent toxicity, and other characteristics. So while the CAT coverage of issues associated with chemicals and hazardous substances is good as far as it goes, it does fall short on the issue of chemical selection.

A related question for that compliance point, which was mentioned previously, poses an inquiry into employer “action to assess, monitor, prevent and limit workers’ exposures to chemicals.” If interpreted as written, it is unlikely that this question could ever be answered in the affirmative. On the other hand, if the “and” is replaced by “or,” then it becomes likely to never receive a negative response. While this question attempts to evaluate a significant OSH issue pertaining specifically to spot cleaning operations, some rethinking is likely needed to achieve a more credible evaluation of this complex OSH issue.

Also, the questions associated with the “OSH Management Systems” compliance point merely scratch the surface on this issue, relative to the best practice expectations of the global brands. Ideally, the development of documentation for such management systems coincides with the implementation of procedures and operational aspects of the system. This compliance point may provide BWH with the opportunity to foster the development of a management system approach in apparel factories through the periodic addition of pertinent questions over the next several years.

The final comments have little bearing on the capacity of BWH per se. The summary compliance statistics which are presented in the Synthesis Report, and which have been mentioned previously in this document, seem to provide a relatively pessimistic view of the compliance status of factories in Haiti (and elsewhere, as seen in the analogous Report from Vietnam). In fact, BWH acknowledged this feature of the compliance calculation method in its Report.<sup>13</sup> Perhaps a different approach to the reporting metrics might provide a more realistic reflection of individual factory conditions and allow for the ready identification of meaningful differences in factory performance by readers of these semi-annual reports.

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<sup>13</sup> Better Work Haiti, op. cit., page 12.

Some means of prioritization of the noncompliance findings might be useful to the factories and to the stakeholders who rely on the BWH Synthesis Reports and individual factory monitoring reports. When a significant or widespread OSH risk is identified or an imminent hazard is found to exist, that finding should be called out as a priority for factory attention and mitigation.

## **E. Recommendations for Improvement of Health, Safety and Environment Performance in Garment Assembly Factories in Haiti and Proposed Actions for the Future**

In general, the recommendations for improved HSE performance in the Haitian garment assembly industry are all related to a single issue: the capacity of the Haitian factories to recognize, mitigate, and manage the risks that exist as a result of their operations. As capacity-building occurs at all levels of factory personnel from upper management to workers, they will be better able to appreciate and to address the HSE issues with which they will be confronted, and in regard to which they seem to have present difficulty in satisfying the expectations of BWH.

### **E.1. Information and Training for Factories**

The primary recommendation is for the improved dissemination of HSE information by all available means. While this should not be the sole responsibility of BWH, that organization is uniquely positioned to reach the target audiences and to evaluate progress over time. Upper management personnel should be engaged in the process, so that they have a general awareness of the HSE issues associated with their factory operations and an appreciation of the relationship between worker health and productivity. Continued efforts should be made to reach middle management personnel and OSH Committee members on a broader range of HSE issues, particularly if, as anticipated, factory production is expanded beyond its current “cut and sew” operations. This change in status would likely introduce a variety of new equipment and chemical materials to Haitian factories, accompanied by the related environmental issues which are common in the global apparel industry.

Emphasis on the role of OSH Committees in the factories and the development of a well-trained group of supervisors and workers will be critical going forward. These individuals can be involved in the presentation of in-factory training to co-workers, in the conduct of the risk and

hazard assessments which are pivotal in HSE performance but are currently inadequate, and eventually in the development and implementation of an HSE management system approach to these issues at the factory.

Communication of HSE issues to the general factory workforce is essential, and may best be delivered on a breadth of topics to a large audience via a train-the-trainer approach. The training materials for the two workshops associated with this project can be adapted for use in shorter sessions, or supplemented to create new sessions, which can be conducted by BWH staff and eventually by factory personnel. Further development and use of the BWH OSH Good Practice sheets in worker training sessions is recommended. Translation of all written training materials into Creole and/or French should increase the effectiveness of such training efforts.

#### D.1. Proposed Action Plan for Information and Training

- 1. Upper Management Training.** Develop HSE training sessions which focus on the upper management personnel of factories, and consider modules in which the audience may include both upper management and workers. Introduce the concept of an HSE management system approach.
- 2. Segmented Training Modules.** Adapt the workshop training content and materials into separate, brief modules on topics such as an overview of HSE issues in apparel factories, activities for OSH Committees, HSE risk and hazard assessment, PPE, and worker health and productivity, among others.
- 3. Expanded Training Module on Risk Assessment.** Expand the risk assessment training module, with greater emphasis on chemical hazards, ergonomics, and hazard controls other than PPE, and include in-factory practicum in risk and hazard assessment. Continue to focus these efforts on middle management and OSH Committees.
- 4. Train-the-Trainer Program.** Collaborate with the BWH advisory team to develop a train-the-trainer program which would enable HSE information to be communicated directly and effectively to workers in the factories. Modalities for communicating with workers could include new worker orientations, brief courses on topical issues, messages broadcast over the public address system, and modeling of desired behavior by supervisors and other managers.
- 5. Translation Services for HSE-Related Materials.** Identify translation services for the factories so that Safety Data Sheets, training materials, and other HSE-related information are available in the language of the workers (Creole).

#### E.2 Enhanced Risk/Hazard Assessments in Factories

The capability to conduct competent and credible risk and hazard assessments is a prerequisite for the successful implementation of other programs such as PPE, machine safety and ergonomics, and is a basic element in any management system approach to HSE issues. The



paucity of experienced HSE professionals in Haiti places the onus for hazard assessments on relatively inexperienced factory personnel. Enhanced training content and the concurrent opportunity to apply the learning in the factory environment have been proposed above (see item 3). In settings such as the Port-au-Prince Industrial Park, the CODEVI Park, and the proposed North Industrial Park, where several different apparel factories may exist in close proximity, there is a unique opportunity to enhance the knowledge of the managers and workers who have the responsibility for such assessments via “cross-pollination.” Factories should permit hazard assessments to be conducted by joint teams with representatives from their own OSH Committee and other OSH Committees within the Park.

A recommendation to better ensure the quality and uniformity of periodic factory inspections by OSH Committee members is the development of a checklist for use during that activity. The scope of the checklist can be determined by the needs of each factory, but should probably reflect some of the OSH aspects which are included in the BWH CAT document, since these pertain to issues which are both common and significant. Reliance on such a document during inspections represents a systematic approach which is consistent with the next set of recommendations, pertaining to HSE management systems.

The final recommendation on hazard assessment represents a best practice which is observed infrequently in the apparel industry. Formally, the need for the use of respiratory protection, and the identification of the proper type of such protection, depend upon the concentration of air contaminants to which the worker is exposed. For virtually all of the chemical vapors associated with the range of cleaning solvents that are in use, this type of quantitative exposure assessment can be performed by a convenient passive sample badge method. Sample analysis can be conducted by laboratories which are accredited by the American Industrial Hygiene Association (AIHA) or other relevant accreditation organization.

If other methods of hazard control such as chemical selection or ventilation cannot be implemented or are not adequate, then such exposure monitoring would reveal whether or not the use of respiratory protection is necessary to prevent hazardous exposures to airborne chemicals. Reliance on respiratory protection to protect workers involved in spot-cleaning, without consideration of other hazard control measures or determination of the actual extent of the exposure, can be misplaced because of those aspects of respirator use that are often neglected by

factories yet are necessary to ensure proper protection of workers (see pages 20 – 24 of this report).

## **D.2. Proposed Action Plan for Enhanced Risk/Hazard Assessments in Factories**

- 1. Joint OSH Hazard Assessments.** Encourage factories in industrial parks to conduct joint OSH hazard assessments.
- 2. Development of Hazard Assessment Checklists.** Assist in the development of hazard assessment checklists which can be used by OSH Committee members during routine factory inspections.
- 3. Rigorous Assessment for Spot Cleaning Operations.** Initiate a more rigorous hazard assessment process in regard to spot cleaning operations, which would include review of Safety Data Sheets for specific chemical ingredients, documentation of the conditions of use at spot cleaning work stations, and ultimately the monitoring of worker exposures to chemical vapors at those factories whose operations are thought to present the highest risk to workers.

## **E.3 Initial Phase of Health, Safety and Environmental Management System Development**

Ultimately, a long-term objective is to have the apparel factories in Haiti develop and document a suitable HSE management system to address these issues in a credible and systematic manner. Presumably, this eventually would result in less need for monitoring by BWH, the apparel brands, or other stakeholders to ensure adequate HSE performance by the factories. As mentioned, this is a universally acknowledged aspect of HSE best practice, and while incremental improvements in HSE performance are desirable and may be noteworthy, continued performance is best assured via the management system approach.

The seed for such a written HSE management system exists currently in the Haitian apparel industry due to the BWH requirement for a written OSH policy in each factory. According to the findings of the recent Synthesis Report, approximately two-thirds of the factories had such a policy. Getting from the policy to an entire HSE management document may be a gradual process, but that process can be started by posing the appropriate questions to the factory in regard to how they plan to achieve the goals and objectives that presumably are stated in their policies. The need for written plans and procedures should become evident.

However, it is recommended that this HSE system development process be allowed to occur gradually, and that a comprehensive HSE management system framework not be imposed on these factories all at once. The BWH experience indicates that the factories are far from

being in substantial compliance on OSH issues, so the better approach would seem to be a dual focus on improved performance and enhanced HSE capacity, which in turn may lead to recognition of the benefits that an HSE management system can bring to factory operations.

This is not to imply that no documentation should be developed in the short term. It seems that two HSE aspects of factory operations should be addressed, and would represent a convenient initial foray by the factories into the world of management systems. The first is Life Safety, which represents a potentially costly risk to the factory if roles and responsibilities are not understood and if planning and related factory conditions are inadequate. The other current opportunity for documentation is with the OSH Committees, where it can involve the identification of their appropriate roles and activities within the factories. The need for the development of an OSH Committee plan or procedure should create some momentum for the process.

### D.3. Proposed Action Plan for the Initial Phase of HSE Management System Development

- 1. Factory Compliance with BWH Documentation Requirements.** Emphasize factory compliance with BWH requirements for a written OSH policy, a chemical inventory, and Safety Data Sheets.
- 2. Framework for Life Safety Plan.** Provide factory personnel with the framework for a Life Safety Plan, which can then be used to create individual Plans based upon the particular factory details.
- 3. Written Procedures for OSH Committees.** Work with the OSH Committees to create a written procedure which details all aspects of the Committees, including membership, roles, activities, etc. and which includes the commitment by upper management to support this function.

It is hoped that all of these recommendations and proposed actions can be implemented nationwide. While the workshops of May 2012 were attended by the personnel from twelve apparel factories in the Port-au-Prince locale, attempts should be made to extend future activities to other segments of the Haitian apparel industry.

## F. Conclusions

The apparel sector provides needed employment to approximately 25,000 Haitians today. In order to ensure the economic growth of the sector and to protect the workers who are employed in it, it is prudent to increase the capacity of garment factory managers and workers to adhere to internationally recognized standards and applicable Haitian law in the area of occupational safety and health as well as to other labor standards. With support from a variety of stakeholders, including the Inter-American Development Bank, Better Work Haiti is in a position to facilitate the improvement of Occupational Safety and Health conditions in Haitian garment factories.

In addition, the following concluding points are offered to summarize key lessons from the Discussion Paper:

- 1. Demonstrated need.** There is a demonstrated need for improvement in Occupational Safety and Health performance, as evidenced by the BWH Synthesis Reports, which are prepared to communicate progress on compliance with all of the CAT compliance clusters.
- 2. Priorities for improvements.** Notwithstanding this demonstrated need, in the BWH system of measuring compliance, if a factory is found deficient on any one question, or aspect, of a compliance point, then it is considered to be noncompliant on the entire point. In terms of reporting on the most important Occupational Safety and Health issues, this can lead to a skewing of the results. A system of compliance assessment and reporting that reflects the priorities among the risks might lead to a more nuanced understanding of the status of Occupational Safety and Health issues in Haitian garment factories and in turn to the creation of priorities for improvements.
- 3. Appetite for training.** The appetite for training among garment factory managers and OSH committee workers in Haiti has been whetted. Evaluation forms from both workshops (i.e., the workshop for managers and the workshop for worker members of OSH committees) demonstrate that a) the training workshops were very well received and b) additional training workshops are desirable. This appetite can be strengthened further by underscoring the developing body of evidence that suggests that corporate

investment in Occupational Safety and Health and worker wellness programs yields a significant return in terms of improved productivity.

**4. Broader dissemination of Occupational Safety and Health information.** In order to reach a critical mass of factory managers and workers who serve on OSH committees, it will be necessary to modify, and expand in some cases, the training content that was provided in May 2012, in close collaboration with BWH. The development of an additional module on *how* to teach Occupational Safety and Health issues in the factory context may be of value in order to establish a train-the-trainer approach. A high-level module should be created for executive management so that an appreciation of the value of improving Occupational Safety and Health performance can be supported. Brief training modules on targeted topics of high relevance can then be used by trained instructors in factories. In settings where several different apparel factories may exist in close proximity, there is an opportunity to convene collaborative training workshops involving more than one factory.

**5. Role of risk and hazard assessments.** The capability to conduct competent and credible risk and hazard assessments is an identified prerequisite for the successful implementation of many Occupational Safety and Health programs and for enhanced factory performance and worker safety, and is a basic element in any management system approach to environmental issues as well. The paucity of experienced health, safety, and environmental professionals in Haiti adds to the compelling need to further populate training content.

**6. Key OSH issue.** Of the eight OSH compliance points identified by BWH, it seems that “Chemicals and Hazardous Substances” may be the most problematic. There is no apparent attempt in the apparel factories of Haiti to distinguish among the relative toxicities of the various chemicals, which is an integral aspect of the risk assessment for worker exposure to chemicals.

**7. Key Environmental issue.** At this time, the Haitian apparel industry is not confronted by most of the major environmental issues which face the global industry because most Haitian factories are limited to “cut and sew” operations. Hence, the important current issue may be solid waste reduction and disposal.

**8. Relationship of capacity building to risk mitigation.** Recommendations for improved Health, Safety and Environmental performance in the Haitian apparel industry are related to the capacity of the Haitian factories to recognize, mitigate, and manage the risks that exist as a result of their operations. As capacity building occurs at all levels of factory personnel, they will be better able to appreciate and to address the Health, Safety and Environmental issues with which they will be confronted, and in regard to which they seem to have present difficulty in satisfying the expectations of BWH and other stakeholders.

**9. Reliance on Better Work programs.** BWH and its sister programs in the apparel industries of other nations provide relatively comprehensive coverage of Occupational Safety and Health issues as well as the seven other labor issues which are addressed in their CAT document for monitoring and in their other advisory services. However, consistent with the focus of the ILO, the Better Work programs currently do not include environmental issues in their factory evaluations or their advisory services. There is some evidence that an expansion of BW services into the environmental arena is being considered.

**10. Applicability of the Haiti experience to other countries in the region.** The comparison of the current level of Occupational Safety and Health performance in Haiti to that of other countries in which Better Work is operating demonstrates that, with slight variance, this continues to be an area of significant underperformance throughout the global apparel industry. As such, it is possible to deduce that the findings and recommendations in this Discussion Paper will be generally applicable to other garment factories in emerging economies elsewhere in the region and the world.