Re-thinking Human Safety : Is the Industry Really Poised for Zero Accidents? - A Review

*** Harbans Lal Kaila**

Abstract

Killing thousands of people at the workplace across the globe every year is a major concern and one wonders, whether achieving zero accidents is a mere documentation exercise or is it really achievable for the industry? Unsafe or at-risk behaviours are considered to be the ultimate cause of most workplace accidents. Zero accidents or zero unsafe behaviours is an occupational safety perspective that needs clarity for organizational emphasis. This paper challenges the management perspectives and actions on utilization of the existing safety systems and programs in organizations that keep on disabling and killing people at work, thereby making zero accidents -injury situations far from being achievable. The author shares reflections of his longitudinal action research carried out in Indian multi-national companies extended over 15 years (1997-2013) for the benefit of the management practice of safety in organizations.

Keywords : zero accidents, workplace, managers, behaviour, safety, India

JEL Classification: D23, J54 , J81, L0 , L21, Y8

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Globally, achieving zero accidents at the workplace remains one of the major social and economic areas of concern. Every day, 6,300 people die as a result of occupational accidents or work-related diseases – which amounts to more than 2.3 million deaths per year (International Labour Organization, 2013). The struggle to manage safety situations at workplaces continues. Safety audits are done, awards have been received, and documents are in place. Still, organizations wonder what to do to ensure adequate safety of people. An injury hurts the organization because a factory inspector comes to investigate the accident and asks so many embarrassing questions.

The concept of zero-accident (JICOSH, 2013) refers to the total participation campaign into the organization which sounds attractive in a theoretical sense. However, practically, zero-accidents seem a far-fetched promise of business managements as human safety would not get an absolute preference over profits from production. There is a safety perspective, but implementation remains an unlikely endeavor in view of the accident statistics of almost every organization. Work places have continued killing and disabling people regardless of a variety of existing safety systems, standards, or international certifications. The present paper probes into the issue whether the 'safe workplace' is a myth or a reality (see Figure 1).

Zero accidents/injuries perspective requires a host of change management strategies and initiatives for shifting the existing safety situation to a new level, which would need a stringent review of the prevalent safety systems and implementation of the latest behavioural safety approach (Matthews, 2013). Further, it is necessary to appraise the organizational safety values, especially the core considerations to human life. Above all, the central part is the safety leadership at all levels across organizations, and linking safety to employee performance objectives is vital. Though this framework provides a strong theoretical base, practically, what we lack is implementation, especially in view of organizational executive leadership. According to Health and Safety Executive (2013), effective health and safety performance comes from the top; members of the board have both collective and individual responsibility for health and safety. Directors and Boards need to examine their own behaviours, both individually and collectively. According to the head of environment health safety (EHS) of an engineering giant, "The rules, code of practices, standards and safety manual – all these are well-defined and readily available as mandatory requirement, but the road- block is

*** *Professor of Psychology (Retired),* SNDT Women's University, 4, Shiv Sagar Apartments, Bhabola Chulne Road, Vasai (West), Mumbai - 401 202. E-mail : kailahl@hotmail.com
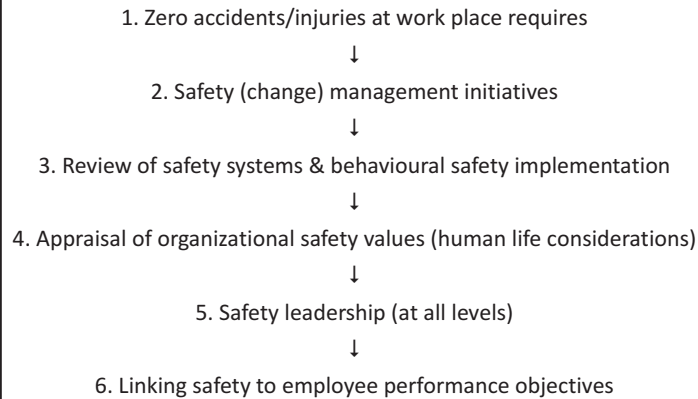
implementation during job execution. Only 50% is achieved in implementation, and that too is in limited construction activities. There is a cascade effect. It is a paradox that 'no cost for safety'. There must be proper budgeted cost for safety since the conception stage of any project. A contract is bagged after facing cut throat competition ; hence, while executing a project, one of the prime considerations is how to execute the job in the most cost effective manner. Obviously, 'safety' takes a back seat. It's a long way to go before we say that the Indian construction industry is poised for an incident and injury free workplace" (Personal Communication, 2013). According to Japan International Center for Occupational Safety and Health (JICOSH), there are three pillars of the zero-accident campaign: The positive attitude of the top management; the complete management of the safety and health system by line managers and supervisors; and the promotion of voluntary activities in the workplace (JICOSH, 2013).

The present paper is an extract from the qualitative/narrative data of a longitudinal national action research survey on behavior based safety (BBS) in India. It is an on-going study in which almost 500 BBS training workshops were conducted for nearly 9300 workmen (operators, technicians, contractors) and union representatives and about 1800 managers at all levels between 1997 to 2013 in diverse multinational organizations across industrial sectors. Indian companies which participated in such BBS programs were Maharatna /Navratna companies, energy giants, chemical, automobile, pharmaceutical, electrical, nuclear, steel, construction, shipping, coal, heavy engineering companies, and so on. They were exposed to BBS concepts, observation and feedback processes, and implementation of BBS in an organization. The workshops were held in English/Hindi of about 30-50 training participants per batch. It is true that India, as predicted by many, is to become the world's third largest economy by adopting the best work systems such as behavioural safety.

Reasons for not Achieving Zero Accidents at the Work Place

A senior HSE professional of a Maharatna company pointed out, "It is only desire, or we can say target to have zero accidents. However, when we work practically in the field, our concentration is always directed towards more production to meet the market demand. One of the most important issues is the development of infrastructure, which is happening along with growth of demand. This creates pressure on production, and the safety system is bypassed. However, in recent days, everyone - the management as well as the workers have become cautious while working in the field."

The best safety plans and programs do not continue and/or fail as a result of inactive leadership behaviours across departments in an organization. Hence, the zero accident target remains a myth and does not convert into reality. The application of behavior-based safety (BBS) approach is facing a severe challenge - safety performance may decline when BBS intervention is removed (Zhang& Fang, 2013). Zero accident targets appear to be a very difficult proposition for organizations for a series of reasons (Kaila, 2012) as stated below:

a) Organizations lack in strong implementation of safety systems;

b) Organizational leadership varies in emphasis over human life safety;

c) Business is a clear priority over the safety function;

d) Safety is mostly not a performance objective;

e) Every industrial project has killed one or more persons (mostly contract labour) which is a naked reality; then what makes us think that zero accident is achievable? ;

f) Zero accident looks perfect in documentation, not in real work life;

g) For most of the organizations, safety is a staff function; employees are not involved as per OHSAS 18001: 2007 clauses on behavioural safety.

h) Hundreds of unsafe behaviours are noticeable at any workplace on a daily basis depending upon size of an organization. Hence, the potential for accidents exists in every organization unless unsafe behaviours are tapped and are controlled daily. So, it would not be a surprise if there is a minor or major accident any time due to these unsafe behaviours.

i) Showing zero accident records and international certifications do not really ensure a safe organization unless we target zero unsafe behaviors at workplaces.

j) Organizational case studies revealed that a single unsafe behaviour can prove to be fatal.

k) Lack of or partial safety enforcement reinforces unsafe behaviours at the workplace.

To reduce accidents, the managements have executed safety interventions such as risk assessment, suggestion scheme, training, safety committee, auditing, motivational programmes (quizzes, awards, incentives), SOPs, plant inspections, work permit systems, and so forth. Most of these safety management systems have aimed at controlling unsafe conditions, whereas most of the accidents are triggered by unsafe acts or behaviors, even unsafe conditions are the result of unsafe behaviours. Zero accidents would mean a total safety culture, which can be created if we have active safety systems combined with BBS implementation in the plant. Safety systems (such as SOPs, work permits, training, incentives, Lock-out Tag-out (LOTO) procedure, inspection, audits, incident analysis, mock drills, celebrations, certifications, compliance, etc.) are very necessary and prepare the workforce to adopt safe attitudes, but the same is not reflected in their safe behaviour. The attitude-behaviour gap exposes an organization with the at-risk behaviours of employees, which is now being tackled by implementing behavioural safety.

Figure 2. The BBS Triangle
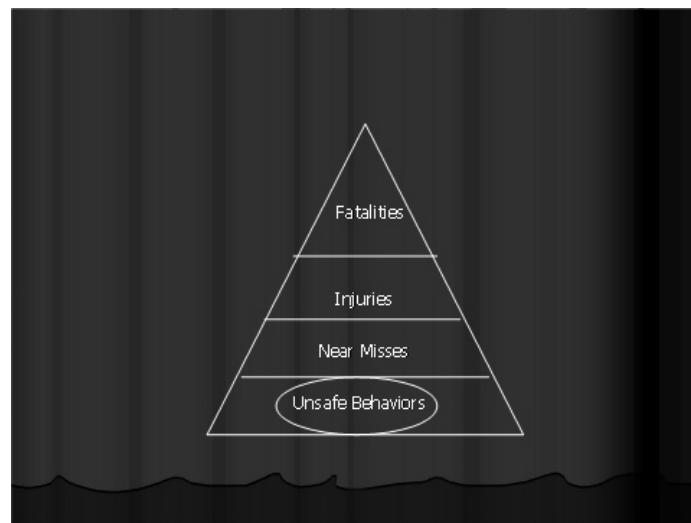
Adapted from Kaila, H. L. (2008, December 1). BBS winning over employees in India. *Occupational Health & Safety*. Retrieved from http://www.ohsonline.com/Articles/2008/12/BBS-Winning-Over-Employees-in-India.aspx

Targeting Zero Unsafe Behaviors to Achieve Zero Accidents

Behavioural safety postulates that unsafe behaviors are at the base of any near misses, injuries, and fatalities (Figure 2). If unsafe behaviors are controlled, even the near misses can be avoided. Three clauses of the OHSAS 18001:2007 document emphasizes behavioral aspects of safety in Occupational Health & Safety (OH&S) Management Systems, that organizations shall establish, implement, and maintain procedures for: The participation of workers by their appropriate involvement in hazard identification, risk assessments and determination of controls; for hazard identification and risk assessment that shall take into account: Human behaviour, capabilities, and other human factors; and to make persons working under its control aware of : The OH&S consequences, actual or potential, of their work activities, their behaviour, and the OH&S benefits of improved personal performance. Behavioural safety popularly known as behaviour based safety (BBS) encourages contribution towards safety from everyone in the organization (Joshua_sx1, 2007).

Table 1. Behavioural Trends of Safe Behaviour and At-Risk Behaviour

Sr. no.	Date	% of Safe behaviour	% of At-risk behaviour	% of At-risk behaviour corrected	Units /dept. /group	Number of observers	Plant
1	10 May12	64	36	89	Sr. mgt.	20	Plant 1
2	11 May12	78	22	69	Sr. mgt.	29	Plant 2
3	7-8 May12	79	21	94	md. mgt.	24	Plant 3
4	9 July 12	83	17	63	Managers	30	Plant 4
5	10 July 12	87	13	74	Managers	31	Plant 5
6	11 July 12	76	24	42	HODs	27	Plant 6
7	12 July 12	79	21	79	Supervisors	42	Plant 7
8.	23August12	62	38	74	Executives	26	Plant 8
9.	11 Sept2012	72	28	52	Executives	21	Plant 9
10	18 Sept2012	71	29	53	Executives	30	Plant 10
11	26 Sept2012	64	36	67	Executives	29	Plant 11
12	4Oct 2012	68	32	77	HODs	18	Plant 12
13	12Oct 2012	47	53	43	HODs	40	Plant 13
14	23Jan 2013	80	20	60	HODs	20	Plant 14
15	29Jan 2013	67	33	66	Sr. mgt.	32	Plant 15
16	25Feb 2013	81	19	80	md. mgt.	35	Plant 16
	Average:	**72.38**	**27.62**	**67.63**		**Total: 454**	

Note: This table is an extract of a larger study. Adapted from H.L. Kaila (2011). Organizational cases on behaviour based safety (BBS) in India. *The International Journal of Human Resource Management, 22* (10) 2135 – 2146. DOI:10.1080/09585192.2011.580180 and H.L. Kaila, (2012). 100 reflections on behavioral safety: Developing injury-free organizations. *Industrial Safety Chronicle, 43* (3), 21-26.

According to one manager who attended the BBS workshop, "Due to BBS implementation, the accident frequency rate from April 2012 to May 2013 indicated a reduced trend in-general. However, we are trying to improve the performance further with the challenges being high manpower turn-over. BBS is the best policy to run my plant safely, and our target is to achieve zero unsafe behaviour, rather than zero accidents."

Across India, on an average, 72.38% of safe behaviours and 27.62% of at-risk behaviours were identified by 454 observers from 16 plants that participated in the BBS programs between May 2012 and February 2013. It is important to see that, on an average, 67.63% of at-risk behaviours was corrected by these observers (see Table 1).

Behavioural trends reveal that at-risk behaviours exist in every workplace, which can trigger accidents anytime. Poor knowledge, short of supervision and maintenance are the obvious reasons for accidents, but these factors are actually nothing but the unsafe behaviours of the concerned people for not carrying out their jobs responsibly. The socio-cultural backdrop of employees may also impact the practice of unsafe behaviour. The unsafe / at-risk behaviour are also caused by some HODs who emphasize/ force completing the work by avoiding basic safety rules or

regulations, for example, allowing under-capacity cranes/ hydra to lift / shift heavy jobs. The project manager asks the site engineer to complete certain jobs by the end of the day itself. The poor site engineer, to finish the tasks assigned to him by the end of the day, carries out the jobs' somehow, by-passing safety regulations. He cannot say 'no' to the project manager and make him unhappy. This is a very common scenario at construction sites. It takes one second of unsafe behaviour to turn into an accident or big fire, which delays the production process for a long time.

Unsafe behaviour can be practiced by anyone regardless of position, education, experience, and age. The following examples illustrate the same - A vice - president went up to the fourth floor to inspect a construction project; he received a call on his mobile and started talking; he got so engrossed in the conversation that he stepped off the platform, fell down from the 4th floor, and died on the spot. An engineer on the shop floor thought of crossing a conveyor belt while it was stationery, and as he stepped on the conveyor belt, it started moving, and he was crushed to death. A deputy general manager got a serious eye injury when he was observing a workman without wearing safety goggles - an object flew from the machine and hit him. Hence, an accident/injury spares no one, not even managers.

According to a manager, "punishment, in a way, shows a strong sense of caring - like a giraffe-mother kicks her newborn baby's legs at birth to make the baby move, otherwise, the young one would fall prey to predators in the jungle". Punishment in terms of a fine or loss of pay instills a sense of fear and would not let an employee practice unsafe behaviour. However, this seems contrary to BBS's positive approach. But then, fear of punishment or being fined reduces instances of unsafe behaviour to a certain extent, which is indirectly positive for the safety of the people at work.

Managers' Concept of Behavioural Safety

According to the deputy general manager of a fertilizer company, "Our company has given top priority to safety, health, and environment right from the design stage. To minimize the possibility of accidents, we have trained our employees to know their equipment intimately and to be consistently safety, health, and environment conscious. The line managers are committed to safety and health. Workers observed working in unsafe conditions and carrying out tasks unsafely are brought to the attention of the concerned departmental head for quick remedial action. Safety consciousness of an employee is given due importance in his annual performance appraisal."

According to a BSS coordinator, "We implemented BBS at our chemicals factory in the year 2008. It has shown the desired results, and we attained a certain height in the maturity ladder of the BBS process. As time passes, people loose interest , observations are not done consistently, clean sheet observations are increasing, steering committee members are not getting motivated , hazards are not identified properly, and so forth. Sustainability is the main issue right now in our processes. I need to revamp the process - what to do next, how can I bring back the energy in the process".

According to a general manager who attended the workshop, "Safety in the Indian scenario is considered as a fire-fighting approach for emergency situations. Normally, people complete the tasks assigned to them in a hurry - as they have to meet a deadline - following a series of unsafe behaviours. An unsafe behaviour being practiced by co-workers would once for sure turn into an accident someday. In India, safety departments are understaffed and are over-worked. It is not possible for them to perform their jobs effectively keeping in mind the safety of the employees as well as the contract staff. " BBS provides more eyes for safety in the organization. It has three basic principles (3Is): Interaction between observers and observees, Inclusion of every workman/employee in safety efforts, and Intention to provide an injury-free environment.

The top managements' role is significant in terms of monitoring, motivating, and mentoring those involved in BBS projects, failing which, the project may collapse or weaken its purpose. There is an interesting positive turn in the Indian safety scenario. Top managements are emphasizing and are communicating their safety concerns down the level. What they are saying is that merely providing safety infrastructure in the organization or at location/ sites is not enough or adequate for the safety of the people. The HOD/ supervisors need to involve all employees at all levels up to the last person who may be the least aware of safety (such as contractors' workmen or the housekeeping staff). The section heads opined that were ready to implement the BBS approach, but were apprehensive of the top managements' leadership and dedication towards this project. Many systems have come and gone, however, there is a lack of consistent commitment. If BBS is top-driven, then we have to do it. On the other hand, the top managements showed a deep concern for the section heads' varied level of involvement, credibility, acceptability, and safety-mindedness for implementation of BBS with full spirit in their respective units.

According to the director of one of India's largest private sector companies with interests in technology, engineering, construction, and manufacturing, "Safety is not a priority; it is a core value which has to emanate from the highest level of leadership in the organization, and combine safety systems with BBS."

Research Implications

According to the plant head of one of the world's leading natural resources company , "Whether we are in business or not, we need safety. One accident can change our life. We have created little vibration for safety in industry, is it enough? We need to work more on safety and develop a culture in which every employee understands safety. We need to train them so that they have the mindset for safety. Safety is strongly linked to human thought and behaviour. It is a culture which we would not get in a day. It needs persistence."

According to an HSE vice president of a company, "All failures of health, safety, and environment are around behaviours. Behavioural based safety (BBS) approach is a planned effort and an organizational intervention/ procedure for making safety a true line function. Though occupational health and safety assessment series (OHSAS) 18001:2007 have included three clauses that emphasize behavioral aspects of safety, organizations have yet not followed it as OHSAS 18001:2007 does not provide any guidelines on how to implement these clauses. According to an EHS head, "We are expanding our businesses, growing revenues, but every year, we have 40-42 fatalities in all independent companies (ICs). We are not factories to kill people or to create permanent disabilities due to accidents in our work premises. We have hardware but not the software, which is the 'feeling'. This is the 'disconnect'. We have not valued human life. And now, as per new guidelines, if there are more than three fatalities at our workplace, we are not qualified for tender registration for any new business. So, safety of people is now related to business growth and revenues."

Managements have started believing that engineering controls alone do not provide an adequate safe workplace, and unsafe behaviors need to be controlled in order to ensure total safety at workplaces. Indian multi-national organizations have begun to consider human behavior aspects of workplace safety more as compared to yester years. According to a general manager (safety), "Behavioral-based safety is all about changing the basic organizational culture to inculcate positive safety at the workplace." The body of research literature created through behavioural safety interventions has made us realize the value of macro-ergonomics aspects. It is important to underline that people behave unsafely or take risks even in well designed work stations. People tend to take risks in safe environments and tend to be very alert in unsafe environments. People speed-up their vehicles on highways and tend to be very alert in crowded streets. The engineering systems, the process or task design provided at workplaces are the hardware part; and the software part is the behaviour of people who tend to behave safe or unsafe at times. Even with well designed work stations, the workmen/operators tend to engage in at-risk behaviours (such as not using personal protective equipment, work area not maintained appropriately, not using correct tools for the job or using tools not in good condition, inappropriate body mechanics while lifting, pushing and pulling material, not complying with work permits or following safe operating procedures (SOP), and using mobile phones while working) that may trigger injuries or accidents. Furthermore, several case studies in organizations have revealed that each of these at-risk behaviours has been fatal for workmen, engineers, and managers (Kaila, 2010).

As per the Head HSE of an Indian energy major , "Industries are nurturing safety culture these days and are focusing on people behaviour as one of the indices for avoiding accidents." Behavioral safety is getting well accepted in India and is showing good results in terms of improved safety records, building positive SHE (safety, health, and environment) culture and reduced at-risk behaviours at workplaces, and is also being applied successfully worldwide instead of command-and control approach to occupational safety (Geller, 2004).

Despite the best safety programs being available and exercised, it needs to be understood as to why each year witnesses hundreds of thousands people being killed at workplaces. Attempting new safety programs from time to time has not enabled the industry to achieving zero accidents. Does it point out the lack of willpower on the part of managements to lead and implement these safety plans effectively on a regular basis for the safety of employees? The vice president of an engineering giant expressed, "If you look at the Indian industry as a whole, we are not poised for a zero accident scenario. This is because while all safety measures are being taken, we still have not mastered the art of 'safe behaviour'. There is not enough visible commitment from senior managements of the industry to this issue" (Personal Communication, 2013). In the wake of a large number of fatalities taking place each year due to workplace

accidents, the zero accident targets appear far from reality for the industry, and we cannot yet claim our workplaces to be safe. Hence, the journey towards zero accident/injury goes on. Human life value considerations for organizations fall short of business targets. Human safety is clearly not a core value for industrial world. A project manager summed it up quite appropriately, "In Indian culture, we are more concerned about life after death than the 'present life'. The 'value for life' is not prominent in the industrial culture due to work pressures."

Conclusion

To wrap up the discussion on "Is our industry really poised for zero accidents," an HSE Manager of an Indian power giant narrated many things. Any industry is related to physical, chemical, and biological hazards. It may not be advisable to say that zero accidents means indicating towards injury only. It can also be zero harm. Any industry's safety aspects lie with the HSE policy, adaptation of standard safe practices in an organization, commitment, involvement, and implementation by the top management, empowering safety personnel for putting innovative ideas/techniques in the company as per international safety standards and monitoring of deviations with latest techniques/ software. Again, zero accidents indicate many things about the size of the company, the work methodology implemented, deployment of skilled personnel, strict guidelines for adherence to safety norms, and so forth.

Finally, in India, many of the industries are prone to accidents as there are no stringent statutory obligations, law-abiding factors, no threat for the management, and so forth. According to a safety practitioner at a MNC engineering and electronics company, "Any activity we do in an industry, we face a few hazards, be it, improvising on process safety every day. As long as our standards or expectations keep increasing, so will our knowledge on the hazards, we will plan to work without those hazards, and try looking for new ones. But we still are unsure, with all the systems in place, can we be accident free? It is hypothetical until a foolproof-system is created" (Personal Communication, 2013). What does really matter is an undeterred active commitment of senior managements to implement the safety systems along with their employees and workmen. Managements must aim to achieve business-safety balance for the cause of human safety while emphasizing on the behaviour-safety connection in the broader organizational perspective. The capacity-building programmes on 'change management interventions' to senior managers in organizations would help to better the safety situation.

To conclude, if safety survives, the business thrives.

Acknowledgment

References

Geller, E. S. (2004). Behavior-based safety: A solution to injury prevention: Behavior-based safety empowers employees and addresses the dynamics of injury prevention. *Risk & Insurance, 15* (12), p. 66.

Health and Safety Executive (2013). *Why leadership is important*. Retrieved from http://www.hse.gov.uk/leadership/whyleadership.htm

International Labour Organization (n.d.). *Safety and health at work*. Retrieved from http://www.ilo.org/global/topics/safety-and-health-at-work/lang--en/index.htm

JICOSH (2013). *Concept of zero-accident total participation campaign*. Retrieved on from http://www.jniosh.go.jp/icpro/jicosh-old/english/index.html

Joshua_sx1 (2007). *Occupational health and safety assessment series*. Retrieved from http://www.scribd.com/doc/10081792/OHSAS-18001-2007-Occupational-Health-and-Safety-Management-Systems-Requirements

Kaila, H. L. (2010). Behavior-based safety programs improve worker safety in India. *Ergonomics in Design, 18* (4), 17 - 22. DOI: 10.1518/106480410X12887326203031

Kaila, H. L. (2008, December 1). BBS winning over employees in India. *Occupational Health & Safety*. Retrieved from http://www.ohsonline.com/Articles/2008/12/BBS-Winning-Over-Employees-in-India.aspx

Kaila, H. L. (2011). Organizational cases on behaviour based safety (BBS) in India. *The International Journal of Human Resource Management, 22*(10), 2135 - 2146. DOI:10.1080/09585192.2011.580180

Kaila, H. L. (2012). 100 reflections on behavioral safety: Developing injury-free organizations. *Industrial Safety Chronicle, 43*(3), 21-26.

Matthews, G. A. (2013). *Behavioral safety from the consumer's perspective: Determining who really provides behavior safety*. Cambridge Center for Behavioral Studies. Retrieved from http://www.behavior.org/safety/consumer.cfm

Personal Communication (2013). Email discussion with safety professionals, July 2013.

Zhang, M., & Fang, D. (2013). A continuous behavior-based safety strategy for persistent safety improvement in construction industry. *Automation in Construction, 34* , 101 - 107.

Appendix 1. Some BBS Programs Conducted by the Author

Behaviour Based Safety (BBS) workshops were organized at Mumbai cluster office(24th Jul'12), Ahmedabad Cluster (23rd & 24th Aug'12), Krishnagiri Walaja Road project (11th& 12th Sep'12), Kolkata cluster (18th & 19th Sep'12), Delhi cluster (20th & 21st Sep'12) and Mumbai mono rail project (25th & 26th Sep'12) to develop Mentors of Behaviour Based Safety (MBBS) for working towards enhancing the safety culture. These programs were organized through expert faculty Dr. H.L. Kaila, Professor of Psychology, BBS Trainer & Implementer.

Source : Adapted from H.L. Kaila, (2012). 100 reflections on behavioral safety: Developing injury-free organizations. *Industrial Safety Chronicle, 43*(3), 21-26.