Establishing a 'Just Culture' for Work Safety and Environmental Protection

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Abstract

This is a keynote manuscript

1 Introduction

When aiming at implementing methods and strategies for occupational, industrial and environmental safety similar and related paradoxes and problems can be observed. This concerns accident preven-tion as well as the reduction of environmental impacts. Experiences show that the necessity for safety measures is not fully accepted by industries and organizations, although obvious benefits can be observed. Accident prevention measures and strategies for raising environmental safety can save human lives, improve human health and decrease adverse environmental impacts. But besides human benefits, there are also material benefits through cost reduction and damage prevention. This paper will discuss how the desired acceptance can be achieved by establishing a so-called *just culture* in work environments. *Just culture* means raising the consciousness of workers and employees, as well as their superiors and in a broader sense also stakeholders, for accident prevention and impact reduction. This is done by analyzing errors, unsafe behavior or near-accidents (so-called *Near Misses*) as well as environmental impacts without blaming an individual for arising errors, but for future improvement.

Experiences from *ultra-safe* industries show that a zero-error culture is neither appropriate nor goal-prominent for raising safety. Rather, risk reduction by positive handling of errors can lead to the desired results. An experience made by the own makes a more fundamental learning process possible than prohibi-tions, badly understood rules or dogmatic instructions for preventing errors. This applies for individuals as well as groups or organizations as such.

For example, in the ventures capital industry in the USA it is more accepted if an entrepreneur had a failure already once in his success story. It is even assumed that an entrepreneur, who once made the experience of failure, will not make the same or a similar error in the future again. He wins the confidence of the ventures capital investor, if he can communicate to have learned from errors of the past.

2 Methods

Wherever there are humans, there are mistakes and there occur environmental impacts. The devel-opment of civilizations, their achievements and progress were based on trial and error when aiming at inventing, or generally spoken, when aiming at using resources to transform the natural environment to man-made environment. This transformation is, evolutionary determined, accompanied by an inten-sive learning process. Errors accompany any process of learning and thus, spur the development of human innovation.

To be able to make progress, especially in industrial and organizational matters, it must be realized that

- 'errors and mistakes can neither be allowed nor avoided' and that

- 'there is no activity that does not have an impact on the environment'.

To face the first fact, an atmosphere must be created which makes it possible to manage errors by positive handling. To manage the second fact, it must be understood that by applying the right strategies in industries and organizations, the amount of environmental impacts can be drastically reduced. For both, each individual employee may be responsible to take steps towards these goals, not just a particular department.

Usually, in daily work life, errors are considered as unacceptable. In most cases a sanction-free area is missing, where workers and employees can communicate and discuss errors and Near Misses free from fear of sanctions. To achieve this, the existing culture in an organization has to provide an atmosphere where employees who discover and report own and non-own unsafe actions or situations are not punished. Therefore, it is a must to systematize the handling of errors and to build a risk management system based on *just culture*.

To gain an appropriate definition of the term *just culture* first a definition of *culture* as used in this paper is given:

Culture can be understood as the sum of all knowledge, all values, principles and symbols in a social system. Accepting errors as improvement potential must be integrated into the value-system of the organization and should be lived as *just culture*.

A just culture therefore is an organizational culture in which

- errors and Near Misses are accepted

- the conditions to report errors and Near Misses exist without any sanctions (open communication, no blame),

- the roots which have caused the error or Near Miss are analyzed,

- the case with the person concerned or involved is investigated if possible,

- an incentive system to motivate the employees for pointing out and announcing errors and Near Misses is set up,

- a zero-error culture is not expected

Before continuing, a brief definition of the terms used in this paper is given:

Error: if a correct project is not done as planned, or if the outcome is the result of a wrong plan, then an error has been committed.

Near Miss: A Near Miss is an unplanned event that did not result in injury, illness, or damage - but had the potential to do so. Only a fortunate break in the chain of events prevented an injury, fatality or damage.

Zero-error culture: a culture in which errors are not permitted (and are liable to be punished). Thus the danger exists that errors are hushed up and not corrected. Also the innovation spirit cannot unfold. A zero-error culture is in most cases also a culture of blame (i.e. blaming involved individuals for near-misses or errors). Experience shows that dogmatic zero-error principles lead to the blocking of consciousness, conscientiousness and self-initiative. If handling of errors is connected with fear of punishment, the employees will probably prefer regulated workflows and routine working.

Environmental impact: consequence of human action on nature; the indirect and direct consequences of human actions on the natural environment.

Risk: is defined as a measure of the probability and severity of adverse effects:

$$Risk = Probability \times Severity \tag{1}$$

In everyday life, risk has various meanings - from the financial world (market risk, risk of loss...), in industry (health of the employees, accidents, environmental risks, damage of goods, loss of production, etc.), traffic and household, to medicine (medical risk) and decision making (wrong decisions).

The possibility or uncertainty that an event occurs is generally called risk.

Risk is the calculated prognosis of a possible damage and/or loss in the negative case (danger), or a possible benefit and/or profit to occur in the positive case (chance).

Acceptable Level of Risk: Organizations and/or employees may state a goal of *zero injuries*. However, that goal is different from *zero risk*. A zero-risk environment does not exist. The goal is to reduce risk to an *acceptable* level. Risks are acceptable if judged to be tolerable. For any operation to succeed, risks must be acceptable.

3   Results

It was proven that reducing risks, raising safety and reducing environmental impacts are not related to cost increases. Results from industries show that costs can be saved through minimizing environ-mental impacts, minimizing risks and avoiding accidents. This concerns human life and health as well as the local, regional and global environment. An effective method at the human and psychological level is the implementation of a just culture for enhancing a proper understanding of environmental impacts and risk awareness in industrial and daily processes.

Once a just culture is present in an organization, an appropriate handling with Near Misses, risks and unsafe conditions, concerning occupational as well environmental issues, can be expected. This posi-tive handling can be achieved by introducing a Near Miss management and Near Miss reporting sys-tem in an organization.

To have control over a large number of Near Misses, an organization should have a systematic procedure to report and investigate them. Reporting uncertain and unsafe conditions, unsafe actions, hidden dangers, risk potentials, weak points and safety-adverse behavior is basis of a Near Miss reporting system. By reporting Near Misses in time, they remain without further consequences.

An appropriate Near Miss reporting covers following steps:

1. Discovering, recognizing and identifying a Near Miss
2. A Near Miss is reported, documented and registered in a database. At this stage it is important that the correct incentive in the organization is set. The employee who reports must have the choice between an anonymous message (in the case of fear of consequences) and a named message (open communication, incentive system).

3. Distributing the information is best done in a morning meeting, to be discussed and passed on to the responsible persons for further processing and analyzing the reported Near Misses.

4. Analysis of the cause of the Near Misses; investigation should be done by a team. Surrounding circumstances also have to be considered.

5. Solutions for avoidance of the effects of the Near Misses should be developed.

6. The results and measures will be communicated - to direct announcement of the solutions concerning an incident.

7. Solution implementation also could be done by those persons who developed the solutions; completion of the measures.

8. Control and examination of the effectiveness of the accomplished measures specified in the solutions. Possible re-entrance/ return into the process with step 4: analysis.

The *high risk* Near Misses will be treated in a Near Miss conference for root cause analysis and special investigation. The selection of such *high risk* Near Misses is up to the investigation team. Step 6 earns special attention. This point seems to be a matter of cause in the chain of procedures - it should, however, be consciously set. Up to 95% of work accidents are caused by the behaviour of human beings, only 5% because of technical reasons.

The basic idea is to direct the attention of the employees to a way to behave safely, hence to reduce occurring environmental impacts as well by consciousness acting, behaving, developing and processing.

Basically, there is a significant connection between the number of uncertain actions seized by the reporting, and the number of minor and major accidents in an organization, see Figure 1.

Therefore, one can say that the more an organization is able to learn from Near Misses, the smaller becomes the number of actual accidents, hence

internal and external costs.

4   Discussion

Safety consists of the interaction of three components: they are technical, organizational and personal conditions. A goal is to harmonize these three components, because only if these three conditions are in harmony there will be a suitable safety culture, see Figure 2.

The surface S in the illustration above symbolizes safety and is dependent on the degree of agree-ment and on the tuning of the other three components. The measure of the agreement of the three aspects determines the safety performance of an organization. The technical facilities are strongly industry-specific. In the organizational part above, tools of the Near Miss management system have been explained on the basis of error culture and just culture. At the personal level, the Behaviour Based Safety system (BBS) takes the human conditions into consideration.

BBS can be effectively established by keeping in mind following points:

- Respect/confidence instead of control

- Understand the human behavior (understanding human error)

- Incentive systems (praise and acknowledgment)

- Near Miss framework

- Participation of the employees

- No-blame organization

BBS does not require any technical changes. Only the change in attitude based on an appropriate just culture in the organization helps to understand errors and encourages appropriate handling by employees and will lead to an improvement of the safety culture. Only the continuous use of BBS and the switching to a just culture will lead to a holistic and effective safety culture.
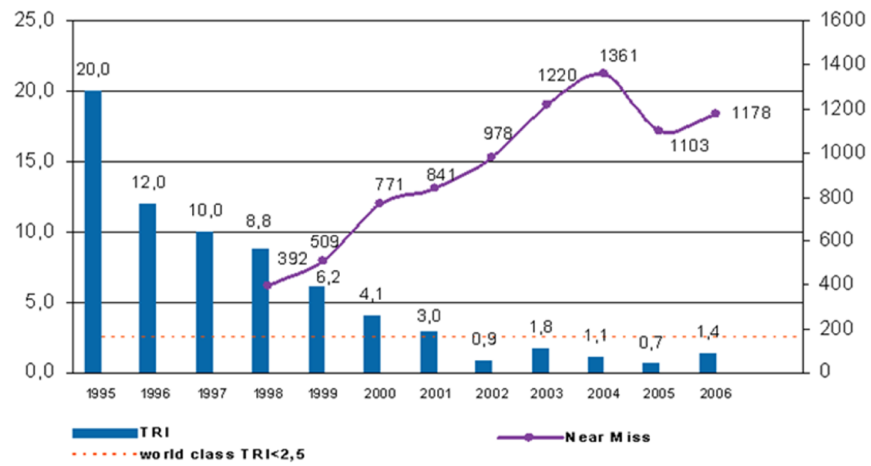
Figure 1: Correlation between the number of the Near Misses and the number of accidents (TRI: Total Recordable Injuries)
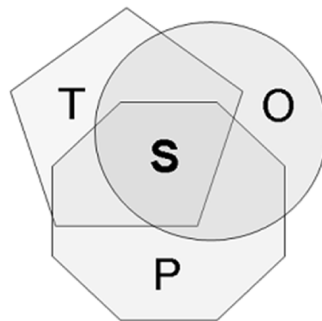

Figure 2: Harmonization of technical (T), organizational (O) and personal (P) conditions in organizations