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SOCIAL AND ECONOMIC ASPECTS OF WORK SAFETY CULTURE MANAGEMENT

1. Introduction

Modern company management is not only business processes management resulting from the specific of particular organization, but also care of human resources which reflects in culture organization management as well as translates into organization approach to safety and occupational safety and work aspects.

Problems connected with occupational safety and work are more and more popular research subject not only because they are elements of Corporate Social Responsibility, but also because proper actions in this field let improve working conditions, as well as bring financial benefits which is presented in research results. The aim of this article is to attract attention to this aspect of managing the company. Researches in the scope of culture and work safety management show that there is still a lot to do about this subject both in Poland and Europe. Total costs connected with improper working conditions fluctuate in most countries between 2,6 and 3,8% GDP¹. It applies to both safety itself and occupational safety which requires special attention in the era of open economy, knowledge and fast changes. Low occupational safety, translates also into high stress costs. Therefore, in the world stress costs are taken into account more often in organizations. Occupational stress and problems connected with it are assessed at 3-4% value of gross national product which corresponds to 265² bn EUR yearly. Research results show that the stress itself is connected with work cost companies and governments of those countries about 20 000 bn EUR, these are only the costs of sick leave and the costs of treatment.³ Statistics are alarming especially in the aspect of high social and financial costs connected with occupational safety and work.

2. Organization culture

Occupational safety culture is an intrinsic element of organization culture. Its shaping happens through proper managing of organization culture. The culture of organization i.e.

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¹http://osha.europa.eu/pl/topics/business-aspects-of-osh/index_html

²<http://www.portalbhp.pl/nowosci-bhp/stres-w-pracy-219600>

³<http://www.portalbhp.pl/nowosci-bhp/stres-w-pracy-219600>

peculiar for particular company employees' behaviour, attitude, values, view, style, character, specificity of functioning are not without influence over what is happening inside. The word culture is an ambiguous term, interpret in various ways by representatives of different sciences – model of conduct, as well as what in human conduct is learnt, as opposed to what is biologically inherit⁴.

A well-known definition of culture is one given by Scheina E. H., who determines it as a collection of dominant values and rule of behaviour typical for particular organization, uplifted with principles as for nature of reality, shown by artefacts⁵.

According to Matsumoto D. and Juang L. it is „dynamic system of principles – open and hidden, established by groups to assure survival, concerning values, beliefs, social norms and behaviours, divided by a group but accepted by its particular participants to a different extent handed down from generation to generation, relatively long-lasting but changeable with time”⁶.

Armstrong M. suggests one of more modern definitions of organization culture where it is a pattern of values, norms, beliefs, attitudes and assumptions which do not have to be regularized but which shape peoples' conducts and the ways of realizing tasks⁷.

To narrow organization culture to the area connected with problems of risk and safety we can distinguish safety culture.

3. Culture of occupational safety and work

Occupational safety and work culture is an element of general company safety culture. The term work safety is used only in literature although, as shown in definitions below, we can assume that it also includes problems connected with occupational safety. The term safety culture – group of features and individuals and organizations attitudes, was used for the first time by Atomic Energy Agency which issued submitted a report about the disaster in Chernobyl in 1986⁸. After the pioneering definition many new definitions about safety culture came into being through successive years.

The most popular definition was elaborated by Health and Safety Executive, indicating that it is the result of individual and collective values, features, perceptions, competences and standard of behaviour as well as style and quality of safety management in organization. Company, which can be determined as the one with high level of safety culture, is then characterized by communication based on mutual trust, coincident perceiving of the essence of safety and confidence in preventive means⁹.

⁴ red. Kłoskowska A.: *Encyklopedia kultury polskiej XX wieku. Pojęcia i problemy wiedzy o kulturze*, Wrocław 1991.

⁵ Zbiegień - Maciąg L.: *Kultura w organizacji. Identyfikacja kultur znanych firm*, PWN, Warszawa 1999, s.22.

⁶ Matsumoto D., Juang L. *Psychologia międzykulturowa*, GWP, Gdańsk 2004, s.27.

⁷ Armstrong M.: *Zarządzanie zasobami ludzkimi*, Oficyna a Wolters Kluwer Business, Kraków 2007, s.248.

⁸ International Atomic Energy Agency, *Summary Report on the Post Review Meeting on the Chernobyl Accident*, Report by International Nuclear Safety Advisory Group, Safety series N75-INSAG-1, Vienna 1986.

⁹ Horbury C.R., Bottomley D.M., *Research into health and safety in the paper industry*, Health & Safety Laboratory, IR/RAS/98/2, 1997.

Safety culture definition published by Pidgeona N. F. constitutes the system of meanings, through which specific group of people understands threats in the world¹⁰.

Significant input in work concerning this field had also Geller E.S., who assesses that shaping safety culture is a result of commitment of all employees, work in groups and the sense of affiliation to company and proper education. Significant influence over safety culture beyond natural environment has, most of all, mere employee's conduct as well as his individual features such motivation, knowledge and abilities¹¹.

On the other hand, Studenski R. perceives culture of occupational safety as a collection of psychological, social and organizational factors initiating or upholding activities saving life and health both at work and off-the-work activities¹². Strong engagement in safety issues should be shown in implementation of safe conducts parallel on professional ground and during leisure time¹³. At the same time the author of these deliberations emphasizes that safety culture can be described on the basis if three levels: society safety culture, enterprise safety culture, individual safety culture.

Society safety culture displays on the basis of social acceptance of risk and evaluation of risk-takers. Enterprise safety culture involves values and attitudes common for the whole organization in the scope of safety. The last level is individual safety culture and these are peculiar attitudes and beliefs on the matter of safety.

Analysis of presented concepts of safety culture allows to create universal and consolidated definition of safety culture according to which culture of occupational safety and work are:

- Activities and conducts aimed at ensuring proper safety in private life, at work and the whole environment,
- knowledge, skills and activities (know, can, practice) translate into the level of culture of both organizational unit and society¹⁴.

The increase of knowledge and skills as well as extension of preventive activities towards improvement of occupational safety influences growing safety culture.

4. Shaping occupational and work safety culture in company

Shaping safety culture is a process of long duration, concerning all the members of enterprise and aiming at encouraging to conduct geared towards health and life protection. Effective shaping of safety culture is not only affecting behaviour of particular workers.

According to Gellera E. S., shaping desired safety culture in enterprise requires permanent focusing on three elements:

- The work physical environment (tools, machines, workstand organization).
- Workers' behaviours (obeying the rules, concern for safety).

¹⁰ Pidgeon N.: *Safety culture: a key theoretical issues*, *Work&Stress*, vol.12, no. 3, pp.202-216, 1998.

¹¹ Geller E.S.: *The Psychology of safety*. Radnor, Pennsylvania: Chilton Book Company 1996.

¹² Studenski R.: *Kultura bezpieczeństwa pracy w przedsiębiorstwie*, *Bezpieczeństwo Pracy* 2000 nr 9, s.1.

¹³ *Ibidem*.

¹⁴ Ejdyś J.: *Kształtowanie kultury bezpieczeństwa i higieny pracy w organizacji*, *Oficyna Wydawnicza Politechniki Białostockiej*, Białystok 2010, s. 18.

- Worker's inner characteristics (knowledge, skills, motivation)¹⁵.

In order to shape occupational work and safety culture effectively it is required to familiarize with its effective shaping elements (fig. 1).

5. The relationships between work safety culture and accidents in enterprises

The object of researches and analysis was many times the relation of accident rate and occupational work and safety. Researches confirmed influence of occupational work and safety culture on accidents rate¹⁶. In the past, this safety culture was many times the reason for traumatic accidents and disasters e.g.:

- 1986 – a nuclear accident in Chernobyl,
- 1987 – sinking of passenger ferry Herald of Free Enterprise,

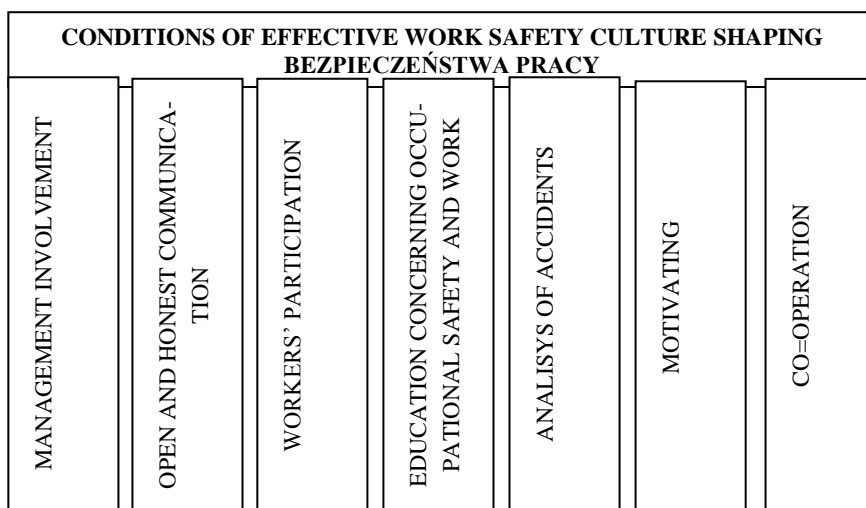


Figure 1. Conditions of effective work safety culture shaping

Source: Milczarek M.: *Kultura bezpieczeństwa pracy*, Wyd. CIOP, Warszawa 2002.

one of the main causes of mentioned occurrences was low level of safety. Analysis of statistics concerning industrial accidents in Poland in the year 2010, shows that the dominant, 58% of all the causes, part as the reason is improper employee's conduct (fig. 2).

¹⁵ Geller E.S.: *The Psychology of safety*. Radnor, Pennsylvania: Chilton Book Company, 1996.

¹⁶ Accident at work - sudden occurrence created by outer reason causing injury or death which occurred on account of work.



Figure 2. Causes of accidents at work in the year 2010.

Source: Own study based on: *Wypadki przy pracy 2010r.*, Central Statistical Office, Warszawa March 2011.

6. Examples of work safety culture management based on instance of LOTOS Capital Group

LOTOS¹⁷ Capital Group is an example of a company for which workers and contractors safety is a priority. Especially important emphasis is placed on activities which are aimed at keeping high level of safety, minimizing occurring dangers, reducing accidents rate and raising employees' awareness as well as culture of safe work.

The keynote which employees and managers of LOTOS Group are guided by is: there is no such urgent and important work which cannot be done safe". Owing to this LOTOS Group enjoys the reputation as employer offering safe, well equipped and well organised workstations and the employees themselves have high sense of security and awareness of the importance of their work and its influence on safety.

LOTOS Group take extensive actions aiming at:

- Providing proper organization of work environment,
- carrying out environmental researches regularly,
- using the best available service support and health protection,
- improvement of hazard identification and risk assessment system in relation man – machine – environment,
- carrying out regular advisory-supervisory – control activities,
- organizing practical trainings and thematic workshops improving professional qualifications of employees,
- co-operation with state authorities, national organizations and research and development units,
- interchanging of experiences with co-operating chemical works in Poland,
- raising employees awareness and engagement influencing on increase of work safety culture.

¹⁷<http://raportroczny.lotost.pl/zaangazowanie/ludzie/pracownicy/>

In the respect of work safety LOTOS Group is highly assessed by representatives of world-wide concerns, external auditors visiting refinery and representatives of insurance companies. Common work safety standards are worked out in the whole capital group.

Safety awareness of employees is shaped by:

- trainings and raising qualifications of employees,
- popularization of occupational and work safety issues,
- encouraging to active participation in creating and implementing corporate policy of work safety,
- organization of information campaigns, carrying out knowledge competitions in a encouraging and friendly atmosphere.

In the year 2010 for the first time, LOTOS Group organized for employees a Health and Safety at Workplace Day. Concern takes extra initiatives to promote work safety issues in an accessible and workers' absorbing way. These are as follows: using the best available techniques and employing technical elements of the highest quality in production area, informing employees about the situation in the company, domestic and global innovations with the help of available means of communication. One of the most interesting initiatives aiming at improvement of communication in the field of work safety among the employees of LOTOS Capital Group we can count: printing articles raising issues of safe work and health protection in each number of LOTOSFERA (a monthly magazine for employees). Another undertaking is publishing a work safety quarterly „Bezpiecznik” (which was awarded in 2009 by Association of Company Press for the best internal magazine „for the idea of non-stop reporter's duty of employees from work safety department, who show how to avoid dangers on the real examples from company's site”).

Noticeboards „Safety At Work” promoting work without accidents, presenting reported by employees danger situations, or answers for questions received via work safety boxes or email were placed. Noticeboards „Accidents Rate” in the site of refinery, informing about the amount of accidents at work and registered dangerous situations in the area of separate production works and companies. The online panel „Work Safety” in the Internet allows workers access to among others: materials promoting health and healthy lifestyle, instructional films, course materials, world innovations, competitions.

The company took the trouble to develop staff training system, including among others: preparation of instructional film for employees and visitors visiting on the site of LOTOS Group as well as contractors.

7. Work safety culture management and benefits form activity in the field of work safety

Work safety management is not only taking actions to improve working conditions but also, as well as in other fields of management, actions influencing on economic outcome of the company. Effects of taken actions in the field of work safety as results of either standard or non-standard management process, result particularly from improvement of working conditions (work environment), raising the level of safety culture¹⁸. Improvement of work-

¹⁸ Ejdys J.: *Kształtowanie kultury bezpieczeństwa i higieny pracy w organizacji*, Oficyna Wydawnicza Politechniki Białostockiej, Białystok 2010, s. 64.

ing conditions is the quickest noticeable effect of activities in the field of work safety and has a direct influence on employees working conditions which translates into their health. Nonetheless obeying safety rules is the fundamental element of a successful company which:

- Allows to show that company is socially responsible,
- Protects and strengthens the image and value of brand,
- Helps to maximize efficiency of employees,
- Increases employees involvement in performed work,
- Makes employees are more competent and healthy,
- reduces the running costs and disruptions at work,
- helps companies to fulfill clients expectations in the field of work safety,
- encourages employees to leading long active life¹⁹.

Both small enterprise and big companies can benefit from investing in work safety. Simple activities, many times not carrying with considerable financial outlays can do something good for workers motivation which will translate into resilience and effect on improvement of company competitiveness. The costs of accident at work, employees death or fire will have disproportionally large influence on a small company. About 60% of companies which activity was stopped for more than nine days, lose the market.

8. Economical aspects of work safety culture management

Since companies do not carry out economic analysis in the field of work safety, it is quite difficult to notice the financial benefits coming from proper level of work safety and verify profitability of bore outlays. They notice only expenditures which must be bore. Undoubtedly, work safety has enormous influence on gained profit and is integral part of its managing. It should be kept in mind when making decisions concerning the shaping of working conditions.

Only a detailed cost analysis carried out for a longer period of time could allow to show also benefits from proper work safety state in an organization.

Work safety costs are as follows:

1. costs connected with fulfillment of legal requirements concerning the safety at work:

- employment of workers from safety at work service,
- service in the scope of work safety by the outside specialists,
- work safety monitoring,
- purchase of individual and collective protective means,
- purchase and washing protective clothing,
- purchase of cleaners,
- audits,
- examinations,
- safety at work trainings,
- measurement of work environment conditions,

¹⁹ <http://osha.europa.eu/pl/publications/factsheets/77>

- organization and maintenance of rescue service,
 - promotion and information
 - changes in production organization.
2. **costs of improper work environment conditions:**
- higher costs of accident insurance in the National Insurance System – significant influence on insurance premium has accident rate as well as certified occupational diseases,
 - costs of accidents at work (e.g.: establishing circumstances and reasons of an accident, lost time of an injured, person giving first aid and others, medical treatment and transport, hours of overtime, replacements, production disruption, material loss, loss of tools and machines, machines repair, paid benefits),
 - costs of occupational diseases (e.g.: wasted time, medical aid and transport, hours of overtime, replacements, paid benefits),
 - costs of sick leave connected with working conditions (e.g.: replacements, hours of overtime),
 - production interruption (e.g.: forfeit, loss of income),
 - costs of reduced efficiency (e.g.: reduced efficiency, work overtime),
 - costs of lower product quality,
 - costs of benefits grounds on work in harmful conditions and onerous for health (e.g.: costs of preventive and free meals meal, beverages, cash allowances, shorten work time, additional leaves, ability of earlier retirement)²⁰.

Lack of carried out economic analysis in the field of work safety does not pay employers' attention to enormous costs that are bore on account of wrong working conditions. Diverse insurance premium against accident put into practice on 1st January 2003 was used as peculiar economic stimulant encouraging employers to take actions towards improvement of work safety state. For businessman, costs of wrong working conditions make extra costs which will hale influence on product and services prices.

9. Social aspects of works safety culture management

Occupational safety and health besides economic aspect for both employee and employer has also a social aspect. The costs of consequences of improper working conditions are bore not only by employers but also by society. On the grounds of accident at work or occupational disease the National Insurance System pays the following benefits from accident fund:

- sickness benefit,
- rehabilitation benefit,
- compensatory benefit
- single indemnity²¹,

²⁰ Rzepecki J.: *Analiza kosztów i korzyści BHP*, Centralny Instytut Ochrony Pracy, Warszawa 2002.

²¹ *Exemplary amounts of lump sum compensation on account of injury caused by accident at work or occupational disease in the period from 1st April 2011 to 31st March 2012 amount to: 645 zlotys – for every percent of permanent or long-lasting health impairment, 11 287 zlotys – on account of complete inability to work certificate and incapacity for own subsistence of an insured person, 58 050 zlotys – when for lump sum compensation a*

- pension on the grounds of incapacity for work including training pension²²,
- dependents' pension,
- attendance allowance and others.

A model amounts paid by National Insurance System, presented above, when related to the number of accidents at work (Chart 1) and the number of days incapacity for work make worrying view of the whole costs bore by society. Those costs, to considerable degree, are hidden costs because an injured person and employer do not notice them directly.

Chart 1. Number of people injured in accidents at work in the years 2003 – 2010

YEAR	2002	2003	2004	2005	2006	2007	2008	2009	2010
Injured in work accidents									
total:	80494	85440	87516	84402	95462	99171	104402	87052	94207
deadly:	520	522	490	468	493	479	523	401	444
heavy:	1037	1005	1040	956	976	1002	902	827	625
Unemployable days									
total:	3540166	3825081	3872479	3666934	4147170	3433185	3638805	3111170	3429527
average per 1 injured	44,3	45,0	44,5	43,6	35,3	34,8	35,0	35,9	36,6
Frequency factor (number of accidents per 1000 workers)									
	7,6	8,15	8,38	7,99	8,83	8,82	9,11	7,44	8,12

Source: Own study based on www.zus.pl/bip/default.asp?id

spouse or a child of deceased insured person or pensioner is entitled, 29 025 zlotys – when for lump sum compensation is entitled a member of family of deceased or pensioner other than a spouse or a child.

²² Exemplary amounts of the lowest guaranteed benefits pension and social security payments from 1st March 2011 amount to: 873,82 zlotys – incapacity pension on account of accident or occupational disease and dependents' pension, 672,16 zlotys – pension on account of partial disablement due to accident or occupational disease.

Chart 2. Incomes and withdrawals from accident fund in the years 2003 – 2009

	Incomes from premiums [thous. PLN]	Withdrawals from fund [thous. PLN]	Balance [thous. PLN]
2003	3 867 278	4 246 737	- 379 459
2004	4 003 146	4 206 983	- 173 837
2005	4 307 578	4 165 198	+ 142 380
2006	4 281 809	4 350 467	- 73 159
2007	4 631 605	4 374 085	+ 257 520
2008	5 374 092	4 717 888	+ 656 204
2009	5 519 324	4 950 643	+ 568 681

Source: Own study based on www.zus.pl/bip/default.asp?id

In the period of seven years of running the new accident insurance system, it was noticed that income of premiums for accident fund has increased. The final balance has not been showing losses for three years with a parallel growth tendency. Data collected by Central Statistical Office inform that the state of occupational safety and health in Poland is improving, however, it is still unsatisfying despite the fact that the rates of frequency of fatal accidents at work and the incidence of occupational diseases decreased, general number of accidents at work is high. The most accidents at work are caused by improper employees conduct (58%).

10. Concluding remarks

The process of work safety management culture should be treated on a par with other processes in organizations. Presented costs (average 2,6 and 3,8% gross domestic product) of improper working conditions both on the matter of safety and health, should be stimulating factors for each businessman to take actions which will shape desired safety culture. Actions with the object of improving working conditions cannot only be come down to the level of technical equipment of workstands. Besides technological threats, the risks resulting from safety culture should take more importance, more so because, within the space of the last years no essential changes in shaping of accidental rate has followed in Poland.

Proper accident prevention consists of parallel activities towards elimination of threats resulting from work environment and should shape workers conducts. Even the safest technological solutions will not help if employees themselves do not want to work according to accepted procedures.

The lack of acceptance of disregarding threats by employees of all grades of organization is especially important in proper management of work safety.

There is a need for carrying out researches in the field of management of work safety culture.

11. Literature

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Summary

In the article issues concerning social and economic aspects of culture and work safety management were discussed. This article draws particularly attention to benefits resulting from long-standing, proper culture and work safety management. Costs incurred by employer and society due to improper work conditions were also discussed.

Keywords: organizational culture, work safety culture, social aspects of safety culture management, economic aspects regarding management of work safety culture

SPOŁECZNE I EKONOMICZNE ASPEKTY ZARZĄDZANIA KULTURĄ BEZPIECZEŃSTWA PRACY

Streszczenie

W artykule została omówiona problematyka społecznych i ekonomicznych aspektów zarządzania kulturą bezpieczeństwem pracy. Artykuł zwraca szczególną uwagę na korzyści wynikające z długofalowego prawidłowego zarządzania kulturą bezpieczeństwa pracy. Omówiono również zostały koszty, jakie

musi ponieść pracodawca oraz społeczeństwo w związku z nieprawidłowymi warunkami pracy.

Słowa kluczowe: kultura organizacyjna, kultura bezpieczeństwa, społeczne aspekty kultury bezpieczeństwa, ekonomiczne aspekty kultury bezpieczeństwa, zarządzanie kulturą bezpieczeństwa pracy

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