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Factors Influencing Safety at Work in Developing Countries

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Summary:

The study is concerned with factors influencing safety at the work place in less developed countries. The focus is on four important issues that we assumed to have direct effect on the functions of the industrial organisation and safety at large. These issues are: Conditions of work, technology used, economic and management. From the review of the literature dealing with these issues, we concluded that there is a big difference between the economy of the developed and developing countries in their objectives. The misunderstanding of such concepts is related to a number of factors such as lack of experience, political systems and culture.

ملخص :

البحث تناول العوامل التي لها علاقة بمشاكل الأمانة في المؤسسات الصناعية في الدول النامية. التركيز كان حول أربعة عوامل أساسية التي يعتقد لها تأثير مباشر على المؤسسة التنظيمية بصفة عامة و الأمانة بصفة خاصة، مثل ظروف العمل السيئة، التكنولوجيا المستعملة، الحالة الاقتصادية وكفاءة المسيرين. نتائج المتوصل إليها في هذه الدراسة بينت بان العامل الأمني لم يتأثر بهذه العوامل فحسب بل هناك عوامل أكثر أهمية مثل العوامل الثقافية، والاجتماعية، مستوى التعليم والتكوين الذي لم يلق الاهتمام الكافي من طرف الأنظمة السياسية في معظم الدول النامية.

INTRODUCTION:

The investigation is concerned with factors related to safety problems in L.D.C enterprises. The focus was on four issues, that we think may have a direct influence on the organisational in general and safety in particular , such as condition of work, applied technology , economic and management qualification. The results of this study concluded that, safety is not affected solely by these factors but there are other factors which must be taken into consideration, if we would like to improve safety in industrial settings such as socio-cultural, level of education and political aspects.

Safety at work in developing countries has received a great deal of attention from managers, workers and academics. The requirement was not only to protect workers from the risks caused by bad conditions of work as pointed out by Negandhi (1975) but also other human, social, economic and technical factors which may contribute to the impairment of safety performance in many developing countries.^o

Thus, the aim of this paper is to investigate and analyze the issues that are deemed to have a negative influence on safety at work in some developing countries. It has been argued by Jcyaratnam (1985), Nowier (1986) and Kim (2002) that safety in developing countries is a very serious problem. The conditions of work in these countries are described to be very dangerous to the health and very costly from an economic point of view compared to those of developed countries. The lack of safety in these countries, as has been reported by Everley (1995) relates to a number of factors, such as lack of control over the work environment, lack of experience and overall to management failure to keep the work place safe. This study will focus on these factors, with more emphasis on the influence of conditions of work, applied technology, economic situations, and management attitudes towards safety.

Conditions of work in Developing Countries

Conditions of work In industrial setting in many developing countries, is regarded as a serious problem which affects millions of workers. Silverman (2003) bad conditions of work both physical and mental are listed among the main causes of frustration and stress leading to accidents. The deterioration of working conditions according to Silverman depends on various factors. Some of these factors are technical such as size of industry, type of construction, layout of equipment, and quality of applied technology. But in many cases, the deterioration in conditions of work could

be related to the lack of management capability to control the work environment and lack of knowledge about the consequences of poor conditions of work to the individual health. The poor conditions of work may also be related to other factors such as lack of regular maintenance, shortage of funds, ignorance of the safety regulations and lack of compliance from workers exposed to such hazards. Louzine, (1982) and Ray et al (1993). If this is the situation then the questions to be asked are: Are the conditions of work the only problem that affect safety in LDC or are there other problems? To answer these questions, studies from both western and developing countries all agreed that bad conditions of work have a major influence on workers both physically and emotionally. However, the problem of LDCs, in relation to safety, is not only technical or behavioural as showed by Scott, (1982). This view however, contrasts with that of Levitt and Parker (1976) and Salminen and Saari (1995) who indicated that the problem of safety in less developed countries is not technical in its origin or behavioural only but socio-cultural and political.

Jeyaratnam (1985) refers to two issues of common interest in looking at the problem of safety in less developing countries:

1-The first is in relation to the setting of environmental standards in the work place. In the setting of such standards, cultural, political, social, economic and administrative factors must be taken into account.

2-The second issue relates to scientific research. Most developing countries have totally ignored the importance of this factor in their development. Therefore, if less developed countries are to benefit, it is essential that the scientific and technological activities they have undertaken are in harmony with the socio-economic development of their respective nations. This may suggest not to engage in more capital-intensive technology which cannot be adapted to their socio-economic environment, because the high capital-intensive technology requires strong economic background, high skilled labour, competitive international market and qualified management. The lack of these factors makes it quite hard and may be impossible for developing countries to provide safe conditions of work to the people employed in industrial enterprises. In the following sections we deal further with problems of technology and their relation to safety.

Technology and its Relation to Safety in LDCs

The history of technology in most developing countries does not extend back in time more than four or five decades. This delay in development is justified by the length of time they remained under

colonization. In addition, the developing countries also lack capital and qualified staff as a result of colonial exploitation. According to Bannoune (1988) and Derbale (1990) the main reasons which led these countries to these situations are related to the colonial era which prevented these countries from developing themselves technologically, socially and economically. These and other similar socio-political and economic instability factors have caused them to fall far behind developed nations.

With regard to the success or failure of applied technology in less developing countries, Ramanujam and Saaty (1981) argued that most of the technology used in these countries has failed. Its failure is related to a number of reasons. Some of these reasons may be related to the nature of technology itself while others are human related problems. With regard to the nature of technology, it is defined as too demanding, hard to adapt to the new environment and very costly from the economic view point. In terms of human problems, the transfer of technology from developed countries to developing ones is challenged by problems such as lack of skilled labour whether managerial or operational. These problems lead to the failure of technology to function efficiently. It also creates many other problems such as health and safety related problems. It has contributed to a large amount of waste in production, increased the burden of cost and has contributed to high unemployment.

The problem of technology in LDCs involves other factors such as:

(1) The lack of local cultural habits and the experience of socio-economic difficulties.

(2) The differences between the level of economic systems of industrialized and developing nations.

(3) The differences in the organisation and social structure of the advanced nations and less developing ones.

(4) The differences in the attitudes and values of both managers and workers which are related to their historical background and influenced by their culture. These are some factors that appeared to influence the nature of imported technology. Some technologies are more hazardous and dangerous than others. The industrial workers in poor countries are unaware of the dangers of high technology. And even when they are aware, poverty and socio-economic factors forces them to take up any job that is offered to them. This means that it is not only technology which makes them accept

the conditions of the job, but socio-economic problems also, which force them to accept work. Workers may be required to work with new equipment which they have never seen before and operate in different physical and social environments. All these factors can increase their stress and expose them to high risks.

However, Blumethal (1970) regarded safety as symptomatic events indicating a malfunction of a system at a certain level which is made up of social and technical components. A malfunction of a system occurs when human and /or material capabilities are exceeded, for example, when operators are incapable of paying insufficient attention to their tasks. The lack of balance between social and technical components is related to incapability, poor awareness and lack of skills which may in the long run lead to high stress, high dissatisfaction and low motivation. Keller (2002) suggested that strategies were needed to ensure that within the changing in human behaviour by improving their general awareness or redesigning technical system risk levels may not increase but rather decrease. People perform very safely under a risky situation when they are motivated and rewarded for the job done. In the mean time they could perform very poorly under similar conditions with absence of motivation and rewards. According to Scott (1982) the improvement of conditions of work and personal skills may help to identify the sources of defects that could be created by either workers behaviour or the technology used. He argued that third world countries failed to develop the managerial and supervision skills required to ensure their success as a result of their low level of education.

From this analysis we can conclude that there are three different views concerning technology problems in LDCs.

1-The ergonomic point of view. This was introduced by the ergonomic approach presented by Wisner (1985) and Salminen and Saari (1995) who related the failure of technological development and its consequences to ergonomic factors. They argued that unfortunately most of the equipment in developing countries comes from the developed parts of the world because of this, the anthropometric measurements may be quite different from those of their counter-parts in most developed countries. The applications of workplace ergonomic principles require removal of two types of barriers: Knowledge-based, and organizational.

The knowledge-based barriers stem from a lack of basic ergonomic principles or specific job-related ergonomic stressors.

The organizational barriers stem from insufficient communication between those who design, purchase, install and use a workplace. They also can stem

from competing interests for limited resources such as budgets, labor, and time. (Occupational Ergonomics Handbook, 1999, P. 1588).

2-The second is the socio-technical view which relates to the failure of enterprises in developing countries in the choice of technology itself, which appeared to be hard to adapt to new local socio-cultural and economic environment. This view was justified by Ramanujam and Saaty (1981) who stated that there are two considerations determining the adaptability of technology. These are "the ability to adapt and the willingness to adapt". The lack of a sufficient science and technological base in terms of the availability of skilled manpower, maintenance facilities, and required materials and the presence of facilitating institutions and change agents affect the ability to adapt. The willingness to adapt is a factor that depends on the strength of custom, tradition, power relationships within the society, and similar social cultural and political considerations.

3-Finally the most important factor which influences these two is related to the economic conditions of these countries. This view was explained by Greenberg (1975) who argued that there is interaction between the three elements. The change or improvement in the one may lead to the improvement of the other.

Moreover, Iboko (1976) argues that the problem of LDCs is related to the lack of skilled managers and workers and industrial habits which cause a collapse of the technology that already exists. He indicated that the weakness in controlling technological and economic aspects is related to the lack of ability to apply correctly modern management tools and techniques for decisions making and planning. With regard to safety factors, Keller (2002) pointed out that, several accidents occurred in the work-place as a result of management misplacement of workers and lack of control of the work environment. He related that to shortages of skilled labour force in most manufacturing industries in the less developed untries.

Noweir (1986) indicated that the problem of safety in LDCs' is related to the historical background of the industrialization of these countries. He linked the lack of awareness of hazards to the rapid introduction of complex work methods, inadequate training and a low level of education which characterize the majority of managers and workers. Greenberg (1975) viewed that safety in LDCs' is influenced by the low cost of manpower which is due to the introduction of modern technology, and also to economic pressures in which human values are not appreciated or not worth specific consideration. This is one of the factors that differentiates between

developing and developed countries. Takala (1982) indicated that lack of employment and low wage tend to result in an abuse of human labour in hazardous conditions or extremely boring operations which should be mechanized or not done at all. These kinds of conditions lead in many cases to low morale and cause frustration. The low production according to his study is related to difficulties in the supply of materials, shortage of spare parts, low skill, inefficient bureaucracy both internal and external to the organisation and in the overall reaction to sophisticated technology. The difficulties in promoting developing countries from the lower rank are that they lack a general infrastructure about technology, management, know-how and industrial habits and customs. Developing countries, for instance, have more difficulties than developed ones in managing their fellow citizens because of ethnic and cultural problems which prevent them from applying the rationalization approach which is based on logic not on morality and emotion. These difficulties make it hard for them to integrate a high level of flexibility and modernization in their management. Besides socio-cultural problem, there are technical difficulties as well. Siggel (1983) indicated that there are three important factors which may have a high influence on the work performance in developing countries as far as technology is concerned. These are:

1-transferring one part of technology and neglecting the other. This in return, creates a lack of fitness and makes it difficult to run the technology efficiently and economically. For instance transferring technology without training the personnel management can be considered an incomplete transfer. Conversely, a pure training arrangement is an incomplete technology transfer, since it does not provide firms with documentation and management, know how to operate and maintain the facility during the training period.

2-There is a high risk that the transfer remains incomplete because preliminary studies and the delivery of equipment, training of personnel staff and management are not sufficiently coordinated.

3-Lack of maintenance which requires high skills. This often makes it slow to learn the need for maintenance of their plant and machinery. A process of transition from agricultural societies to an industrial nation without having industrial habits and customs is another obstacle. This often makes it slow to learn the need for maintenance of their plant and machinery and fail to budget adequately for this need. Proper and regular maintenance is very important to the safety of plant and its personnel as well as to the quality of production. Siggel (1983) and Kim (2002) Hazards could arise in connection with maintenance in three ways:

1-Through lack of maintenance, which allows the building, plant or machinery to fall into a dangerous condition.

2-Accidents usually occur during the maintenance time.

3-Through faulty maintenance or faulty repair the chance of risks may increase.

These problems indicate clearly that any progress or major investment in any project that involves technology, without having a certain level of skill and strong economic resources which are needed to operate it, may place an impossible burden on the embryonic management structure. Cotton (1973) on the other hand argued nearly four decades ago against those who are in favour of transferring both technology and management to developing countries. Because, the transfers frequently are affected by people unfamiliar with either the culture in which the system is developed or the culture to which the transfer is made, he pointed out that the transfer of technology and management is strongly influenced by the differences between the social and political systems of the host country and its socio-economic situation.

There is also the possibility of a serious shortage of scientific and technical personnel due to the brain drain which aggravates the lack of skilled managers and workers. Ghayur (1978) indicated that the emigration of these critical human resources not only cause a drain on the resources of LDCs' but also strengthens the economies of the developed countries and widens the technology gap further.

The Economic Factors Influencing Safety in L.D.Cs

A major problem facing the world today is the economic gap between the poor countries which represent 75 % of the world population and the advanced ones. Although there is a large body of research and different approaches try to find the right answer to how we can integrate or help the L.D.C.s to develop themselves. however, much of the answer to this question has failed as a result of the complexity of the problems and the number of factors involved. All these factors make it hard to forecast or find a good strategy for development of these nations. Different views are introduced as a way to improvement. Economists consider that the best approach to be applied is industrialization besides agriculture. This may be a good approach but this depends very much on the socio-economic situation as well as the raw materials existing on the local level. Although several least developing countries of the Asian and Pacific region have made significant progress in their socio-economic development, while, others have failed to achieve similar progress. Some countries may never be

industrialized as a result of a lack of capital and their geographical location. Other schools of thought say that since industrialization is considered to be a difficult task and most of the less developing countries are too far behind the industrialization, therefore the best way for them to improve their economic conditions is to concentrate on agriculture and small industries which could reduce the problem of employment and which are less costly.

Empirical studies drawn from African studies (see Tunt, 1983) strongly argued that the negative impact of depressed economic conditions on the life of many industrial organisations in LDCs' are discouraging present development and are considered to be a serious problem for the shortcoming that needs to be supported. The existence of financial problems, lack of adequate technology, and shortage of skilled workers in any organisation are some other indicators that lead to negative results not only on safety but on the life of the organisation as a whole. The success of any strategy or organisation can be measured by the strength of its economic conditions, human resources skills and political systems stability. Louzine (1982) indicated that the deterioration of working conditions and poor quality of life of many workers in LDCs' are related to three important factors namely:

1-Lack of financial resources to supply and implement the enterprises efficiently is considered as one of the main obstacles.

2- Inadequate supply of raw materials and spare parts which often force the managers to accept poor quality of materials or to substitute them with unsafe ones which might cause low production and lead to unsafe conditions.

3-Lack of maintenance and inspection of machines as a result of shortages of specialists in this particular area.

The economic factor is considered to be an important factor in the implementation of the technology in the LDCs. In Algeria, for example, the latest oil crisis analysed the whole economy of the country including industry and created a shortage in food, decreased production and increases the problem of unemployment. This is because nearly 90% of the economy of the country is based on oil as its major factor in supplying the industrial sector with technology, raw materials and spare part. The reduction of oil prices had a high negative impact on most of the enterprises and made most of them bankrupt.

Negandhi (1975) approached the problem of LDCs' from a different angle by emphasizing the role of political systems in development. In a study carried out in Latin America, he found that political as well as economic instability have a great effect on the success or failure of any

organisation in these countries, where revolutions and dictatorship are common known regime . The instability of politics and the lack of economic situations make it hard to plan for long term strategy, it creates too many problems between management and workers and affect their relation by its intervention. In this regard Lawrence el at (1973) argued that it is not enough to improve the economic conditions without at the same time having a stable political system based on democracy and the participation of the majority of the workers and managers in decision-making in their enterprises. They indicated that changes in the economic and political environment must first provide an opportunity, if the individual is to change or benefit from it. But the ability to exploit this opportunity is determined by the mental and motivational characteristics of the individual.

Management Problems in Developing Countries

The problem of management in developing countries received special attention in the literature dealing with developing countries. Newstrom, (1983) and Garcuia (1984) investigated managerial problems in less developed countries. They indicated that major historical and social problems influencing the work environment in ways that alter attitudes to managerial methods introduced to achieve industrialisation development areas related to a number of factors. Among these factors are: A high level of illiteracy and poverty, socio-political system dominated by few multipurpose institutions, little mobility between social strata, low productivity, high unemployment, high dependency on foreign capital for technology and low skilled managers. This argument was supported by Parente and Prescott (1994) who indicated that the crucial obstacles to the economic and social development of young nations is a lack of competence of native-born staff. They stated that the lack of competence is related to low level of education, industrial habits and management commitment. Scott (1982) mismanagement can lead the third world into many more difficulties than expected particularly if they do not change their strategy of development by, for instance, improving the level of education, giving further training, importing the technology that could adapt to their socio-economic situations or importing management from abroad to run their organisations and who could in the mean time train their managers as well as their workers in the long term. The positive thing about the delegation of foreign managers as Saggi (2004) is the opportunity of justice, equality and the limitation use of impersonal relations such as kinship and political ties which affect most of those who are motivated, have high competence but are not related to the management by ties.

To illustrate this further, Murray (1960) listed a number of factors he believed to most frequently, lead to the failure of management to achieve its goals in most of the developing countries. These are:

1-Failure to understand the function of top managers. This is particularly true in countries which were formerly colonized or only achieved their independence very recently. They have not established their social infrastructure yet.

2-Failure to give management adequate authority and responsibility to manage. This is particularly true in the public sector. Some managers in LDCs feel that they are just holding the position of managers, but most of the decisions are made by the state intervention, which affect both managers and workers as a result of their lack of opportunity to participate in the decisions that might concern their work as a member of the organisation.

3-Failure to have enough management. It is not unusual to see large enterprises employing thousands of workers, most of them are inexperienced at any kind of industrial work. The dangerous thing about a good plant is not that it can appear good but that in fact it can operate in an uneconomic way. This situation makes it hard for the organization to finance itself and create good and safe environment for their workers.

4- The lack of delegation of authority is usually accompanied by the failure to define responsibility and duty. No one can operate with confidence or hold responsibility for results unless he knows what he is supposed to do and has the authority to do it.

5-Lack of professional conciseness which results either lack of awareness or incompetence. For instance, managers in LDCs have never adapted successful techniques for selecting employees and training. It can be also argued that developing countries have difficulties not only with skilled managers but also lack professional personnel especially in industrial safety, which leads to limited activity in assessing and controlling different hazards in the work environment. In most cases the few personnel who are available and in charge of these services lack proper training, are misplaced and/or lack the power to guide or manage.

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