

Role of Environmental Protection and Occupational Safety in Social Development: A Study of Ladakh

Shabana Khurshid¹, Dr Shazia Manzoor²

¹Research Scholar, Department of Social Work, University of Kashmir, Jammu and Kashmir (India)

²Sr-Assistant Professor/Coordinator,

Department of Social Work, University of Kashmir Jammu and Kashmir (India)

ABSTRACT

The purpose of this research is to find out the role of environmental protection and occupational safety in social development through a case study of Ladakh region in the state of Jammu & Kashmir, India. The publicly available data in the form of research articles, books, reports and both official and non official websites were analysed to investigate into the social significance related to the environmental protection and occupational safety. Previous studies have put the focus on the economic significance of the occupational safety while this paper attempts to put the focus on the social significance which is equally important. Social development can be guaranteed by ensuring workplace safety and reducing occupational risks. Right to Life also signifies the right to a clean and healthy environment which is the core of the social significance of the environmental protection and occupational safety. Environmental protection and the occupational safety are viewed by the researcher as socially significant for the social development.

Keywords: *Social significance, Development, Occupational safety, Environmental protection, Social responsibility*

1. INTRODUCTION

In recent times, the research in the area of environmental protection and occupational safety is gaining interests of many researchers when more than economic development it is the sustainable development that is the need of the hour. Most of the workers in Ladakh are involved in the construction of roads which is hazardous for their health as large amount of particulate matter is found in the atmosphere. In most cases they are made to work without proper and appropriate safety gear. Occupational hazards claims life of many workers in Ladakh and in most cases even these deaths are not recorded (Demenge, 2009). The oxygen level at high mountainous region of Ladakh is very low. Working in the region makes the life of manual labours and workers extremely difficult and is also hazardous making their life prone to various health risks. As per the statistics more than 70, 000ⁱ migrant workers come to Ladakh from far flung states of India. It is estimated that between the years 1987-2002 more than 119 workers have died in the region in the road construction and several workers were injured while building these roads. A large number of workers in Ladakh are the migrant labours coming largely from the states of Bihar, Jharkhand and West Bengal. Workers in Ladakh don't have their houses rather they live in makeshift camps made up of canvas tents which are severely inadequate for the chilly winters that Ladakh has for most of the year.

Occupational safety can be defined as *“the science of anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment”* (Alli, 2008). According to the International Labour Organization (ILO), worldwide around 2.3 million people die every year of occupational fatalities. ILO estimates that every 15 second a worker dies of a work related accident or disease which means everyday 6,300 people die of occupational accidents or disease and it further notes that 153 workers meet with a work related accident every 15 seconds.ⁱⁱ According to the estimates, the total loss to the individual could be calculated at US\$20-28 billion, to employers it could be US\$8-16 billion and to the society it could cost as high as US\$40-60 billion. An international conference was recently held in India which aimed at raising the standards of occupational safety and health issues and challenges in the Manufacturing, Construction and Mining sector.ⁱⁱⁱ As per World Health Organization as many as 12.6 million people lose their lives every year due to environmental health risks. World Bank estimates the economic burden of pollution in terms of premature mortality and morbidity to be approximately 5 to 14 per cent of the GDP's of the countries which could have been used for economic development.^{iv}

International Organization for Standardization (ISO) provides guidance to the organizations on their social responsibility to protect the environment. It states, *“It is advisable that an organization take into consideration societal, environmental, legal, cultural, political and organizational diversity, as well as differences in economic conditions, while being consistent with international norms of behavior”*.^v It is the responsibility of the corporate and governments to protect the (Agarwal S. K., 2008) employees and the environment which is integral to the social development of the society. Bringing the economic development at the cost of environmental degradation and weak and improper occupational safety is not the development in actual sense. The focus today has been on sustainable development (Kilcha & Kitaw, 2017) which is the combination of socio-economic as well as environmental protection. They have significant roles to play in relation to the safety of workers and the protection of the resources essential for the survival of the mankind.

Environment consisting of natural resources like air, water, land, animals and human beings (vulnerable or less privileged) need to be protected. As per Organisation for Economic Co-operation and Economic Development (OECD) *‘environmental protection refers to any activity to maintain or restore the quality of environmental media through preventing the emission of pollutants or reducing the presence of polluting substances in environmental media.’* Industrial waste has led to the contamination of land, air and water making human survival difficult. Air pollution and water pollution leads to the destruction of ecosystem along with making human beings prone to life threatening diseases. The United Nations Conference on Environment and Development (UNCED), the Earth Summit held in Rio de Janeiro in 1992 (United Nations) brought the focus on the sustainable development through talking about the issues concerning the environment and its protections and bringing out the measures to resolve those issues. The conference sought measures to bring economic development while ensuring the protection of the environment. Degradation of environment and natural resources like air and water is a serious threat to the existence of human kind (Rajdeep & Kumar, 2016).

Environmental protection and occupational safety are the tasks well received by the businesses and industries. Injuries or deaths at workplace not only affect the individual enterprise but also the welfare of society as a

whole. Indian government has been working in improving the international labour standard and making it more environmental friendly and at the same time ensuring the safety of the workers. India has in total 16 laws (Pingle, 2012) related to the workers and labours of which The Factories Act (1948) and the Mines Act (1952) are the two main acts. According to ILO estimates in India the rate of occupational deaths and accidents is 10.4 that is 8,700 and 10.5 per that is 8,028 per 100,000 workers. Research on environmental protection has largely been focussed on economic growth. When it comes to economic development the moot question is at what cost do we want the economic development? The industrial development has brought prosperity and economic growth but it has also degraded the environment.

II. RESEARCH PROBLEM

Ladakh is situated at high altitudes at 9000 to 15,000 feet above sea level. In the context of Ladakh, migration from other parts of India especially from the states of Jharkhand, Bihar and West Bengal brings the picture of unsafe working conditions which the extreme harsh weather conditions in Ladakh makes it even worst. People are living under inhumane conditions due to lack of work opportunities at other places. The human loss due to occupational hazards and risks apart from the economic crisis brings the humanitarian crisis.

This article through a proper analysis tries to find out the role of environmental protection and occupational safety in social development in Ladakh?

The region situated at such a high altitude apart from making economic development makes it difficult for the social development of the inhabitants living under most difficult conditions on the planet which is doubled by its strategic location and the conflict.

III. METHODOLOGY

The paper considered collecting the existing data sources from the publicly available repositories in the form of research journals, websites, conference proceedings, reports, documents and literature related to the environmental protection and occupational safety.

IV. ROLE OF ENVIRONMENTAL PROTECTION AND OCCUPATIONAL SAFETY IN SOCIAL DEVELOPMENT

Ladakh is one of the three geographical regions of the Indian state of Jammu & Kashmir which is further divided into two districts namely Leh and Kargil. The total geographical area of Ladakh is 45100^{vi} Square Kilometres making it one of the largest provinces in the country. The mountainous district has a harsh climate owing to its geographical situations. It has extremely cold winters with temperature as low as -40 degree Celsius. Most of the months that is from November to June the temperature remain zero degree and minus degrees and only for three months that is from December to February the temperature is at sub zero temperature. Ladakh is also one of the highest (Jina, 1996) regions in the world. The Indus Valley is located in the centre of the Ladakh and the Pangong Lake lies in the East of Ladakh. In terms of minerals, Ladakh is rich in borax and sulphur along with other minerals like gold and platinum is also found in Ladakh.

As per the 2011 Census, the total population of the district is 133487 of which only 45671 live in urban areas and overwhelming majority which is 87,816 people live in the rural areas. The growth rate of the population since the last census in 2001 to present census in 2011 has been 13.8 per cent and for the entire state of the Jammu & Kashmir it had been 23.6 per cent. Of the total population 93770 people are literate in the region making 77.2 per cent of the population as literates. The density of the population in the region is only 3 persons per square kilometres. Of the total population of 133487, 56.24 % that is 75079 people are workers who are involved in different kinds of work ranging from agriculture to household industry workers. Of the total workers 57125 workers are considered as main workers and 17954 are marginal workers and the population of non-workers are 58408. Like other parts of the country agriculture is the main source of livelihood in this region. A large number of workers are cultivators which are 28.02 per cent of the total population followed by just 1.41 per cent who work as agricultural labourers and only 1.37 per cent work as household industry workers. A whopping majority of 69.21 per cent is engaged in other work. ^{vii}

The major economic activity in the region has been the road construction which has its own political reasons. According to Rizvi, the road construction in the Ladakh region started to develop in 1962 (Rizvi, 1996). Since India's independence like other peripheral states Ladakh has also remained a contested terrain (Aggarwal, 2004). The conflict between the three neighbours has affected the development of this region. Although the state and the government at the centre have made concentrated efforts to bring the economic development to the region which is the largest region in the country sadly not known to many have remained undeveloped at almost all fronts.

Working Population in Ladakh - As per Census 2011

S. No.	Category	No. of Workers							
		1971		1981		2001		2011	
		Number	% age	Number	% age	Number	% age	Number	% age
1	Cultivators	14305	65.48	17415	58.49	22041	37.92	20869	28.02
2	Agricultural Laborers	805	3.68	2191	7.36	2488	4.28	1047	1.41
3	Livestock, Hunting & Forestry etc.	1731	7.92	1442	4.85	NA	NA	NA	NA
4	Mining & Quarrying	21	0.10	3	0.01	NA	NA	NA	NA
5	Manufacturing & Processing other than Household Industry	102	0.47	451	1.51	NA	NA	NA	NA
6	Household Industry Workers	773	3.54	250	0.84	721	1.24	1020	1.37
7	Construction	564	2.58	546	1.83	NA	NA	NA	NA
8	Trade & Commerce	297	1.36	735	2.47	NA	NA	NA	NA
9	Transport, Storage &	279	1.28	305	1.03	NA	NA	NA	NA

	Communication								
10	Others	2970	13.59	6439	21.62	32875	56.56	51545	69.21
	Total	21847	100.0	29777	100.00	58125	100.00	74481	100.00

Lack of proper waste management system causes open dumping and burning of waste which has a severe impact on the environment. Consequences of lack of proper waste management system are hazardous (Agarwal, Chaudhary, & Singh, 2015) as it causes *“health hazards, pollution of soil, water, air & food, unpleasant surroundings and loss of precious resource.”* Tourism industry in Ladakh has benefited the locals in terms of opening up of more avenues of income but sadly it has also affected its ecology leading to environmental problems like water scarcity, climate change, problems in waste management, etc. As a result of tourism, the garbage also increases in the region mostly non-biodegradable waste notably the plastic waste which causes a huge damage to the environment. Ladakh has no proper waste management system in place causing a major challenge to the administration to protect the environment.

Ladakh region in the state of Jammu & Kashmir has not witnessed much advancement in (Bhasin, 2005) terms of technology or socio-economic development. The inhabitants of this region have been surviving under extreme harsh weather and environment since many centuries. The region due to its high altitude suffers from high radiation, rugged topography making cultivation and agriculture extremely difficult, water problems adds to their difficulties. The steep mountainous regions have made it difficult to pave way for better transport facilities. The facilities of natural energy resources are extremely low thus making any industrialization extremely difficult. Since last few decades Ladakh has seen some sort of economic development in terms of improvement in transportation and telecommunication, setting up of different government departments and divisions, construction of road and highways and other infrastructure projects of the governments.

Of late, there have been a number of initiatives taken by both the administration and the Non-Governmental organizations to achieve the sustainable development in the region. For instance organizations like Ladakh Environment and Health Organization, Ladakh Ecological Development Group, 1700 ft Foundation, Ladakh Arts and Media Organization and many others are battling to protect Ladakh's delicate environment. Several studies have investigated into the occurrence of various diseases which are extremely severe at such a high altitude and hence require additional measure of safety. There is a prevalence of non-occupational pneumoconiosis in the region even when there are (Saiyed, et al., 1991) no industries. The high elevation already makes the conditions difficult for human survival. The burning of biomass for cooking or heating purposes makes the health of the population of Ladakh very challenging. (Rosati, Yoneda, Yasmeen, Wood, & Eldridge, 2005). The harmful gas inflicted by burning of biomass like carbon monoxide is particularly harmful and lead to lung diseases. At high altitude regions like Ladakh the population are exposed to both occupational hazards as well as environmental hazards.

Social indicators are helpful in determining the (Duncan, 1974) changes and development in the society. Lack of knowledge about the hazards in the occupation adds to the vulnerabilities of the workers. Poor nutrition and poor working conditions aggravate their conditions. Human resources is a key to economic development. Work related stress and mental health issues take a great toll on the health of the workers disturbing their social life.

(Basnet, Gurung, Pal, Kar, & Bharati, 2010) a large number of workers working in construction sites admit to have suffered from emotional problems. Due to this even their productivity goes low and they are unable to perform their social duties that affect their social life. It has been well researched and documented that occupational illnesses lead to various mental health and emotional issues that can be as severe as depression, loss of self-identity, lack of self worth and anxiety.

It is to be noted that the workers constantly live in pain and find it uncomfortable to share it as they feel disclosing it will hamper their work opportunities. The focus of industrialized world has been on how to increase productivity, improve quality and increase profitability few have focused on the impact of these systems on the occupational injuries and illnesses of the workers. There are inadequate evidences and data on occupational injuries and illnesses and whatever data is available under-represents the actual numbers. Studies have shown that the worker's rights and welfare are largely ignored by the organizations. It is important to have proper measures for the health of the workers and their families in ensuring proper public health and welfare which is integral to the sustainable development of the society. A large number of workers working in industries are barely protected thus the race in producing more and more has undermined the social cost of the lives of the workers.

There is a complex relationship between technology and welfare of the society. Welfare of the society depends on various factors like economic factors, social security and environmental safety. Protection of the environment (Salvendy & Karwowski, 2010) is directly related to the welfare of the society in many ways. Environmental protection is directly related to the health and well-being of the society, the cleaner the environment the healthier the people would be. Safe climate can help in reducing the occupational accidents that results in severe injuries or even deaths. The loss of an individual is not his individual loss but (Schneider & Barbera, 2014) it is the loss of his family and society at large. His loss not only affects his family but the entire society. The environmental issues worldwide are related to the occupation and occupational safety. Industrial and technological advancements have led to environmental degradation in many parts of the world. The businesses and the industries are expected to perform their responsibilities towards the environment which affects the society at large. When it comes to workers it is observed that there issues and concerns are under-estimated and under-represented. The occupational hazards especially in industrial and developed countries have made great progresses in minimizing the occupational risks to both the environment as well as the workforce. But when it comes to the developing countries these progresses have not been sufficient and often been ignored.

Rapid modernization and infrastructural development in the region has altered the lives of people of Ladakh. This has affected both social and cultural life of the people. For example, the Ladakh has slowly but gradually moving from an agricultural economy to other occupations, tourism and construction bringing the most significant social change. Social significance of environmental protection can be determined by the fact that for most of the international organizations protection of the environment has become the main target. In past few decades, corporate social responsibility has gained the momentum and is largely focussed on the environmental protection. Studies reveal that the extremely hazardous conditions under which the workers in Ladakh work put their life at high risk of chronic and lifelong diseases. Protection against occupational hazard is not considered

seriously and in most cases the basic safety gears like masks, goggles and helmets are not provided to the workers.

V.CONCLUSION

This paper has attempted to see the environmental protection and occupational safety and its significance on the social development a research area which is least explored. In the existing literature, it was found that the focus of the researchers had been on the effects of environmental protection and occupational safety on economic development rather social or even socio-economic development. This paper observed that economic development alone is not sufficient. Health and safety along with the healthy environment is the centre of the social development of human beings. With the analysis of limited literature and data on this subject the researcher has tried to establish the link between social development with the environmental protection and occupational safety.

It is noted that the key to development is not just economic or social but it has to be sustainable. Those who are operating in the environment have the responsibility to protect it for the betterment of human kind. The conditions in which people and workers of Ladakh live are extremely difficult and it can be worst if proper measures are not taken to protect its environment. Corporate and Governments both alike are expected to do their part in protection of the environment and also on the same hand protecting those who are making all the human development possible in this region in such an extremely difficult environment. Sustainable development in this region calls for proper planning and stringent laws for environmental protection. Ladakh like other parts of Jammu & Kashmir is on the radar of development of the country and it is the collective responsibility of all the stakeholders to come together to make this development possible and in the most sustainable way so that the human crisis can be minimized and the environment can be protected for the future generation.

VI.ACKNOWLEDGEMENT

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NOTES:

ⁱ In pictures: Building India's high roads, Retrieved October 23, 2017 from BBC - <http://www.bbc.com/news/world-asia-india-31529995>

ⁱⁱ International Labour Organization, Retrieved September 26, 2017 from Safety and health at work - <http://www.ilo.org/global/topics/safety-and-health-at-work/lang--en/index.htm>

ⁱⁱⁱ 'International Vision Zero Conference' on Occupational, Safety and Health was held from 15th to 17th, March 2017 at Vigyan Bhavan, New Delhi by Directorate General Factory Advice and Labour Institutes (DGFASLI), Government of India, Ministry of Labour and Employment and German Social Accident Insurance (DGUV), Germany in association with International Social Security Association (ISSA). Retrieved September 29, 2017 from Press Information Bureau, Government of India - <http://pib.nic.in/newsite/PrintRelease.aspx?relid=159150>

^{iv} Reducing Pollution, Retrieved October 20, 2017 from The World Bank - <http://www.worldbank.org/en/topic/environment/brief/pollution>

^v International Organization for Standardization, Retrieved October 2, 2017 from ISO 26000:2010 Guidance on social responsibility - <https://www.iso.org/standard/42546.html>

^{vi} Actual area of Ladakh is 82, 665 Square Kilometres of which 37, 755 Square Kilometres is under illegal occupation of China. Total area with India is 45110 Square Kilometres, Retrieved October 08, 2017 from District Leh - <http://leh.nic.in/pages/leh.pdf>

^{vii} Office of the Registrar General & Census Commissioner, India, Retrieved October 05, 2017 from District Census Hand Book - <http://www.censusindia.gov.in/2011census/dchb/DCHB.html>