

STUDY THE RISKS AND HAZARDS ASSOCIATED WITH ENVIRONMENTAL DEGRADATION TEND OF WORKERS

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ABSTRACT

Introduction: This review aims to give a comprehensive overview of the studies that have been done on adaptation to the physical consequences of climate change and to identify any knowledge gaps that may exist as a result.

Aim of the study: the main aim of the study is to risks and hazards associated with environmental degradation that tend to affect vulnerable workers

Material and method: Jobs and work productivity have already been negatively impacted by environmental degradation and climate change, and these effects are anticipated to worsen over the next several decades.

Conclusion: it is concluded that Adaptation strategies may increase employment and stop job losses. Natural and physical infrastructure, skill-development initiatives, and social protection programmes are a few examples of such interventions.

Keywords: climate, change, environment, workers, risk, hazards etc.

1. INTRODUCTION

1.1 OVERVIEW

This review aims to give a comprehensive overview of the studies that have been done on adaptation to the physical consequences of climate change and to identify any knowledge gaps that may exist as a result. Adaptation is a major subject of many studies that have been conducted in the fields of business and management. Adaptation studies in business and management have a tendency to focus on changes in business conditions brought on by new competitors, new products, and markets, or changes in the political, economic, and legal

contexts. According to our review of adaptation studies in the business field, these studies largely exclude changes in the natural environment. There has not been enough study done on how different sectors and enterprises can adjust to climate change. There hasn't been a lot of effort done across disciplines to integrate the findings of research in the natural sciences into business thinking up to this point (e.g., there are few cross-disciplinary studies on climate adaptation, transformative change, or on building adaptive capacity of socio-ecological systems). In addition, the management literature has very little study on the effects of climate change on organisations and industries, despite the fact that many of these entities will need to adapt. We provide suggestions for potential lines of inquiry in the fields of firm adaptation to climate change and the capabilities that are required to deal with this issue, both of which present opportunities and needs for further research in the foreseeable future.

1.2 ADAPTING TO THE IMPACTS OF CLIMATE CHANGE

Adaptation to climate change requires not only foreseeing and preparing for the potentially detrimental effects of climate change but also making the most of any opportunities that may become available as a result of climate change. Adaptation efforts should be focused on these goals in order to minimise the vulnerability of specific regions, sectors, or people to the consequences of climate change. It has been shown that taking preventative measures at an early stage may save both money and lives in the long run. Adaptation strategies that can be implemented include, but are not limited to, investments in infrastructure to protect against natural disasters, the development of resource-efficient management systems, the strengthening of social protection systems, and the adoption of adequate prevention measures (e.g., Investments in firefighting equipment). On the other side, climate change mitigation is an effort to reduce emissions and bring down atmospheric concentrations of carbon dioxide (CO₂) via the use of enhanced sinks (e.g. expanding forests to remove greater amounts of CO₂ from the atmosphere). Changing one's habits (like driving less or eating healthier, for instance) is one example of a method for mitigating the effects of climate change. Other examples of mitigating methods include increasing the use of renewable sources of energy, introducing innovative technologies like electric vehicles, and so on. The goal of mitigation is to influence the factors that contribute to climate change; the objective of adaptation is to adjust one's lifestyle to accommodate the effects of climate change.

The two primary types of responses that may be taken in response to climate change are adaptation and mitigation. Both adaptation and mitigation are strategies that may be used to slow the progression of climate change. Through the reduction of emissions of greenhouse gases (GHGs) including carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), the purpose of climate change mitigation is to either avoid or lessen the impact of climate change (N₂O). The process of intentionally taking action to decrease the negative impacts and to maximise the potential benefits of any favourable developments is the essence of adaptation.

1.2.1 What is the difference between adaptability and normal development?

Although adaptation to climate change is a newly emerging issue, there are similarities to be drawn between "business as usual" growth plans and climate change mitigation strategies. Certain types of development activities may provide benefits in terms of adaptation that do not need any extra labour on the part of the user. The decisions that are taken over the course of development projects may have a considerable impact on a variety of factors, including the effects that climate change will have in the future. In principle, measures to reduce poverty and improve nutrition, education, infrastructure, and health might potentially benefit from each other while also contributing to adaptation to climate change. According to the Intergovernmental Panel on Climate Change (IPCC), more developed civilizations have a greater capacity for adaptability than less developed ones do, and as a consequence, they are less susceptible to the effects of climate change. In situations where contextual vulnerability is the primary concern, it may be sufficient to focus on baseline or business-as-usual economic development activities, such as reducing poverty and improving nutrition, health care, and livelihoods. This is because doing so will increase a country's ability to deal with climate change. For example, reducing poverty and improving nutrition and health care and improving livelihoods. There is overlap between efforts to adapt to climate change and those for development, but the two processes need to be distinguished for their unique reasons. If, for instance, the biophysical impact of climate change has a substantial influence on vulnerability, then adaptation would probably need a higher emphasis on climate risk in activities related to development. For instance, in the Himalayas of Nepal, the effects of glacial lake outburst floods and glacier retreat as a result of rising temperatures might have catastrophic repercussions for the country's infrastructure as well as its people. In order to reduce its vulnerability to the aforementioned dangers, the region would need adaptation techniques that go beyond efforts to alleviate poverty and boost economic development. To add salt to injury, there are no attempts being made to address climate change and decrease the damage it is having, nor are there any efforts being made to take advantage of any new opportunities as business continues as normal. In order to take such a step, it is necessary to come up with activities that include adaptation. In order to combat the dangers posed by climate change, such as the bleaching of coral reefs and floods caused by the outburst of glacial lakes, particular adaptation methods will need to be developed.

2. LITERATURE REVIEW

Danso-Abbeam, Gideon & Temitope (2021) There has been a substantial amount of debate on the significance of non-agricultural employment opportunities in rural areas of emerging countries. As a direct consequence of this, it is seldom considered in terms of adopting new strategies to adapt to climate change. This study utilises cross-sectional data to investigate whether rural households in Southwest Nigeria are diversifying their sources of income in order to adapt to the effects of climate change by working in industries other than agriculture. The selectivity bias was able to be accounted for thanks to the research team's use of the IPWRA estimator in conjunction with the endogenous treatment effect for a count data model (specifically Poisson). According to both estimations, smallholder farmers' capacity to adapt is improved by rural activities that are not related to farming. It is also important for rural development initiatives that farmers find supplementary job during the off-cropping period,

which occurs between the growing seasons. As a consequence of this, farmers will have improved capabilities to carry out a greater number of climate change adaptation measures, which, in turn, will contribute to a rise in agricultural production.

Dasgupta, Shouro & Maanen (2021) In spite of the fact that the impact of climate change on the labour force is one of the most visible and observable, our attempts to measure the repercussions of this phenomenon have depended on foundations that are not entirely stable. This difference is growing because we are unable to repair various impact channels, such as shifts in time allocation (labour supply) and a slowdown in the speed of work. As a result, the gap between the two groups is rising (labour productivity). It may be possible to enhance explanations of how the consequences of climate change on labour productivity by comparing a large number of models and specifically addressing any inconsistencies between them. When it comes to the availability of workers, we uncovered separate empirical ERFs at the regional and sectoral levels. Even in countries with tropical climates, the present state of the environment already has a negative influence on the productivity of the working population. In low-exposure industries, the entire global labour force would decrease by 18 percentage points (range from 48.8 to 53 percent) if temperatures rise by 3 degrees Celsius, as predicted by one warming scenario (by 24.8 percent in high-exposure sectors). There will be reductions of 25.9 percentage points (−48.8 to 2.7 percent), 18.6 percentage points (−33.6 to 53.3 percent), and 10.4 percentage points (−35.0 to 2.6 percent) in low-exposure areas in Africa, Asia, and the Americas. The average reduction in total labour is expected to be 328 percentage points (−663 to 16) in Africa, while the average reduction in Asia is expected to be 250 percentage points (−663 to 70), and the average reduction in the Americas is expected to be 167 percentage points (−455 to 44).

Malhi, Gurdeep & Kaur (2021) Climate change is a global threat to the safety of food supplies and of nutritional intake. The greenhouse effect causes a temperature increase, and this rise is proportional to the amount of greenhouse gas emissions in the atmosphere. It is anticipated that the average worldwide temperature would rise by two degrees Celsius by the year 2100, which will result in enormous economic losses throughout the globe. There has been an increase in CO₂ concentration, which is responsible for a significant portion of greenhouse gases, which has led to an increase in photosynthesis. However, this effect has been countered by an increase in crop respiration and evapotranspiration, a rise in pest infestation, a shift in the composition of the weed fauna, and a shorter crop duration. Alterations in climate may also have an effect on the microbial population of soil and the activity of the soil's enzymes. This paper discusses climate change, its possible causes, projections for the near future, its impact on agriculture as it has an effect on plant physiology and metabolism, as well as the potential and reported implications for growth and productivity, pest infestation, mitigation strategies, and their economic impact.

Malerba, Daniele & Wiebe, Kirsten (2021) The necessity of inclusive green transitions has been confirmed thanks to initiatives such as Green Deals and 'building back better' programmes. There might be significant upheavals in the labour market as a result of these

changes. Empirically speaking, this subject has received little attention up to this point. Examining the connections between poverty and climate change is often done through the prism of either preparing for the effects of climate change or considering how such changes would affect the purchasing power of families with lower incomes. In order to close this gap, we are planning to run a simulation of the global energy shift that will be required to meet the 2-degree goal, as well as a baseline scenario with 6-degree warming. According to the simulation of an input-output model, this change will result in an increase of 0.3 percent in employment all over the globe, despite the fact that there would be a great deal of difference across nations. In order to enhance this macro-level research and generate conclusions on the effects that changes in the labour market have on poverty, we utilise household data from across countries. The number of employments that will be lost will be minimal, and the majority of the jobs that will be created will be in industries such as construction, which now has one of the worst poverty rates among those who are working. Inadequate skills and a lack of access to social security systems are often associated to high rates of poverty among workers, and this is especially true in countries with a middle-income. When we think about making a "green transition," we need to make sure that the jobs it provides are not only respectable but also available to those who are in the most need of them, such as families who are at their most vulnerable and who are living in the lowest possible income bracket.

Ahmed Khan, Zakeer & Nawaz, Allah (2020) This study is an addition to the local actions that have been taken in the provinces of Khyber Pakhtunkhwa and Punjab in Pakistan to address the impact that climate change is having on agriculture. As a result of changes in the climate, Pakistan's agricultural sector is in danger of experiencing a decrease in productivity, the degradation of land, a lack of water, and other resource depletion. In spite of the fact that information about climate change makes it possible for agricultural communities to lessen the detrimental consequences of this phenomenon, the measures taken by these communities are not necessarily equivalent in size or shape. Farmers in poor nations like Pakistan are far less aware of the effects of climate change than are farmers in affluent nations like the United States. As a result, wealthier nations' responses to climate change are significantly more advanced. The degree of knowledge that people have about climate change has an effect on the adjustments that are taken. In order to acquire a deeper comprehension of the ways in which climate change influences regional agriculture, researchers in this field investigate the ways in which awareness of climate change influences adaptation to climate change, as well as the connections that exist between these two aspects. As was to be expected, a robust correlation ($R^2 = 44.6$; $B = .875$; $P = .000$) has been discovered between awareness of climate change and adaptations to climate change. On the other hand, a modest correlation ($R^2 = .318$, $B = -.707$; $P = .000$) has been discovered between awareness of climate change and difficulties in adapting to climate change. According to the results of the research, geographical location and educational level were also significant factors. Farmers will be more likely to adopt adaptation strategies that are more effective and efficient if greater effort is made into increasing public understanding about climate change by communicating accurate and relevant information. This will result in better agricultural yields and reduced losses. Farmers might become scared if irresponsible projections of the obstacles associated with adapting to climate change are made

without an adequate understanding of the dynamics, complexities, and ramifications of the situation. This could have negative repercussions for the outcomes.

3. OBJECTIVES OF THE STUDY

- To Studying the risks and hazards associated with environmental degradation tend to affect vulnerable workers
- To study the Working-life years are lost because of human-induced or climate change-related disasters

4. RESEARCH METHODOLOGY

Jobs and work productivity have already been negatively impacted by environmental degradation and climate change, and these effects are anticipated to worsen over the next several decades. Due to the increased frequency of severe weather events and, more broadly, the danger it poses to the supply of ecosystem services, climate change may result in job losses and decreased productivity in the workplace. Disasters ruin infrastructure and claim lives, which reduces employment and output. It is anticipated that higher temperatures would affect working conditions and lower labour output. Extreme weather occurrences are anticipated to impact businesses including transportation and tourism, as well as whole industries, most notably agriculture, as a result of changing weather patterns and temperature. The salinization of agricultural land and the displacement of whole populations are both risks posed by rising sea levels. The capacity of coral reefs to defend against storms is reduced by ocean acidification, changing ocean temperatures, and altering ocean currents. These factors also restrict biodiversity and change the distribution and productivity of fisheries. The economic sectors that are heavily dependent on resources that are very climate-sensitive, such as agriculture, as well as regions that are regularly affected by extreme weather events, are predicted to see the most severe effects.

4.1 Frequency Analysis

Each variable's frequency analysis reveals the proportion of respondents that selected a certain category of agreement. The frequencies technique in SPSS may generate frequency tables, bar charts, or pie charts as summary measures for categorical data.

The descriptive statistics category includes frequency analysis. Frequency in statistics refers to how often an event happens. Frequency Analysis is a crucial branch of statistics that examines measures of central tendency, dispersion, percentiles, and other phenomena as they relate to the quantity of occurrences (frequency).

The number of times a certain value appears in the data is its frequency (f). A variable's distribution is its frequency pattern, or the collection of all conceivable values and the frequencies corresponding to those values. Frequency tables or charts are used to represent frequency distributions.

5. RESULTS

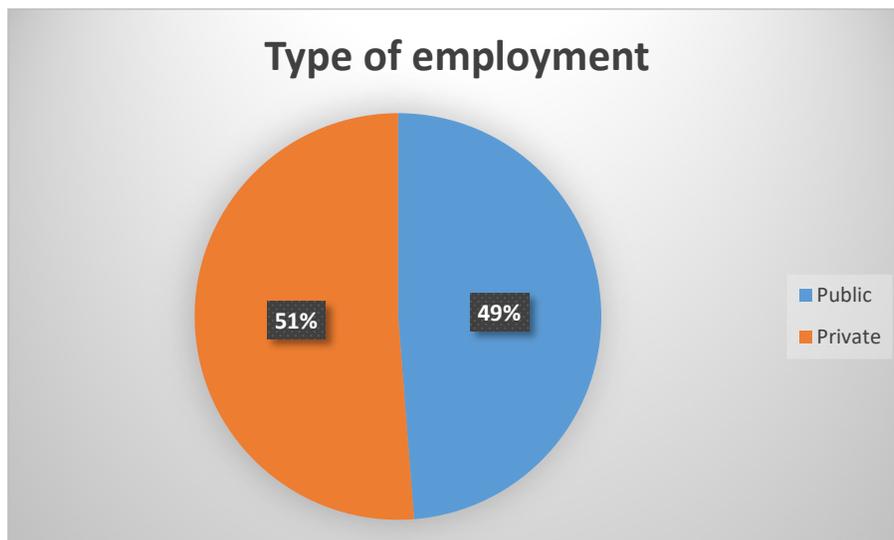
5.1 Frequency Analysis of data

New employment in environmentally friendly manufacturing processes and products will be created as a result of the transition to a low-carbon, greener economy, while other jobs, particularly in industries with limited alternatives for the switch to more sustainable production methods, will be at danger.

Frequency analysis tables are given below:

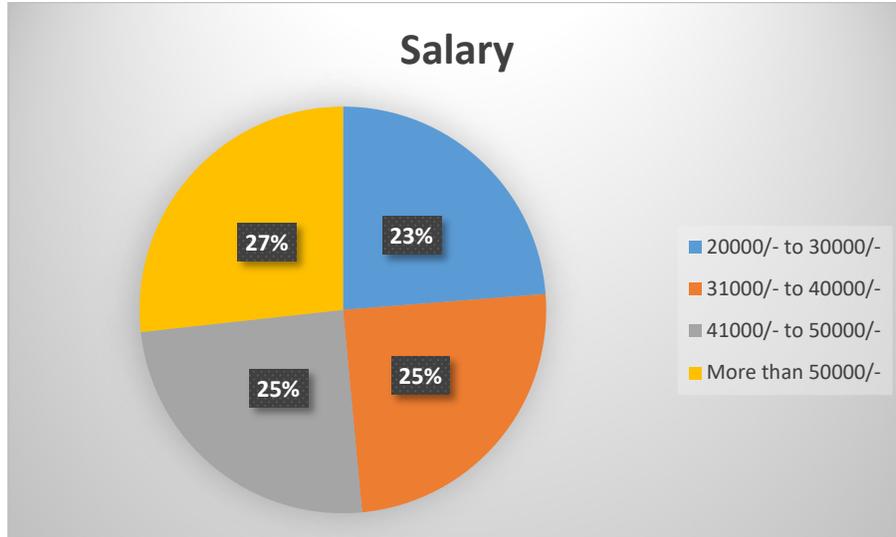
1. Type of Employment:		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Public	195	48.8	48.8	48.8
	Private	205	51.2	51.2	100.0
	Total	400	100.0	100.0	

In this questionnaire survey, 48.8% of respondents are from the public sector, while 51.2% are from the private sector. The report also shows that, with regard to a few industries in India's Godavari districts, the private employee has a greater influence on how climate change adaptation affects employment.



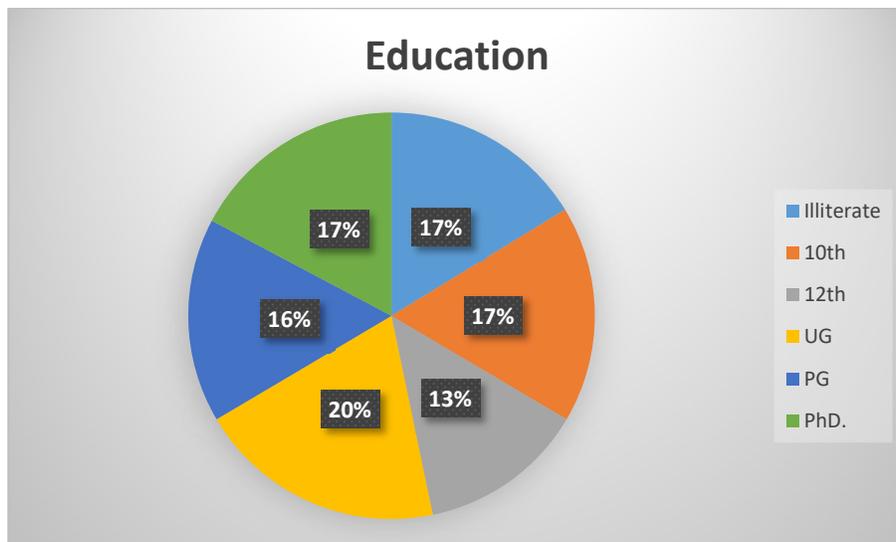
2. Salary:					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20000/- to 30000/-	95	23.8	23.8	23.8
	31000/- to 40000/-	99	24.8	24.8	48.5
	41000/- to 50000/-	99	24.8	24.8	73.3
	More than 50000/-	107	26.8	26.8	100.0
	Total	400	100.0	100.0	

In this questionnaire study, 23.8 percent of respondents earn between 20,000 and 30,000 Indian rupees (INR), 24.8 percent between 31,000 and 40,000, 24.8 percent between 41,000 and 50,000, and 26.8 percent earn above 50,000 INR each month. This study also showed that respondents earning more than 50,000 Indian rupees per year had a greater influence on how climate change adaptation affected employment in certain industries in the Godavari districts of India.



3. Education:					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Illiterate	65	16.3	16.3	16.3
	10th	69	17.3	17.3	33.5
	12th	53	13.3	13.3	46.8
	UG	79	19.8	19.8	66.5
	PG	65	16.3	16.3	82.8
	PhD.	69	17.3	17.3	100.0
	Total	400	100.0	100.0	

In this questionnaire survey, 16.3 percent of respondents identify as illiterate, 17.3 percent as belonging to the 10th educational level, 13.3 percent as belonging to the 12th educational level, 19.8 percent as belonging to the undergraduate education group, 16.3 percent as belonging to the postgraduate education group, and 17.3 percent as belonging to the PhD education group. This study also showed that UG education groups in Godavari districts of India had a greater influence on how employment is affected by climate change adaptation.



4. Climate change affects the Jobs and good working conditions rely on the absence of environmental hazards (such as storms and air pollution) and the maintenance of environmental stability (e.g., temperatures staying within a particular range and predic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	82	20.5	20.5	20.5
	Slightly Agree	75	18.8	18.8	39.3
	Moderately Agree	73	18.3	18.3	57.5
	Agree	79	19.8	19.8	77.3
	Strongly Agree	91	22.8	22.8	100.0
	Total	400	100.0	100.0	

Jobs and good working conditions depend on the absence of environmental hazards (such as storms and air pollution) and the maintenance of environmental stability (e.g., temperate weather). In this questionnaire survey, the 20.5 percent respondents belong to the disagree, 18.8 percent respondents to the slightly agree, 18.3 percent respondents to the moderately agree, 19.8 percent respondents to the agree, and 22.8 percent respondents to the strongly agree groups.

5. The risks and hazards associated with environmental degradation tend to affect vulnerable workers the most;

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	89	22.3	22.3	22.3
	Slightly Agree	73	18.3	18.3	40.5
	Moderately Agree	77	19.3	19.3	59.8
	Agree	80	20.0	20.0	79.8
	Strongly Agree	81	20.3	20.3	100.0
	Total	400	100.0	100.0	

In this questionnaire survey, the groups that are most impacted by the risks and hazards associated with environmental degradation are those with which 22.3 percent of respondents disagree, 18.3 percent of respondents slightly agree, 19.3 percent of respondents moderately agree, 20 percent of respondents agree, and 20.3 percent of respondents strongly agree.

6. Several millions of jobs rely on services provided by the environment;					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	75	18.8	18.8	18.8
	Slightly Agree	77	19.3	19.3	38.0
	Moderately Agree	75	18.8	18.8	56.8
	Agree	86	21.5	21.5	78.3
	Strongly Agree	87	21.8	21.8	100.0
	Total	400	100.0	100.0	

In this questionnaire poll, the groups who are affected by the numerous millions of employment that depend on environmental services include 18.8% of respondents who disagree, 19.3% who somewhat agree, 18.8% who moderately agree, 21.5 percent who agree, and 21.8 percent who firmly agree.

7. Adaptation and mitigation measures can lead to employment gains and prevent job losses with reference to selected industries in Godavari districts of India;					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	86	21.5	21.5	21.5
	Slightly Agree	82	20.5	20.5	42.0
	Moderately Agree	67	16.8	16.8	58.8
	Agree	89	22.3	22.3	81.0
	Strongly Agree	76	19.0	19.0	100.0
	Total	400	100.0	100.0	

In this questionnaire survey, the groups that have an impact on adaptation and mitigation measures and job losses with reference to specific industries in India's Godavari districts include 21.5 percent of respondents who strongly disagree, 20.5 percent of respondents who slightly agree, 16.8 percent of respondents who moderately agree, 22.3 percent of respondents who agree, and 19 percent of respondents who disagree.

8. Investing in climate-resilient infrastructure has a positive impact on employment with reference to selected industries in Godavari districts of India;

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	84	21.0	21.0	21.0
	Slightly Agree	81	20.3	20.3	41.3
	Moderately Agree	90	22.5	22.5	63.7
	Agree	81	20.3	20.3	84.0
	Strongly Agree	64	16.0	16.0	100.0
	Total	400	100.0	100.0	

In this questionnaire survey, the groups that are impacted by investing in climate-resilient infrastructure with reference to specific industries in India's Godavari districts comprise 21% of respondents who disagree, 20.3 percent who slightly agree, 22.5 percent who moderately agree, 20.3 percent who agree, and 16 percent who strongly agree.

9. The climate-proofing of infrastructure has important implications for advancing equity and inclusion with reference to selected industries in Godavari districts of India;

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	77	19.3	19.3	19.3
	Slightly Agree	95	23.8	23.8	43.0
	Moderately Agree	83	20.8	20.8	63.7
	Agree	72	18.0	18.0	81.8
	Strongly Agree	73	18.3	18.3	100.0

	Total	400	100.0	100.0	
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In this questionnaire survey, 19.3% of respondents fall into the disagree, 23.8% into the slightly agree, 20.8% into the moderately agree, 18% into the agree, and 18.3% into the strongly agree groups that have an impact on the climate-proofing of infrastructure for advancing equity and inclusion with reference to certain industries in India's Godavari districts.

5.1.2 Working-life years are lost because of human-induced or climate change-related disasters

The frequency and size of climate-related natural catastrophes are expected to rise as a result of climate change (IPCC, 2014). When local risk management capabilities are unable to handle the hazards, catastrophes result. Because of the loss of the capital stock, transportation networks, and other infrastructure, they cause people to relocate, eliminate employment, and slow down economic activity. The short- and long-term economic effects of catastrophes are negative, especially for emerging and smaller countries, even if restoring capital stock after a disaster may increase the growth of GDP and employment.

5.1.3 Rising temperatures will continue to increase heat stress and lower labour productivity

A significant portion of the more than 4 billion people who reside in hot regions may have negative effects on their health and safety as a result of human-induced climate change, as well as a decline in their capacity to work. Employees must spend a bigger portion of their working hours relaxing and cooling down in order to maintain core body temperatures below 38°C and avoid heat stroke. This is due to increasing temperatures. Worker performance diminishes when heat stress becomes more prevalent, in part because slowing down is a natural defence against heat exposure. Work capacity diminishes as the temperature of the wet bulb globe³ exceeds 26°C. As a result of climate change, heat stress will continue to have a detrimental effect on productivity and result in workplace injuries, especially in countries that experience the most extreme heat, in industries that depend on outdoor and daytime work (like agriculture and construction), and in environments where insufficient adaptation measures have been put in place (e.g., factories without effective cooling systems).

6. CONCLUSION

Adaptation strategies may increase employment and stop job losses. Natural and physical infrastructure, skill-development initiatives, and social protection programmes are a few examples of such interventions. Thus, it is critically necessary to conduct a thorough investigation into the connection between employment availability and quality on the one hand, and climate change adaptation on the other. In any situation, social interaction between employers, employees, and governments, especially MSMEs, may improve the efficacy and local relevance of adaptation strategies. The need for construction services in projects aimed at

decreasing climate-related hazards would certainly increase as a result of investment in adaptation infrastructure, which will likely have a beneficial employment impact. However, since infrastructure is often not built for adaptation reasons alone, it is difficult to pinpoint the precise employment implications in this sector. It is difficult to monitor the employment impacts of climate-proofing measures since they often become a part of routine infrastructure maintenance and improvement projects. Thus, it is extremely feasible to exaggerate the precise contribution of climate change adaptation to employment, necessitating more thorough evaluations of their interrelationship.

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