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Causes of Climate and Environmental Changes for Sustainable Performance

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Abstract - Strategies for adapting to climate change include making allowances for the changed weather patterns. The purpose of this research is to evaluate how climate change affects environmental sustainability. Industrial pollution, soil degradation, and natural catastrophes brought on by global warming all pose serious threats to sustainability in many parts of the globe. As this research demonstrates, natural resource management and adaptation techniques are not mutually exclusive; rather, they are complementary. As a result, they may improve the effectiveness and adaptability of existing resources in the face of climate change. Weather patterns from the tropics to the poles are seeing long-term shifts due to climate change. As a worldwide danger, it has already begun exerting pressure on many different industries. The purpose of this research is to conceptually engineer how changes in climate are threatening the viability of several industries throughout the globe. Certain food, water, and vector-borne illnesses are more likely to spread during times of extreme weather, as was recently shown with the coronavirus epidemic.

Keywords - Climate change, Mitigation measures, Environmental, Sustainable Performance

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INTRODUCTION

Meanwhile, the challenge posed by global warming is unparalleled. Despite the fact that climate change is vitally important, it is essential to acknowledge that there are a number of other development issues that affect human welfare more immediately. These include hunger and malnutrition, poverty, health, and pressing local environmental issues. To a development thinker, the most pressing aspects of the climate change challenge are the potential consequences of inaction, the difficulties of adapting to those consequences, and the susceptibility of vulnerable populations. Emission levels are also determined by the development route taken, which has repercussions for any attempts to reduce those emissions. There is a cyclical relationship between climate change and progress. The chances for sustainable development will be influenced by future climate change, which in turn will be affected by alternative growth trajectories. Some development aid activities may have repercussions for a country's emission levels or mitigation choices, and may also aggravate its susceptibility to climate change. This is similar to how climate change may threaten the success of some development co-operation efforts.

Governments should include environmental costs and benefits into medium and long-term fiscal planning in order to more accurately identify, analyze, and manage longer-term sustainability and other fiscal risks. Long-term, nations will have to brace for falling energy tax revenues. There are several obstacles to a more systematic and defined strategy to incorporating climate change risk into fiscal sustainability reporting. The inability to accurately forecast the frequency of severe weather occurrences and the effects of climate change on the rest of the globe is one such challenge.

LITERATURE REVIEW

Kashif Abbass,et.al (2022) Weather patterns from the tropics to the poles are seeing long-term shifts due to climate change. As a worldwide danger, it has already begun exerting pressure on many different industries. The purpose of this research is to conceptually engineer how changes in climate are threatening the viability of several industries throughout the globe. In particular, the vulnerability of the agricultural sector is a worldwide cause for alarm owing to the fact that unpredictable weather patterns pose a danger to both productivity and food supply. As a result, it is putting a strain on global food production, especially in nations where agriculture is central to the economy and overall output. Due to changes in optimal temperature ranges, climate change has threatened the integrity and survival of many species, hastening biodiversity loss by gradually altering ecosystem architecture. The current coronavirus pandemic is an illustration of how climate change might enhance the risk of some food- and water-borne and vector-borne illnesses. Antimicrobial resistance is another hazard to human health caused by the rise in resistant pathogenic diseases, and climate change only makes the

problem worse. Furthermore, climate change is having a catastrophic effect on the global tourism sector since it is causing formerly desirable tourist destinations to become unattractive. The technique looks at possible futures of climate variability and tries to convey the quality of the evidence to help readers critically think about the topic. Environmental, social, and economic viability are just some of the sustainability challenges that may be uncovered with the use of secondary data. The data used to compile this study was culled from a wide range of sources, including news organizations, think tanks, government documents, academic journals, and newspapers. This analysis takes a global look at how different industries are dealing with climate change, and the financial costs that come along with it. The research shows that for a country to flourish in the long run, the government must take an active role by enforcing a culture of transparency and accountability over the country's resources and the rules and regulations that have been put in place to date in order to develop innovative climate policy. This worldwide problem necessitates a global commitment to confront its horrific ramifications to maintain global sustainability, which is why adaptation to climate change must be a top priority.

Abdul Waheed et.al (2021) Coherence (PC) in climate change (CC) adaptation and mitigation policies across sectors is crucial for meeting CC problems and fostering synergies. Pakistan has a significant risk of being affected by CC. This report evaluates the degree to which Pakistan's federal and provincial governments have adopted water, agricultural, and energy sector policies, development plans, and strategies that are consistent with their commitment to combating climate change. Analysis of government papers is conducted here using a qualitative content document analysis and scoring system. Furthermore, the ramifications of CPEC (2017-2030), the largest infrastructure investment initiative in Pakistan's history, are explored. One significant finding is that PC varies among policy sectors. A higher degree of federal cohesion is present than that of provincial governments. More so than with energy policy, water and agricultural policies are found to handle CC issues in a consistent manner. It is recommended that the federal and provincial governments, particularly in the energy sector, develop mechanisms of intergovernmental consultation for policymaking and cross-sectoral planning in order to increase CC PC. Our research may be used by the government of Pakistan to make CPEC a regional example of green BRI. Relevant consequences include, but are not limited to, curbing ecologically detrimental infrastructure operations and coal-based energy projects in fragile environments. The authors of this work want to convey the critical significance of CC PC, especially in the context of the BRI. Several of the participating nations have established goals for cutting carbon emissions.

Lotten **Wiréhn (2018)** The agriculture industry in the Nordic nations may benefit or suffer as a result of climate change. Increased agricultural output may result from climate change adaptation management. However, improvements might be stymied if concurrent issues aren't dealt with. This means that adapting to climate change is crucial for avoiding bad outcomes and making the most of positive ones. For the first time, this research undertakes a systematic literature analysis of both the scientific and grey literature on possibilities and difficulties posed by climate change in Nordic agriculture, yielding a comprehensive summary of necessary adaptation efforts. From what can be gleaned from this meta-analysis of proposed adaptation policies and measures, it seems that farm-based adaptation methods are more common and have received more attention in the scientific literature than policy-driven adaptation. This research highlights a void in the literature about the nuances of adaptation requirements and trade-offs in the Nordic agriculture industry. In sum, this research shows that there are substantial issues tied directly to climate change, even though the agricultural industry in the Nordic area is experiencing considerable advantages from climate change. There are trade-offs involved in adaptation, as revealed by the synthesis of proposed adaptation activities, but additional research is needed to fully understand them. Long-term benefits to Nordic agriculture from climate change may be jeopardized if these problems aren't solved.

Munna **Verma et.al (2017)** Coal is the most popular main fuel used to generate electricity, however it produces harmful byproducts when burned. Alternatively, biomass is a sustainable resource that may be utilized to generate electricity without negatively impacting the environment. Since biomass takes in as much carbon during photosynthesis as it gives out during combustion, it has zero net impact on atmospheric carbon dioxide levels. Wood and woody wastes, municipal solid waste, animal wastes, agricultural crops and their waste by-products, waste from food processing, aquatic plants, and algae are all examples of biomass that may be co-fired with coal. Biomass has a lower heating value due to its natural moisture content; thus, it must be dried before being used for co-firing. There is a wide variety of dryers that may be used to dry biomass, each with its own set of advantages and disadvantages. This article discusses the drying of biomass prior to co-firing, the various methods used for drying biomass, the addition of biomass co-firing to already operational coal-fired power plants, and the positive effects on the environment.

Anbumozhi (2011) The effects of climate change, such as water scarcity, severe weather, the possibility of mass migration, and the disruption of international markets, pose serious difficulties for all Asian nations and are an intrinsic part of the process of sustainable development. The region's nations are growing output and consumption as a result of fast economic expansion and modernization, necessitating urgent adaptation measures. Businesses in Asia need to improve energy

efficiency, offset emissions, and make greater use of low carbon or renewable energy resources since the region is responsible for a disproportionately significant amount of greenhouse gas emissions. Companies are increasingly seen as contributors to environmental solutions, and this trend might be accelerated by a legislative climate that actively encourages them to work toward achieving zero emissions if conditions were just right. This paper addresses these problems by reviewing selected initiatives taken by Asian countries to comply with emerging global sustainability standards, reporting, and management systems; tracking the response of Asian businesses to global environmental concerns; examining market-based innovations including new regulations that augment corporate excellence; and identifying future directions for business that lead low carbon society. It suggests that governments and businesses work together to promote low-carbon efforts by redesigning national environmental laws and plans to take use of market dynamics.

SUSTAINABLE PERFORMANCE

There has been a change in how businesses' successes are evaluated recently. Organizational success was formerly gauged primarily by looking at asset levels, market share, and debt levels. As corporations begin to realize the benefits of balancing their financial success with their impact on society and the environment, a new term, "sustainable performance," has emerged to describe this trend. Corporate social responsibility (CSR) is often seen as closely related to sustainability as a business strategy. Because of the interconnected nature of organizations, their environments, and society, win-win solutions are always the result. When companies successfully combine their environmental, social, and ecological performance, they gain a significant edge in the marketplace. Long-term success may be achieved by businesses if they take steps to lessen the toll their operations have on people and the planet.

In order to ensure their continued success, businesses are incentivized to implement sustainable practices. Business organizations are under increasing pressure and admiration from a wide range of stakeholders to achieve their end aims as well as their voluntary environmental and social goals.

Sustainable performance is evaluated by tracking progress in three areas simultaneously: the economy, society, and the environment. When evaluating a company's success, sustainable performance takes into account the needs of all of the parties involved. There are no limits to what may be accomplished in this field since companies must account for both upstream and downstream stakeholders when gauging sustainable performance. In a similar vein, Burawat (2019) asserts that sustainable firms prioritize efficient use of resources, decreased emissions of gases, support for environmental activities, value creation for a wide range of stakeholders, and a boost in financial performance. And as sustainable leaders focus on the long haul, systemic thinking and management growth constitute the backbone of sustainable performance.

CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT

The environmental hazards we face now are greater than what Earth can withstand. One of the most complicated issues that humanity is now confronting is climate change. It poses an existential risk to all forms of life on our planet. Human actions including emitting greenhouse gases (GHG) and cutting down forests have led to a steady rise in global average air and ocean temperatures. As a consequence, the average sea level is rising, which is having a dramatic impact on the worldwide climate.

Changes in local and regional climates brought on by global warming are altering the kinds of climate hazards that may be expected in certain areas. Loss of biodiversity and alarmingly rising levels of ocean acidification are direct results. As the climate warms and becomes more unstable, it will have a variety of effects on human habitat and livelihood situations. The availability of freshwater would decrease; land degradation and deforestation would endanger human food security; industrial output and development would slow; and the frequency and severity of catastrophic climatic events would grow. They are threatening many people's ability to make a living, particularly those in extreme poverty. The problem has been exacerbated by recent financial turmoil, growing social inequality, and rising population pressure.

Rapid industrialization, exploitation, and environmental devastation are all being carried out in the name of progress. The lasting effects of which are difficult to eradicate. When changes are both drastic and rapid, unfavorable outcomes tend to win out. The actions we take now to address climate change will have repercussions for at least the next century. Our same home planet and atmosphere connects us. Greenhouse gases in Earth's atmosphere are not categorized according to their country of origin. The consequences of one country's emissions for global warming are felt by another. Clear evidence that the fight against climate change is global in scope and requires the participation of all nations. As a result of the global climate crisis exacerbated by manmade greenhouse gas emissions, every nation's policies and practices now have global implications. Participating in a group effort is mandatory rather than voluntary.

Human-caused climate change is not a standalone problem. Several interconnected parts make up the whole. The economic, social, and environmental dimensions all contribute to these dangers. Unless we take swift and coordinated action to address them, they might interact in devastating ways. Because of the severity of the hazards involved,

policymakers at all levels of government must develop comprehensive responses and policies.

The term "sustainable development" (SD) emerged from this context. It was created as a means of balancing development activities with the urgent need to save the environment. Our realization that the environment is not an external force, distinct from our behaviors, goals, and wants, but rather that it permeates all of these things, was the catalyst for this shift in perspective.

Environmentally responsible practices are the answer. Humanity will perish if we fail to address the root causes of environmental deterioration and the resulting climate change. There is a reciprocal link between efforts to slow climate change and those to build a sustainable society. In many ways, circumstances may be created via sustainable development that are conducive to pursuing climate change mitigation efforts.

Sustainable development seeks to strike a balance between economic progress and the protection of natural resources, with an emphasis on the former. It seeks to maximize development while efficiently and sustainably using the planet's finite natural resources. The term "Sustainable Development" refers to an approach to growth that prioritizes fostering social harmony and decreasing inequality. Equity between generations and within generations are both significant concerns. Sustainable development is characterized by its even-keeled attention to both of these factors.

ANTHROPOGENIC ACTIVITIES AND GLOBAL WARMING

The Earth's surface temperature has increased by more than 2 degrees Celsius in the previous century. Atmospheric temperatures, sea levels, and ocean acidity have all risen significantly throughout this time span. Some people wonder whether the climate change we've been seeing is due to natural causes or the result of human activity (known as anthropogenic climate change). By using up fossil fuels, chopping down rainforests, and maintaining domesticated animals, humans have a significant impact on the global climate and temperature. Fossil fuel use, say proponents, is directly responsible for the increase in greenhouse gases in the atmosphere, which is causing major and more severe climate change, such as sea level rise, ocean acidification, and global warming. Actually, we've been using fossil fuels for our energy needs for almost two thousand years. The greenhouse effect of the Earth's atmosphere prevents the sun's heat from escaping back into space. The greenhouse effect and global warming have been amplified throughout time by the addition of large quantities of greenhouse gases to the already-existing gases in the atmosphere. Nonetheless, the rise in global warming due to the use of fossil fuels is correlated with increased CO2 emissions, which may alter the climate.

Climate change and global warming are both caused by human activity, and CO2 is the most prevalent greenhouse gas generated. There is a school of thought among scientists that points the finger at human actions as the primary driver of climate change. However, in the present climate change cycle, human activity is having a much more significant effect. Thus, it is possible that natural processes, rather than human activity, are to blame for the present inactivity on climate change and global warming. The present warming phase, on the other hand, is happening far more quickly than previous occurrences, and the planet's temperature is changing at a much quicker rate than in previous periods of climate change. One explanation is that the time scales are shorter than the Millennium, making the current period of global warming only a transitional one. Burning fossil fuels has resulted in massive volumes of CO2 being emitted into the atmosphere, and this is the primary cause of the recent rise in global temperatures. Human activities, such as the combustion of fossil fuels and the release of greenhouse gases like carbon dioxide and methane, are now widely accepted as the primary drivers of the previous century's warming.

GLOBAL CLIMATE CHANGE AND THE ENVIRONMENTAL VULNERABILITY INDEX

Global risk consultant Maplecroft calculates and publishes the Global Environmental Vulnerability Index (EVI). Among the world's biggest and fastest-growing economies is India, and a new worldwide assessment has determined that it faces high threats to its people, ecosystems, enterprises, and environment. The 42 social, economic, and environmental aspects that make up the Worldwide Environment Vulnerabilities Index, a global evaluation of national susceptibility to climate change, are used to determine how vulnerable a country is in three crucial areas. Indications chosen for mapping and indicators representing vulnerability within a geographical unit may both be used in vulnerability mapping. All of these measurements are combined into one comprehensive evaluation that has over a thousand measurements in each of the three primary categories. The area covered by vegetation and the existence of climate-related indicators, such as catastrophes and climatic scenarios, are examples of the physical aspect. Another physical factor is the later emergence of climate-sensitive illnesses. The frequency and intensity of severe weather events like floods, droughts, and forest fires contribute to a greater disease load. It unites eight groups whose members are disproportionately threatened by climate change.

The Mediterranean basin is a real-world illustration of how climate change is already having a noticeable impact. Establishing connections between population trends and environmental health is crucial in light of the growing urgency with which we must address the issue of environmental susceptibility to climate change. More than 1.5 million people call this area home, and the region sees a lot of visitors every year

because of its abundance of natural resources and cultural attractions. Communities on low-lying islands are vulnerable to increasing sea levels and climate change. Simply put, low-income neighborhoods are less likely to be ready for the consequences of climate change because they lack the means to do so. They will likely have difficulties in obtaining food and other ecosystem services as a result of these changes, in addition to the consequences of increasing sea levels.

Rural areas are particularly vulnerable to climate change because they rely so largely on agriculture and natural resources for their economic stability and food security. The extent to which cities and nations will be impacted by climate change depends on a number of variables, not all of which are climatic. Since scientists' predictions of climate change are not always accurate and so many variables enter into play, such as increasing temperatures, shifting precipitation and snow cover, and the effects of extreme weather events, quantifying the future impacts of climate change can be a formidable challenge. The political and social climate of an area should be factored in as well to determine whether or not a nation can adequately prepare for it. The reliance of many emerging nations on non-renewable resources makes them especially susceptible.

NATURAL DISASTERS AND CLIMATE CHANGE'S SOCIO-ECONOMIC CONSEQUENCES

Some years may see relatively few fatalities from natural and environmental catastrophes, until a large catastrophic event kills many lives. Over the previous decade, natural catastrophes have claimed the lives of an average of 60 thousand people annually throughout the world. To sum up, the research estimates that around 0.1% of worldwide fatalities are a result of this. Figure 2 displays the yearly variation in the number and percentage of fatalities caused by natural catastrophes during the last several decades. Fewer than 10,000 people may lose their lives, and that figure may be as low as 0.01% of total fatalities, in certain years. But shock events have a terrible impact: the 1983–1985 famine and drought in Ethiopia; the 2004 Indian Ocean earthquake and tsunami; Cyclone Nargis, which slammed Myanmar in 2008; and the 2010 Port-au-Prince earthquake in Haiti and more current example is COVID-19 pandemic. Over 0.4% of all fatalities over those years were caused by natural disasters, and that number was pushed above 200 thousand by these occurrences alone. Although natural disasters like earthquakes and tsunamis are not entirely avoidable, the devastating human losses they cause are. Death tolls from natural disasters have been cut in half over the last century because to improved early warning systems, fortified infrastructure, emergency planning, and rapid response software. Those with lower incomes are also more likely to lose their lives in a natural catastrophe, thus it is crucial that we work to better their living circumstances, infrastructure, and emergency response services in the future decades.

Intensifying heat is anticipated to have an effect on the inner parts of the continent. Many cultivated species are in danger of becoming extinct as a result of changes in weather patterns brought on by a lack of natural resources (water), an increase in glacier melting, and increasing mercury levels. Coastal ecosystems, on the other hand, are on the point of collapse. There is a high likelihood that the ongoing patterns of rising temperatures, pest disease epidemics, health issues, and seasonal and lifestyle shifts will endure into the future. The most vulnerable communities across the world are those with the least amount of solid infrastructure and the least amount of adaptive ability (IPCC 2013). In addition to the aforementioned issues, the general public is worried about climate change because of a lack of environmental education and information, outmoded consumer behavior, a dearth of incentives, a lack of legislation, and a lack of government commitment to the issue. By 2050, a 2–3 percent increase in average global temperatures and a significant change in precipitation patterns might have significant effects. Huge losses were incurred as a result of natural and environmental disasters.

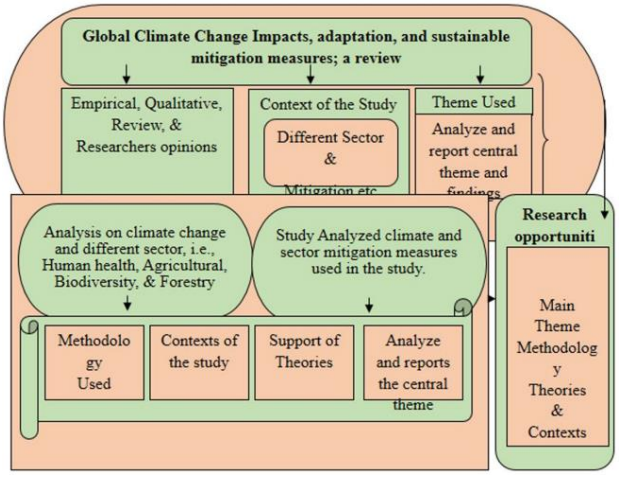

Figure 1: Framework of the analysis Process.

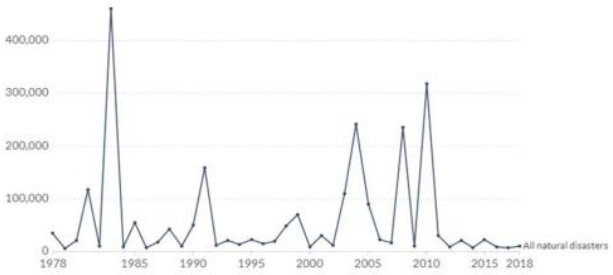

Figure 2: Global deaths from natural disasters, 1978 to 2020. Source EMDAT (2020)

factors, including reduced agricultural production, system rehabilitation, and technology reconstruction on a global scale (Table 1). In addition, smog-related eye and skin disorders and an increase in traffic

accidents owing to poor visibility have afflicted the globe in the previous three to four years.

Table 1: Main natural danger statistics for 1985–2020 at the global level

Key natural hazards statistics from 1978 to 2020				
Country	**1978 change**	**2018**	**Absolute change**	**Relative**
Drought	63	0	-63	−100%
Earthquake	25,162	4,321	-20,841	−83%
Extreme temperature	150	536	+386	+257%
Extreme weather	3676	1,666	−2,010	−55%
Flood	5,897	2,869	−3,028	−51%
Landslide	86	275	+189	+220%
Mass movement	50	17	−33	−66%
Volcanic activity	268	878	+610	+228%
Wildfire	2	247	+245	+12,250%
All−natural disasters	35,036	10,809	−24,227	−69%

CONCLUSION

It is now evident that both wealthy and developing nations might become more vulnerable as a result of climate change and the interaction with socioeconomic situations. There might be a wide range of negative consequences for wildlife and the ecosystem if this continues. Therefore, regardless of one's wealth or style of living, it is crucial to cooperate with the efforts being made in both of these nations. No matter where they call home, everyone on Earth is feeling the effects of climate change. The world's most pressing problems, including climate change, need our immediate attention. Climate change is only one of several environmental and societal stresses that have an impact. Concerning food supply scenarios include those that result in worse food quality, increased food costs, and inefficient food delivery networks. Storms, droughts, flash floods, and extreme precipitation are only few of the climatic elements that pose a threat to the world's forests. Their extinction, on the other hand, is a boon to humanity. There is no question that the susceptibility scale of the world's regions varies, but proper mitigation and adaptation strategies may help decision-making bodies build effective policies to combat its repercussions.

REFERENCE

1. Anbumozhi, V., M. Kimura, and K. Isono 2011. Leveraging Environment and Climate Change Initiatives for Corporate Excellence. ADBI Working Paper 335. Tokyo: Asian Development Bank Institute. Available: www.adbi.org/workingpaper/2011/12/22/4834. climate.change.initiatives.corp.excellence/

2. Abbass, K., Qasim, M.Z., Song, H. et al. A review of the global climate change impacts, adaptation, and sustainable mitigation measures. Environ Sci Pollut Res 29, 42539–42559 (2022). https://doi.org/10.1007/s11356-022-19718-6

3. Lotten Wiréhn "Nordic agriculture under climate change: A systematic review of challenges, opportunities and adaptation strategies for crop production" Volume 77, September 2018, Pages 63-74

4. Waheed, A., Bernward Fischer, T. & Khan, M.I. Climate Change Policy Coherence across Policies, Plans, and Strategies in Pakistan—Implications for the China–Pakistan Economic Corridor Plan. Environmental Management 67, 793–810 (2021). https://doi.org/10.1007/s00267-021-01449-y

5. Munna Verma et.al "Drying of biomass for utilising in co-firing with coal and its impact on environment – A review" Volume 71, May 2017, Pages 732-741

6. BBC News-15th April,2013. ''Family and Education''.www.bbc.c.o.uk/news/ education-22158941. Retrieved on 4 th August, 2015.

7. Stewart, J. H. (2005). ''Challenges for Environmental Education: Issues and for the 21st Century''. (Bioscience oxford journals.org/com). Retrieved on 30th June, 2015.

8. Saylan, C. (2011). ''Green failure: what is wrong with Environment Education…''.Retrieved from (e360yale.edu/…/2407/).

9. Orr, D. (2010). ''Earth in Mind'' In'' should environmental education be taught in school''. Clarkbeast.wordpress.com/2010/11/05. Retrieved on 31st May,2015.

10. Pidwimy, M. (2006). ''Causes of Climate Change'' In Fundamentals of Physical Geography, second edition (http/www.physical geography.net/fundamentals/7y.html). Retrieved on 17th April, 2015

11. Dr. Mahendra Pratap Choudhary et.al "Environmental Degradation: Causes, Impacts and Mitigation" : https://www.researchgate.net/publication/279201881

12. Doyle, J. 2009. Seeing the climate? The problematic status of visual evidence in climate change campaigning. Pages 279–

298 in S. I. Dobrin and S. Morey, editors. Ecosee: image, rhetoric, nature. First edition. SUNY Press

13. Cornell, S., F. Berkhout, W. Tuinstra, J. D. Tàbara, J. Jäger, I. Chabay, B. de Wit, R. Langlais, D. Mills, P. Moll, I. M. Otto, A. Petersen, C. Pohl, and L. van Kerkhoff. 2013. Opening up knowledge systems for better responses to global environmental change. Environmental Science & Policy 28:60–70. http://dx.doi. org/10.1016/j.envsci.2012.11.008

14. Crutzen, P. J. 2002. The "anthropocene." Journal de Physique IV 12(10):1–5. http://dx.doi.org/10.1051/jp4:20020447

15. Crutzen, P. J., and W. Steffen. 2003. How long have we been in the Anthropocene era? Climatic Change 61:251–257. http://dx. doi.org/10.1023/B: CLIM.0000004708.74871.62

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