

CLIMATE CHANGE ISSUES IN SOUTH ASIAN NEWSPAPERS

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Abstract:- The UN's Inter-governmental Panel on Climate Change (IPCC) and other leading organizations have expressed their concerns over climate change being cause in terms of erratic monsoons, flash floods, crop failure, etc. South Asia comprises the countries of Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, the Maldives, and Sri Lanka. The South Asian region is more vulnerable to climate change risks as it is too dependent on its natural resources and agriculture, besides its dense population and poverty. This study has been carried out by (1) analyzing the newspaper texts of all the South Asian countries news portal available online, and (2) interviewing journalists of South Asia through emails. The authors observe that there needs to be more media focus at the regional levels. Climate change will not affect every place on the earth the same way. Thus, specific solution strategies may need to be developed for regional areas. Although climate change effects will be felt at national and global levels, there are regional adaptations that need to be considered importantly. For this, journalists will have to work hand-in-hand with civil society activists at the grassroots to create climate awareness at the local level.

Key Words :- South Asia, climate change, global warming, newspaper coverage, poverty, fossil fuels

Introduction

Climate change is a serious environmental concern for the entire human community and it is primarily caused by the emission of huge amount of greenhouse gases (GHGs) in the atmosphere.

The Intergovernmental Panel on Climate Change (IPCC) of the United Nations has given much evidence confirming the fact that climate change is mainly created by the anthropogenic activities and if the rate of GHGs emission is not reduced significantly, there will be a damaging effect on the global climate.

The anthropogenic activity is that how all the countries of the world are adding the GHGs in the atmosphere. The benefits of reduction in emission by any one country accrue not to the country itself but to the entire global community. Individual countries will not have a sufficient incentive for undertaking mitigation actions unless all countries take a collective effort with an equitable distribution in reducing emissions (Ahmad, 2013).

This issue needs to be strongly addressed to the public so that the global community can

arrive at a solution. Apart from getting educated through schools and colleges, television is one of the effective mediums that the public rely on for getting information. The public tend to discuss issues constructed by the media. When the issue attains the limelight in a public forum it tends to get high attention among policy makers.

The power of visual images has a gripping effect on the audience, particularly when pictures of ecological disasters are presented. A smoking stump can symbolize destroyed forests; a single protestor can represent widespread social anxiety; a billowing chimney can stand for unchecked industrial pollution. Likewise, with the help of media, climate change visuals can be perceived as a global crisis symbolizing the harmful impacts of climate change on people, communities, and environments around the world (Lester & Cottle, 2009). The media has helped translate the scientific knowledge of climate change in the language and images of reality that people understand. The catastrophic consequences of climate change must be made visible not only to enhance understanding but also to generate

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pressure for action (Beck, 2009). Presented below is the detailed summary for policy makers (IPCC, 2014) which is considered as one of the authoritative sources of scientific literature that has alarming figures on the impact of climate change. Climate-related extremes – heat stress, extreme precipitation, inland and coastal flooding, landslides, air pollution, drought, wild fires and water scarcity – impact the ecosystems, disrupt the food production and water supply, damage the infrastructure and settlements, and create morbidity and mortality, with a consequence of disturbing the mental health and human well-being.

The glaciers are continuously shrinking throughout the world due to climate change, affecting runoff and water resources downstream. Scientific evidence of retreating of Alpine glaciers in Scandinavian, tropical island glaciers in East Africa, Andean glaciers in Central and South America and loss of Arctic sea cover ice sheets have been found. Loss of ice cover sheets is also to be found in the regions of Hindukush, Karakoram and Himalayas. These glaciers are the natural suppliers of water to rivers which are used for irrigation, industrial consumption and also for domestic purposes. Reduction in melting of waters can actually lead to loss of power, as many hydroelectric dams are dependent on these waters for power generation (Laghari, 2013). As many as 174 gigatonnes of water has been lost between 2003 to 2009 leading to floods in Indus, Ganges and Brahmaputra rivers (Gardner et al., 2009).

The coastal zone is an important and critical region for India, which has a low-lying densely populated coastline of over 7500 km with the Arabian Sea on the west and the Bay of Bengal on the East (Patwardhan et al, 2003). It is inhabited by more than 10 million people in nine coastal states (West Bengal, Odisha, Andhra Pradesh and Tamil Nadu on the East coast, and Kerala, Karnataka, Goa, Maharashtra and Gujarat on the West coast), two union territories (Puducherry and Daman & Diu) and two groups

of islands (Andaman & Nicobar and Lakshwadeep).

In the Indian context, most of the studies concerning the impacts of climate change on coastal zones have been conducted for impacts of sea level rise. A rise in sea level has significant implications on the coastal population and agricultural performance of India. Leatherman & Nicholls (1995) estimate that a 1-meter sea level could lead to loss of 6000 km² and displace over seven million people in India. A study from Jawaharlal Nehru University (JNU, 1993) evaluated the consequence of 1-metre sea level rise scenario was evaluated. The study concluded that in the absence of protection approximately seven million people would be displaced and 5764 km² of land and 4200 km of roads would be lost. The dominant cost estimated was that due to the loss of land, which accounts for 83% of all damage. A subsequent study by The Energy and Resources Institute (TERI, 1996) explored the relative vulnerabilities of different coastal regions, the effect of adaptive responses on the sea level rise impacts and the value of coastal protection for selected regions. Mumbai and Ratnagiri districts in Maharashtra were found to be the most and least vulnerable, respectively to a 1-metre sea level rise.

Haarsma et al. (1993) estimated that the intensity and frequency of cyclone storms in the Arabian Sea and the Bay of Bengal could be affected under changed climatic conditions. In the case of North Indian Ocean, it is estimated that the average number of tropical disturbance days could increase from 17 to 29 per year under a doubling CO₂ concentration scenario.

Need for study

People in the developing countries are worst affected by the vagaries of climate and does not have a voice in the determination of policy direction. By knowing the cause and effect of climate change, they can understand the global politics and practice successive adaptation and mitigation measures to save their lives and livelihoods. Online news is one of the mediums

for learning and understanding things and it has a great ability to break down complex issues to simple terms that allows people to get the multi-faceted sense of the reality and they can help people to make informed choices. Local people are much influenced by climate change impact by how media frames and popularizes scientific models and predictions (Marin & Berkes, 2013).

Further, the media's role as attitude changer is particularly important within the context of contemporary environmental problems. The media shapes the public's perception of what is important and influences the public's opinions and attitudes.

This study can influence the ongoing climate science and governance interactions as well as political geographies, and (re)-shape the climate change discourse particularly in South Asia. Even within the Asia-Pacific region, grave consequences are being faced by the South Asian countries which are either developing or underdeveloped. South Asia comprises Afghanistan, Bangladesh, Bhutan, India, Nepal, the Maldives, Pakistan and Sri Lanka. This study looks into the involvement of environment journalists in disseminating the regional and local climate change issues. It presupposes that journalists of these countries should take upon themselves as a duty to communicate the impacts of climate change. South Asian countries being more vulnerable to climate change, there is a special need to study the media content of climate change in the region. Evaluating the newspaper journalists' reporting from the region will be helpful to identify gaps. The newspaper texts were analyzed by accessing news portals of the respective news organizations.

Table 1: South Asian newspapers and their news portals

| S.No. | Country | Newspaper | Website |
|-------|--------------|----------------------------|-----------------------------|
| 1 | Afghanistan | <i>Pajhwok Afghan News</i> | www.khaama.com |
| 2 | Bangladesh | Bdnews24.com | www.bdnews24.com |
| 3 | Bhutan | Kuensel Online | www.kuenselonline.com |
| 4 | India | <i>The Times of India</i> | timesofindia.indiatimes.com |
| 5 | The Maldives | <i>Haveeru</i> | www.haveeru.com.mv |
| 6 | Nepal | <i>The Himalayan</i> | www.thehimalayantimes.com |
| 7 | Pakistan | <i>Dawn</i> | www.dawn.com |
| 8 | Sri Lanka | <i>Daily Mirror</i> | www.dailymirror.lk |

Aim

The aim of the study is to analyze the climate change coverage in newspapers of South Asia.

Objectives of study

- To find how various newspapers cover climate change in South Asia.
- To get to know the challenges the journalists face in covering climate change in South Asia.
- **Review of literature**

Hart (2011) found that public support for climate mitigation policies will interest people if the impact of climate change stories is described in thematic frame rather than episodic. In episodic framing, the news coverage focuses on a single event or instance and does not provide much background information on the subject. This leads the receiver to have less information and limits the level of understanding of the issue. In thematic framing, the coverage puts the issue in a general or abstract context providing a lot of background information supported by statistics, historical trends and collective outcomes increasing the receiver's level of understanding.

Boykoff & Boykoff (2004), through content analysis, have studied the United States' press coverage of global warming from 1988 to 2002. The central finding of this research work is adhering to the journalistic norms of balance has led to the biased coverage of both anthropogenic contribution to global warming and resultant action. Even after the strong demand for action by the Intergovernmental Panel on Climate Change (IPCC), the scientific discourse has not been fully carried by the mass media and this mis-translation occurs for perfect logical reasons rooted in journalistic norms.

Marin & Berkes (2013) argue that the media has failed to report the effects of climate change on local people. Instead, it has been just giving less influential and irrelevant news on climate change. Only by reporting the successful adaptation and mitigation strategies, combining with the local epistemology will give a

knowledge base to the people.

Conversely, Eide & Ytterstad (2011) stress the need for reporting of global perspectives of climate change to have more interpretation leading to knowledge into action and hope for justice under capitalism. Reporting on global perspective will activate the voices of resistance and a different opinion of nations and their politics of climate change leading to bigger media space. This transnational literacy would help in giving solution for commons without any border.

Boykoff & Goodman (2009), in their study, analyzed the media coverage in Australia, Canada, the United States and the United Kingdom on the role of celebrities in addressing the climate change issues. The authors found that the celebrities are emergent and important set of extended network in shaping meaning and knowledge at the science-policy/practice interface. The actors are leveraged links between environmental science and policy actors and institutions. Their voice can be prominent contributing to greater public understanding of climate change science as well as potentially catalyze climate policy cooperation.

Boykoff (2008), in his research, shows how the mass media plays a significant role in shaping the construction and maintenance of discourse on climate change in the interface of science and policy. He states that the subject of the media and climate change is arguably the most heavily politicized issue providing a number of opportunities. These communications can inform and anticipate other current science issues. Focusing the interactions of the media and climate change represents various challenges leading to the policy level decision making. Also, he adds that increased visibility of climate science information will increase the public understanding of science and engagement with scientific issues.

Boykoff (2008) links the political geographies with cultural issues of identity and discourse through claims and frames on climate

change in four daily tabloid UK newspapers. He found that climate change was framed based on weather events and actions of political actors. The headlines were composed of fear, misery and doom. As such, this paper presents another example of how climate change science and policy shape media reporting and public understanding, as well as how journalism also influences climate science and policy decisions.

Sampei & Usui (2009) analyzed the Japanese newspaper coverage of global warming from 1998 to 2007 and also studied the public opinion during this period to find their perception and influential factors involved in newspapers. They found that increase in newspaper coverage had a correlation with increase in public concern on global warming. They also found that front page articles and total number of articles are influencing the public concern for this issue. However, this effect was immediate and short term. So they suggest that the government reconstruct its strategy of knowing when and how to provide information to the mass media to keep their attention to climate change issues.

Zhao et al. (2011) surveyed 2,164 adults and found that when people pay close attention to political news, they perceive global warming as just a matter of debate, with unclear consequences receiving less serious attention.

Conversely, when people follow science/environment news, they are likely to perceive the issue as a more well-defined public issue with grave and potentially irrevocable consequence that demands immediate response from individual industries and government.

So there is a necessity for the journalists to frame the climate change stories under science/environment news. This effect will have a positive response from the public as they find it more credible.

A study conducted by Wilson (2000) found that newspapers (37%) were the dominant source of knowledge to the reporters. Interviews with scientists and use of science journals placed a distant second and third respectively.

Journalists need to look into sources from scientific community. Reporters who relied on scientists as their primary sources had more accurate climate change knowledge than reporters who relied on other sources. Results indicate that scientists willing to serve as credible climate change sources can directly improve the quality of reporting.

All humans are emitting certain level of CO₂ in their everyday life. But not all are equally vulnerable to climate change impacts. There is a need for a personalization belief to be created among the people by the media. Lorenzoni & Pidgeon (2006) found that “successful action is only likely to take place if individuals feel they can and should make a difference and if it is firmly based upon the trust placed in government and institutional capabilities for adequately managing risks and delivering the means to achieve change”. This trust can be shaped by the practices of the mass media. More coverage and accurate information alone will not solve the problem; further the media needs to create personalization of shared responsibility among the people.

Brossard et al (2004) cross culturally compares the US and France newspaper coverage on global warming from 1987-1997. The study found that France had more event based coverage and focused more on international relations restricting the range of viewpoints on global warming. American coverage emphasized the conflicts between the scientists and politicians. From the study it becomes evident that journalistic practices when embedded according to specific cultural context will affect the nature of media coverage on global warming. The France coverage used comparatively less industry sources than the American coverage. The industry sources stress the negative consequences of reductions of carbon dioxide level. But the France coverage stressed the limits of economic growth with environmental protection and the need for humans to protect the balance of nature. American coverage using the business sources implies that it was in tune with

consumerism and materialism.

Boykoff & Smith (2010) state media reports are helpful in addressing, analyzing and discussing the issues, but not answering them. But the real challenge is that media needs to portray the diversified aspect of climate change from human role in it, whether it is 'serious'. The authors also argue for the need for improving the journalist ecological literacy and to increase the media sources to tell stories rationally and sensibly covering diversified perspectives and opinions culturally as well as geographically.

Billet (2010) analyzed four Indian English newspapers from 2002 to 2007 and found that the Indian newspapers were showing preferences to the elite society which is composed of 1% of total population by not reporting their emission level. A citizen from an elite society emits four and a half times more than a citizen within the poorest 38% of the population in India. This may be because these dailies serve only this elite group. Indian media has passed on the blame to the developed countries by framing the news as they are the sole cause of global warming.

Boykoff & Boykoff (2007) state that mass media are not just a piece of a news articles or television segments; they are the bridge of social relationship between the scientist, policy actors and the public. Their research is on the analysis of US newspaper and television segment coverage of anthropogenic climate change from 1988 to 2004. They found that the journalists work with the journalistic norm which is a structure embedded in their minds and are practised every day. Since these are collectively formed it is almost impossible to take out these norms from their mind. These norms when employed to the news packages of climate change has led to informational deficiency affecting the interactions of scientists, policy actors and the public which leads to biased coverage of global warming delaying action by the US government.

Boykoff (2009) states the climate change events like sea level rise are displacing people affecting their livelihood and farmers facing

dangers of droughts and floods are prominent issues. The beliefs about climate change were a function of three main factors: possible relevant personal experiences (e.g., exposure to weather disasters), perceived consequences of climate change (e.g. relative vulnerability) and messages from informants (e.g. scientists via the mass media). Krosnick et al. (2006) propose a mechanism linking knowledge into action: “knowledge may have increased certainty, which in turn increases assessments of national seriousness, which in turn increases policy support, knowledge about an issue per se will not necessarily increase support for a relevant policy. It will do so only if existence beliefs, attitudes, and beliefs about human responsibility are in place to permit the necessary reasoning steps to unfold”. Also Boykoff adds that the human behaviour may not address the concern if the issue does not significantly impact the functioning of the lives.

Rick et al. (2011) study the sea level projection in IPCC reports and sample of scientific literature present in the US and UK newspapers and they found that the coverage was more during the release of IPCC reports and climate change negotiations proving more attention paid by journalists during this time. The amount of coverage of sea level rise is driven by events in the political process rather than the scientific results in sea level rise. Mass media reporting of climate change remain key influences that bound discourses and shape the spectrum of possibility for climate mitigation and adaptation actions. Accurate reporting on projections for sea level rise by 2100 demonstrates a bright spot at the interface of climate science and mass media.

Boykoff & Mansfield (2008) analyzed the print media coverage of climate change in four UK tabloid newspapers for seven years and also have done a semi-structured interview with journalists. The examination of the study found that the reporting of the UK tabloid press significantly diverged from scientific consensus

of anthropogenic climate change. They found inaccurate reporting of climate change in these tabloid newspapers due to the lack of expertise in journalists. If the reports fail to cover the promises of consensus on emission reduction from various parties, it will lead to inaction from them.

Dirikx & Gelders (2010) examined the Dutch and French newspaper framing on United Nation Conferences of Parties from 2001 to 2007. The study applied the five generic frames defined by Semetko & Valkenburg (2000). They found that both the newspapers have framed the event very similarly. Of the five frames employed the Consequence frame and the Responsibility frame was most often reflected. The Dutch newspapers framed climate change from a human interest perspective. The Conflict frame was the third most prominent frame used in the Netherlands and France.

Hajer & Strengers (2012) stress the need for media representations. They should not just be read in terms of political arguments, but also need to be mixed with climate science, governance, and daily life issues and then to be disseminated. More public intellectuals are to be created, who understand the science and also willing to mediate among science, society and politics.

Watt et al. (2012) research is based on the government policies with respect to household practices. The study emphasizes the need for government action alert to the diversity of sustainable household capability with deep socio-cultural context. The higher level of sustainable action was performed by less affluent households with detached dwellings and households organized by women proving greater capability to engage with practices to reduce carbon emissions than those living in units.

A study by Antilla (2005) indicates that the collective news wire services community is the dominant news source of climate science news. On analysis of 255 US newspapers, the science of climate change does not appear to be

prime news. More coverage was framed in terms of debate, controversy and uncertainty. Antilla also says that not just the adherence to the journalistic norms of balance will lead to bias in news, but also by repetitive usage of climate sceptics as primary sources will lead to misinformation. The sceptics are successful by recruiting the media to frame climate change issues as a controversy issue and also they try to justify by using metaphors like calling scientists as alarmists, climate science as junk science or bad science. The study emphasizes the need for media to employ sources from scientific community.

Carvalho (2010) found that the media plays a major role in setting the public agenda as it is in the main source of information and in creating awareness to the people especially in issues related to climate change. The media can construct a crucial role in constructing the meaning of public issues and improving the understanding of risks, responsibilities, and in functioning of democratic politics. The effect created by the media leads to action at policy level.

Methodology

This study covered the nationally-read newspapers which are online as well, in each of the eight South Asian countries for climate change news for three year i.e., April 1, 2012 to March 31, 2015. The methodology used to analyze the media text is discourse analysis. Key words used were 'climate change', 'global warming' and 'sea level rise'.

The aim of critical discourse analysis is to uncover how language works to construct meanings that signify people, objects and events in the world in specific ways. It is concerned with the way in which discourse builds social identities, social relations and the system of knowledge or belief and how these discourses maintain power through their ideological properties (Brookes, 1995).

Additionally, in-depth interviews were used to gather ideas, information and to

understand the journalists' perspectives in communicating climate change.

Media discourses on climate change

Discourse analysis was undertaken on climate change stories featured on eight South Asian countries for three years, and 214 articles were analyzed. The stories analyzed through discourse analysis range from hard news stories to soft features, all covering the issues of regional climate change. Since the study focused on regional coverage of climate change in newspapers, the wire stories from elsewhere and the stories on climate change with a global perspective were left out. The articles were analyzed based on the framework of Dutton & Brown (2009). The framework was categorized based on the following categories: Optimism, Rationalism, Ethical mitigation, Disaster strikes, Potential catastrophe, Crisis, Opportunity, and Unclassified.

Table 2 Stances and associated discourses

| Stances | Discourses |
|--|---|
| 1. Climate change will be beneficial | Optimism |
| 2. Other development issues should be tackled first | Rationalism |
| 3. Mitigation is the key | Ethical mitigation Self-righteous mitigation |
| 4. A crisis, climate change must be tackled urgently | Disaster strikes Potential catastrophe Crisis |
| 5. Overcoming climate change can help the poor | Opportunity |

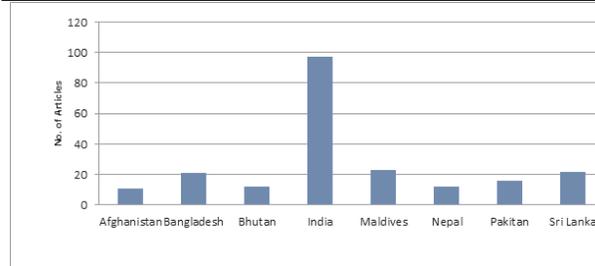


Figure 1: Climate change articles in newspapers of South Asian countries from April 2012 to March 2015

Figure 1 shows that the trend of low coverage uniformly in South Asian countries except in the case of India. A more valid reason is that the Indian newspaper – *The Times of India* in this case – is voluminous and it has thus more scope to cover news as well. This may also be because of India's robust civil society and polity being

specially sensitized to the issue of climate change. Next to India, the Maldives, Bangladesh and Sri Lanka top on the chart of climate change coverage, rightly given the fact that the three countries are affected by sea level rise and sea-based disasters.

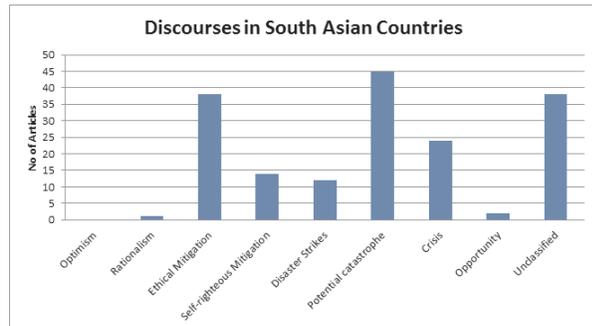


Figure 2: Total number of articles conforming to each discourse published from April 2012 to March 2015

The discourses on climate change have been classified into eight and some coverage which cannot be classified into any of the types was kept aside as 'unclassified'. Figure 2 shows that South Asian countries portray climate change as a 'potential catastrophe' and some form of 'ethical mitigation' needs to be taken up to prevent the disaster from happening. Moreover, there is also a strong feeling that climate change is a 'crisis'.

There are countries like Norway which think that climate change is good but in the South Asian region it is hardly the case. There are views that there are other important things than climate change but never climate change is good.

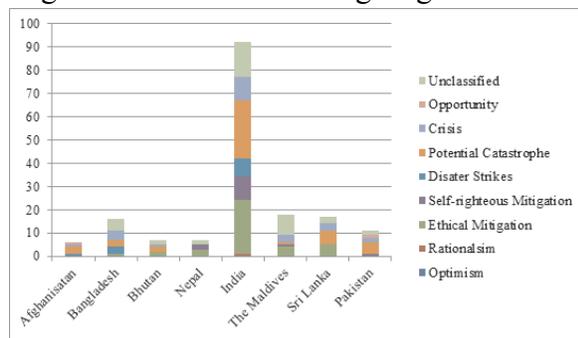


Figure 3: Country-wise appearance of climate change discourses in newspapers of South Asia

Asian countries from April 2012 to March 2015.

Figure 3 gives an overview of countries' trends in coverage of climate change related news. Discourses like 'optimism' and 'opportunity' are hardly seen in the chart. This gives a clear idea that climate change is not seen as beneficial. And people in South Asia consider it as a threat in near future. The media has emphasized more on the 'crisis' and 'mitigation' factors.

These crisis stories deal with what will happen as a consequence of the impact of climate change. Impacts may be negative (eg. coastal flooding, heat waves, sea level rise, severe cyclones, melting of glaciers, deforestation, endemic species, floods, droughts) etc. Mitigation is an anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases and adaptation is an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

South Asian issues

Presented below are some of the South Asian issues on climate change as found in the press in South Asia.

Afghanistan

Afghanistan is landlocked and mountainous. Its recent history has witnessed conflicts and displacements. The country has high water resources though not properly managed. As much as 80% of the people are dependent on the scarce natural resources for their livelihoods. Droughts and flooding are likely to recur more often, and these are projected as climate change events in Afghan media.

One of the articles dealt with how the snow leopards are on the verge of extinction. The article was titled as "Snow leopards rebounding amid concerns the species are on verge of extinction". The news article referred to the report of the international non-governmental

organization World Wide Fund for Nature which reported the negative effects of climate change. The report says that the tree line would be shifted higher up the mountain with the increased global temperatures. Not only will this make it more difficult for snow leopards to hunt prey, it will also make the air dryer, shift the timing of water availability, and possibly melt the permafrost and glaciers (Khaama Press Reporter, 2015).

In another article, Gilles Pargneaux from the European Council said “We must limit the global rise in temperature to 2°C if we are to curb climate change and the resulting catastrophic droughts, floods and food crises. These natural disasters are behind an exponential growth of climate refugees, who could number as many as 200 million in the coming years – even more than the number of war refugees” (Khaama Press Reporter, 2015).

Sajad (2013), in his article, talks how the world participates in switching off lights to mitigate climate change. The annual event known as Earth Hour was designed to draw attention to wastage of resources. United Nations Secretary-General Ban Ki-moon said around 7,000 cities and towns in more than 150 countries and territories take part in Earth Hour.

Bangladesh

Bangladesh is densely populated. Thickly populated areas constitute a delta of rivers that empties into the Bay of Bengal. Much of Bangladesh is low-lying and vulnerable to flooding. Half of the population is very poor. Agriculture is the mainstay but it is not able to meet the job demands. Many Bangladeshis seek work abroad, mostly illegally. Coastal and riverine flooding and winter (dry season) drought in certain areas are reported as events induced by climate change. Both coastal flooding (from sea and river), and inland flooding (river/rain) are expected to increase. The combined effects of climate change include sea level rise, subsidence and changes of upstream discharge, cyclones and coastal erosion. Stories of how people organize themselves in managing sea ingressions also find a

place in media coverage.

Sheikh Hasina, Prime Minister of Bangladesh, says that “Bangladesh is one of the world's most populated countries (160 million) and one of the most vulnerable to the impacts of climate change. Cyclones, floods and droughts have long been part of the country's history, but they have intensified in recent years”. On recognizing this, Bangladesh has taken initiatives to prepare the ecologically fragile country for the challenges it faces from climate change. These initiatives, from climate change adaptation measures to ecosystem preservation legislation, mean that current and future generations of Bangladeshis are better prepared to address climate change risks and reverse the impacts of environmental degradation (Bdnews24.com, 2015).

Bangladesh has now set up its own Climate Change Trust Fund supported by nearly US\$300 million of domestic resources from 2009-2012. The government currently earmarks 6-7 per cent of its annual budget some US\$ 1 billion on climate change adaptation, with only 25 per cent of this coming from international donors. A 'Climate Change Fiscal Framework' is also in the works to enable the government to track the demand and supply of climate change funds. For the first time, climate change is no longer merely an additional demand, it is central to the country's development prospects (Bdnews24.com, 2015).

In another article, Robert Watkins, the UN Resident Coordinator in Bangladesh, says, “from 1990 to 2008 Bangladesh averaged annual losses of 1.8 percent of the country's GDP due to natural disasters, yet it is important to remember that addressing the impact of climate change is more than just a question of economics. High tides in coastal areas of the country are rising faster than the global average, which leads to loss of livelihoods and displacement. By 2050, it is estimated that one in every seven people in Bangladesh is likely to be displaced by climate change, and they are also likely to move to urban centres already burdened with meeting the needs

of a dense population” (Bdnews24.com, 2015).

An article in Bdnews24 covers an interview of a Danish Minister Connie Hedegaard who says, “climate change is not some distant fury”; its widespread consequences are already being felt around the globe. The main emphasis of the article was how the low-lying Bangladesh. Which is located in the Ganges Delta will be one of the country's worst affected by climate change (Mallick, 2011).

In another article, a journalist gives the perspective of climate change among the people of Bangladesh. The news article tries to get the opinion from farmers and fisherfolk who are the most vulnerable to climate change. There were several stories from people who said how frequent cyclones severely affect their lives and livelihoods. The journalist also witnesses how soil erosion has become rapid which swallows people's properties (Devnath, 2012).

Bhutan

Bhutan is a tiny, remote kingdom in the Himalayas. A minimum of 60 per cent of the country's total land is being maintained under forest cover as per a constitutional provision. As many as 25 glacial lakes are at a risk of flooding. Less ice and snow cover the rocks in the recent winters. Recession of glaciers results in increase in the volume of these lakes. Reduced flow of snow-fed rivers has major impacts on hydropower generation, urban water supply, and agriculture. The rise in rainfall intensity increases run-off, and enhances soil erosion and sedimentation of water bodies. Temperature rise shifts the crop cultivating zone further up.

In an article titled, “COP21, the litmus test for action on climate change: FM”, Foreign Minister of Bhutan, Damcho Dorji says Bhutan has contributed least to the causes of climate change, but it is very much vulnerable to climate change impact (Dorji, 2015). The International Centre for Integrated Mountain Development (ICIMOD)'s expert Pradeep Mool says, climate change has shrunk glaciers that feed most of the

Bhutanese rivers since 1980. The glacial lakes increased by 8.7 percent while the actual size of the glaciers shrunk by 22 percent between 1980 and 2010. Within the same period, the glaciers receded from 860 sq km to 671 sq km in 2010 in Bhutan (Palden, 2015).

Prime Minister of Bhutan Tshering Tobgay says, green transport and clean production in industries, along with capacity building, should be provided to both government and private sector stakeholders for a clean and green socio-economic development in Bhutan (Pokhrel, 2015). He further added that a leading glaciologist of the Himalayan Third Pole Region, Yao Tandong, had warned that in 20 years' time, another 30 percent of the Himalayan glaciers will have disappeared and, by the middle of this century, perhaps 40 percent; 70 percent by the beginning of the 22nd century. If such full-scale shrinkage takes place, it'll eventually lead to monumental ecological, political, economic and possibly military catastrophes,” He was quoted saying that “We have to work together because thinking globally, acting locally isn't enough. We have to think globally and act regionally” (Pokhrel, 2015).

Another article says that Bhutan could lose over six percent of its Gross Domestic Product annually by 2100 due to melting glaciers and climate change induced extremes according to the Asian Development Bank (ADB)'s climate change and economics report for South Asia. ADB's climate change and disaster risk management division's director, Preety Bhandari, said “Without capacity to cope with climate change, South Asian countries like Bhutan, Bangladesh and Nepal are likely to suffer extreme weather events. These countries will be lashed by flooding, landslides and reduced energy production from hydropower because of climate change effects. The country's slope dominated agricultural activities and heavy reliance on glacier fed lakes for hydropower, tourism and water could face immense challenges in the coming decades without global

efforts to slow the climate change” (Bumthang, 2015).

India

India is the second most populous country and it is the seventh largest in size. It is a fast-growing and powerful economy. The Himalayan glaciers are receding, and agricultural yields are dipping as rains are erratic. India is keen on meeting out the energy needs of its vast poor as well for providing them a better life, but at the same time it is championing the cause of climate change by cutting down on its emissions. Wheat and rice yields dropped substantially in the recent years. Increased glacial melt due to warming may affect river flows. Increased warming might result in increased flows initially with reduced flows later as the glaciers disappear. This would lead to increased summer flows in glacier-fed river systems for a few decades, followed by a reduction in flow as the glaciers disappear. Mosquito-related diseases will spread to places which were earlier having cooler weather due to climate warming, which will create greater harm if public health infrastructure is weak in those places. The media coverage includes apple cultivation in Shimla moving to higher altitude due to temperature rise and the islands of the Sundarbans delta disappearing due to sea level rise.

Regional impacts like how Telengana is affected by climate change were discussed in an article. Climate change researcher Faisal T Illiyas says that climate change does have wider ramifications, including forest fires, rise in medical expenses, thus affecting food security leading to spurt in extreme events. Further, he adds that the government should focus on climate insurance to protect farmers from the drastic effects of heat and cold wave, floods, cyclones and heavy rains. Fish production in Andhra Pradesh has come down due to heat wave and drought, also the cost of inputs in agriculture and pisciculture had increased burdening the farmers (Akbar, 2015).

In Tamil Nadu, the projected increase in

minimum and maximum temperatures, decrease in number of rainfall days, increase in intensity of rainfall, carbon dioxide, cyclones, and rise in the sea level projected for the future have all implications vis-à-vis enhanced soil erosion, loss in soil nutrient, and increase in pests and diseases. The article quotes scientific reports and states that the trend of monsoon will change drastically. The state's water supply situation will worsen and the adverse impact of this will not be felt only on agriculture but on all sectors of the economy. For agriculture, this would mean an increased demand for irrigation water in the upper basin, coupled with a reduction in surface water availability in the delta regions. This, combined with the expected sea level rise, can result in increased salinization of coastal farmlands (Warrier, 2015).

The sea level rise would submerge the mangroves as well as increase salinity of the wetlands. The coastal region of the state supports the livelihood of a large population, with economic activities such as fishing, tourism, aquaculture, salt mining and coastal agriculture. It also supports infrastructure such as power plants, highways, urban centres, ports and fishing harbours. Increased intensity of cyclonic activity and storm surges, combined with the effect of sea level rise, can make these populations and infrastructure vulnerable (Warrier, 2015).

Maldives

The Maldives has about 1,200 islands, most of them uninhabited. None of the coral islands is more than 1.8 metres above sea level. The economy revolves around tourism in view of beautiful sandy beaches. The people of the Maldives may have to give up their country within 100 years due to rising sea level. The Maldives depends on groundwater and rainwater as sources of freshwater. Both of these sources of water are vulnerable to changes in the climate. The rise in sea level is likely to force saltwater into the freshwater aquifers. High sea surface temperatures in 1998 had caused mass bleaching of coral reefs. The survival of the coral reefs in the Maldives faces threat. Coastal infrastructure too

is highly vulnerable to the impacts of sea level rise and sea ingression.

Foreign Minister of the Maldives Dhunya Maumoon says that the Maldives' famed blue waters will become a watery grave for its people, and calls for urgent action to address climate change at the United Nations. She says that "climate change is a security threat to the Maldives. It damages our economy, deprives us of our rights, of our land, and our way of life. It is a threat to the very existence of our nation" (Visham, 2015). Most of the news articles were about how the politicians address about climate change at various international conferences or about framing climate agreements with the international countries. In another article, Environment Minister Thoriq Ibrahim declared that the Maldives is one of the most vulnerable countries to climate change. The country also drafted a proposal which says that an assertion has been made to reduce the estimated increase of greenhouse gases in the Maldives during 2030 by 10 percent (Ahmed, 2015).

Nepal

Like Bhutan, Nepal too is in the Himalayas. It is landlocked. It is one of the world's poorest countries. Climate change will severely affect the agricultural sector, which is the main source of the livelihoods to the poor. Climate change is dangerous due to threat to glacier lake outbursts. Glacial melt is expected to increase under changed climate conditions, which would lead to increased summer flows in some river systems for a few decades, followed by a reduction in flow as the glaciers disappear.

An ICIMOD remote sensing study shows 1,400 glacier lakes have come up owing to the melting of the Himalayan ice under the impact climate warming; of these six are vulnerable to outburst with the potential to cause havoc in the downstream human settlements of Nepal. Many Nepali villages and bazaars along the snow-fed river basins have become extremely vulnerable to the threat of glacier lake outburst floods (Rai, 2015).

Energy sector in Nepal also shall be affected due to climate change as it is mainly dependent on the hydroelectric power. Hydroelectric plants are highly dependent on predictable runoff patterns. Therefore, increase in climate variability brings change in the frequency and intensity of flooding and droughts affecting the hydroelectric sector (Kasaju, 2015). Climate change impact coupled with random extraction of groundwater may hugely affect Nepal's water bodies. Water resource expert Dr Laxmi Prasad Devkota says that "Groundwater extraction is rampant in cities like Kathmandu where population is increasing by the day. If the trend continues, we fear that there will be adverse impact of climate change in country's water bodies" (Adhikari, 2010).

Pakistan

Pakistan emerged from the partition of the Indian sub-continent. Climate change decreases crop yields which affects livelihoods and food security. The reduced flow of the Indus river affects the cotton production, wherein cotton is the main cash crop. Karachi which faces Arabian Sea is vulnerable to monsoonal and tidal activity (Khan & Arora, 2014).

Scientists from Pakistan have warned heat waves will become more frequent and intense due to climate change. Death toll from the ongoing heat wave across Karachi has risen up to 700. Dr Mohsin Iqbal from the Global Change Impact Study Centre in Islamabad says, "There has also been an increase in climate induced extreme events – an increase in heat waves, droughts, floods, cyclones and wildfires. In Pakistan, the frequency and intensity of extreme events has increased; there were super floods in 2010 and 2011 and back-to-back floods in 2011, 2012, 2013 and 2014. There have been droughts, intense heat waves and severe cyclonic storms in the country" (Khan, 2015).

Coastal and marine environment, dry land ecosystems, agriculture and livestock sector, forests, biodiversity and health were among the sectors that had been seriously affected by

climate change. The Pakistan government estimates that it has collectively suffered losses of \$20 billion due to the adverse and increasing effects of climate change (Ghumman, 2015).

Climate change in Pakistan is affecting the cropping intensity and patterns as well as the production and irrigation infrastructure across the country. This climate shift is putting human security in terms of food and calorie availability and consumption at risk, especially for the vulnerable poor. If not managed properly, these changes could result in yield losses of staple crops like wheat, rice, maize, pulses and livestock. Global Climate Risk Index 2014, the Germanwatch think-tank, ranked Pakistan third in the list of countries most affected by climate change, after Haiti and the Philippines (Abbas & Cheema, 2015).

Climate change may also lead to border conflicts between countries. Qamar-uz-Zaman Chaudhry, author of Pakistan's National Climate Change Policy, says, "Around 35-40 million climate refugees are projected as the sea level rises. As numbers increase, there will be trans-boundary migration as well and the large-scale migration will cause a massive problem as India has unilaterally fenced the border. India has recently completed a 2,000 km fence along the border with Bangladesh to keep out immigrants. To police the border, India's Border Security Force has carried out a shoot-to-kill policy. It is estimated that Indian security forces have killed almost 1,000 Bangladeshis in 10 years" (Khan, 2015).

Sri Lanka

The tropical island of Sri Lanka is one of the scenic places. Water from heavy rainfall in Sri Lanka is mostly lost as run-off. Cropping activities for e.g., coarse grain, legumes, vegetables, and potato are likely to be affected adversely. The major negative impact is estimated for coarse grains and coconut production. An increase in the frequency of droughts and extreme rainfall events could result in decline in tea yield. Since tea is a major export

industry and many labourers depend on it for livelihood, the dipping tea production is of serious concern. Erosions of many beaches are attributed to sea level.

Sri Lanka faces serious risks due to sea-level rise. According to the IPCC, even an optimistic climate scenario envisions the sea-level rising about 40cm by the end of the century could affect over 94 million people and more than half of those affected are those from South Asia, especially those living in coastal zones. Sri Lanka, like many other states, concentrates a lot of its economic activity in the coastal zones (Niles, 2015).

Some solutions were also proposed in an article titled "Build our cities to live in harmony" which talks about rural to urban migration, as megacities are sprouting across the world and new, idealized models of sustainable urban living, are gaining huge traction. With more than 3.5 billion city dwellers on the planet, urbanization is and will remain highly influential to adapt to the effects of climate change. The article referred the UN report which says, half of humanity now lives in cities, and within two decades, nearly 60 per cent of the world's people will be urban dwellers. As cities grow in size and population, harmony among the spatial, social and environmental aspects of a city and between their inhabitants shall become of paramount importance. This harmony hinges on two key pillars: equity and sustainability. Planned urbanization will maximize the capacity of cities to generate employment and wealth, and to foster diversity and social cohesion between different classes, cultures, ethnicities and religions. Cities designed to live together create opportunities, enable connection and interaction, and facilitate sustainable use of shared resources (Daily Mirror News Service, 2015).

Journalists' perspectives

In-depth interviews were carried out (through emails) to gather ideas, information and to understand the journalists' perspectives on communicating climate change.

Amantha Perera, freelancer, works for Inter Press Service and IRIN. He opines that the major reason why the standards of environment journalism are low is because most journalists are not aware of the basic environmental laws. This is the case both nationally and internationally. To improve their standards, journalists should be able to understand the developments with local angle. He also suggests that there should be a better network within the journalists to improve the quality.

Manoj Thakur, a journalist of *Prajasakti*, says that the organization in which he works allows environment-related news to be published. But he says that the career prospect of environment journalists is not good. According to him, river pollution is the worst form of pollution that affects the most. Moreover, the space in the newspapers provided to environment news is meagre. The major reason why environment journalism takes a beating is because most journalists report in regional languages (Urdu, Telugu, etc) and they do not have a basic training in reporting climate change so they can report about it effectively to their readers, who are beginning to feel the impacts of climate change and would like to learn more about it.

N. Vinoth Kumar, journalist with *The Hindu* Tamil, says that only the interest can drive you to file an environment story. Since the deadlines are there it does not mean that you have to send the story incomplete and in a hurry. Environmental NGOs act as a bridge to get connected with a scientist, who can give us the clue on different studies and journal which are again authentic sources. The journalist should get new idea on the climate change linked with other problems such as food security, economy and research oriented news.

Raja Gopal Sarma, another journalist from *Prajasakti*, says that his organization looks environmental issues from the commoner's point of view though it is global in nature. The issues which affect the environment is thermal projects which affect people's livelihood particularly

fisher folk and tribals. He agrees that this profession is not economically sustainable. He says that the major problem in environmental journalism is lack of official information, which misleads the journalists. They find it difficult to get information from the officials concerned.

Rina Saeed Khan, a journalist working for *Dawn* and Reuters who won Earth Journalism Award during the 2009 Copenhagen Climate Change Summit for the best reporting on climate change from Asia, said that leading organizations devote a section to climate change and she continues to write environmental blog and an environmental column for *Dawn*. She classifies environmental journalism into following themes: climate change, water issues, disasters, and loss of biodiversity. According to her, climate change is the major issue and it is only for this she believes in it strongly and always tries to cover issues that can be brought to the notice of the policy makers. When asked about environment journalism as a career, she says that it would be a struggle to get the stories published but that situation is changing and now there are more platforms to publish one's story. Salma Yousuf, a journalist from *Daily Mirror*, said that one must love the environment and focus on it. Only if you work on local angles, the readers would be interested. It is all about grasping one's readers.

Findings

The journalists mostly portray climate change as caused by anthropogenic activities and climate change as an impending catastrophe. There needs to be more media focus at the regional level. As the saying goes, journalists should think globally and act locally. The readers will get interested if local angles are given. If climate change discourse is linked to people's issues, policymakers will be forced to address it.

Climate change will not affect every place on the earth the same way. Thus, specific solution strategies may need to be developed for regional areas. Although climate change effects will be felt at national and global levels, there are regional adaptations that need to be considered.

For this, journalists will have to work hand in hand with civil society activists at the grassroots to create climate awareness. They should also network with fellow journalists to improve the contacts and content.

Journalists get assigned to stories and it is only sometimes they cover stories out of interest. Journalists covering environment, or climate change in particular, find it difficult to get their stories published. Journalists say that environment journalism is not a sustainable career as their audience is not large in number. Climate change is directly related to the other disasters and also disaster mitigation measures, and those links should be established.

There is a possibility that journalistic behaviour could affect the way that climate change is presented in the media. Matters such as deadlines and lack of knowledge of climate

change issues could result in heavy use of material from international news agencies. Journalists should generate more local stories on climate change. The countries with high climate change awareness generate more stories on ethical mitigation.

Limitations of study

In most South Asian news portals, archives could not be accessed thoroughly, and the database contained only current news. The search options did not give accurate news results. The stories on climate change may not have used the key words 'climate change' and 'global warming' which used for the search. International wire stories were not taken for the study though stories on the Maldives dominated in all countries. Further, getting interviews of journalists over email was difficult.

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