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ARTICLE

Full Length Research Paper

Framing of climate change issues in Indian television news channels

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Climate change affects the lives and livelihood of people. Unless and until people understand the climate science, they will not be able to cope with the extreme events that are likely to occur. The media plays a major role in disseminating scientific information on climate change, and the general public becomes aware of it through the media. This research is an analysis of a six years of coverage of climate change issues in two Indian national television news channels, Cable News Network-Indian Broadcasting Network(*CNN-IBN*) and New Delhi Television Limited (*NDTV24X7*). The results of the analysis reveal that policy makers and NGOs were strongly associated with the 'judgment' frame; while the news bureaus and scientists were strongly associated with the 'problem' frame. TV channels could adopt the model of *NDTV24X7* in collaborating with an institution working on climate change to offer quality coverage.

Key words: Climate change, global warming, news framing, television, news channels.

INTRODUCTION

Anthropogenic activities such as industrial emissions play a key role in putting major amount of carbon dioxide in the atmosphere. British physicist John Tyndall found carbon dioxide can trap the escaping infrared radiation, which warms the earth (Palfreman, 2006). This warming up of the earth can lead to temperature increase, glacier melt and sea level rise (Henson, 2006). The temperature increase triggers vector-borne diseases such as malaria and dengue fever. World Health Organization (2005) report has estimated that 150,000 people have died as a result of direct and indirect climate change impacts. The sea level rise has forced people to move away from coastlines. The society needs to understand and

recognize climate change as a serious problem, and it needs to prepare for that.The media plays a major role in setting the public agenda as it is the main source of information and in creating awareness to the people. It constructs meaning, especially in issues related to climate change, improving the understanding of risks, responsibilities, and in the functioning of democratic politics leading to action at the policy level (Carvalho, 2010; Carvalho and Burgess, 2005). Boykoff and Mansfield (2008) stated that the success of future climate mitigation policies may depend significantly on the news sources. Reporting on climate change can shape the spectrum of possibility for climate mitigation and

adaptation actions (Rick et al., 2011). 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 (IPCC, 2001).This research analyzes how the climate change issue has been framed in the two Indian television English news channels, namely *CNN-IBN* and *NDTV 24X7*.

Social problems: Claims and frames

According to Gurevitch and Levi (1985), the media become "a site on which various social groups, institutions, and ideologies struggle over the definition and construction of social reality. This means, the media provide a series of arenas in which symbolic contests are carried out among competing sponsors of meaning" (p.19). Two issues are central to this symbolic contest: Who gains access to media representation; and what overall themes emerge in the media's treatment of an issue. Those who gain media representation can be called 'claims-makers'. The themes that emerge in media representation of an issue can be called 'frames'. Two research questions which underlie this research are:

Research Question 1: How are frames and claims-makers distributed in Indian television media coverage of climate change?
Research Question 2: Are there associations among frames and the claims-makers?

Claim-making

The social problem theory propounded by Spector and Kituse (1977: 75) stated that the process of constructing the definition of the social problem is grounded in claims-making activities: "the activities of individuals or groups making assertions of grievances and claims with respect to any putative conditions. The emergence of the social problem is contingent upon the organization of activities, asserting the need for eradicating, ameliorating, or otherwise changing some condition".

   They also emphasize that social activity surrounding the recognition of a problem goes on within and between social agencies such as the government, protest groups, professional organizations, or news media. Their model can be precisely applied to answer the question of the media's role in the definition of a social problem.It can be used as a basis for recognizing the media as a social clearinghouse for claims. Since the media is a main tool for communicating social problems, social agencies try to stress on their claims and justify them to the public and get validated. In this research, 'claims-maker' is being

operationally defined as the quoted source, commonly found in the news discourse. These sources are used in stories for many reasons such as for their respected work in their fields, their former history and relationship with the media, or their capability to provide journalists with important information about critical and emerging issues (Trumbo, 1996). Selection of the claims-makers of news gives a clear picture of how the story is framed. The perspective of the claims-makers can change the angle of the news story. The methodology section details with how claims-makers categories are developed and identified.

Framing

The framing research is derived from the study of Goffman (1974) wherein he examined how individuals understand their environment and interpersonal interactions. He described frames as schemata of interpretation that allow individuals to locate, perceive, identify and label issues, events and topics. Also, he states that words are triggers that help people to negotiate meaning through the lens of existing cultural beliefs and worldviews. Framing is the process by which a communication source, such as a news organization, defines and constructs a political issue or public controversy (Nelson et al., 1997). After the exposure to the framed message, audience accept or at least get awareness about the issue (Scheufele and Tewksbury, 2007). Tuchman (1978: 1) further added new ideas to existing Goffman's framing concept. She stated that frames tell us what we want to know, need to know, and should know. Through her book "*Making News: A Study in the Construction of Reality*", she explains the concept of framing as viewing through a window. "The view through a window depends upon whether the window is large or small, has many panes or few, whether the glass is opaque or clear, whether the window faces a street or a backyard. The unfolding scene also depends upon where one stands, far or near, craning one's neck to the side, or gazing straight ahead, eyes parallel to the wall in which the window is encased". Gamson and Modigliani (1989: 143) played a major role in expanding the framing research. They employed the framing technique in finding the impacts of social movements on issues such as nuclear power and global warming. They define frame as "a central organizing idea or storyline that provides meaning to an unfolding strip of events, weaving a connection among them. The frame suggests what the controversy is about, the essence of the issue". Gamson (1992) has promoted a 'constructionist' approach in news framing. His research reveals that people make sense of political issues by using the frames available in media coverage, and also by incorporating these packages with the frames forged by way of personal experience or conversations with others.

In the 1990s, researchers like Kinder and Sanders (1996) stated that the frames for a given policy controversy exist within the public discourse surrounding that controversy, a discourse that is typically communicated to ordinary citizens through the mass media. Also these frames have the ability to process complex information and serve as cognitive shortcuts for individuals to interpret information (Zaller, 1992).

Nelson et al. (1997) defined framing as a process by which a communication source, such as a news organization, defines and constructs a political issue or public controversy and these frames become influential when they resonate with an audience's strongly held perceptual lenses (Price and Tewksbury, 1997) states that these frames will become influential when they resonate with an audience's strongly held perceptual lenses.

As frames are always seen as ways for both presenting and comprehending news, Scheufel (1999) identifies two concepts of framing: Media frames and individual frames. Media frames are devices embedded in political discourse. On the other hand, individual frames are internal structures of the mind. The blend of individual and media frames is what makes framing successful.

Whereas, Entman (1993: 52) writes, "to frame is to select certain aspects of a perceived reality and make them more salient in communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation". Frames then define problems - determine what a causal agent is doing with what costs and benefits, usually measured in terms of common cultural values; diagnose causes - identify the forces creating the problem; make moral judgments – evaluate causal agents and their effects; and suggest remedies - offer and justify treatments for the problem and predict their likely effects.

For this study, the frame is perceived from the Entman's idea, that is the salience is measured from the television news channels, headlines, quotes of the sources and visuals (issues of measurement are addressed below). The calculated measurement fell under the four categories: 'Problem' frame, 'diagnose causes' frame, 'moral judgment' frame, and 'remedies' frame.

METHODOLOGY

Both *CNN-IBN* and *NDTV 24X7* which are considered as influential Indian national television news channels were taken up for this research. *NDTV 24X7* is the most watched English news channel with over 60% viewership (NDTV financial result, 2009) and the number of viewers of *CNN-IBN* has increased more than *NDTV 24X7* in the year 2011 (Afaqs Corrspondent, 2011). The news episodes are content (news reports, feature stories and interviews) containing references to global warming and climate change. The videos were collected from the database of these two news channels for the 2006 to 2012 period, using the search terms

'greenhouse gas', 'climate change', 'global warming', 'temperature rise', 'sea level rise', 'glacier melt', 'Copenhagen', 'Cancun', 'Durban', and 'environmental sustainability'. This period was chosen because the database had these videos available for the abovesaid time frame. The final sample yielded a total of 257 news clips: 59 in *CNN-IBN* and 198 in *NDTV 24X7*. Individual news story along with duration is taken as the unit of analysis.

Coding form

The unit of analysis was the news stories. To categorize the unit of analysis, frames, and claims-maker measurements, categorical coding form was developed (Neuendorf, 2002) and an Excel spreadsheet for data entry was created. Frame variable categories and codes are problem = 1, cause = 2, judgment = 3, solution = 4. The variable called claims-makers is a source quoted in a story; multiple claims-makers can be cited in a story. This study coded each citation separately by its order in a story (1st quote, 2nd quote, etc.). Claims-maker1a is the first quoted source in the story. Categories or types of claims-makers and their codes are: Scientist = 1, policy makers = 2, NGOs = 3, news bureaus = 4, IPCC = 5, others = 6. Claims-maker2a will be the second quoted source in the story, and values also will be coded 1 to 6. Claims-maker3a will be the third quoted source in the story, and so on for additional claims-maker quotes. There were occasions wherein a text under study had more than one frame, but only the most dominant frame was taken into consideration.

Codebook

Codebook included variable operationalization and category definitions. Two coders, including the first author, examined and coded each story. The author extensively trained the additional coder on the data entry process and use of the accepted codebook. The coders received a codebook for use during the entire coding process. Each story was counted for its most dominant frame alone.

Inter-coder reliability

The instrument was pre-tested, by which the coders coded in the presence of the authors. Also, the two coders coded 10% randomly selected stories to test for reliability between coders. At this point before proceeding with data collection, inter-coder reliability (ICR) was established by applying the Cohen's Kappa coefficient to determine the level of agreement on coding decisions. The researcher applied the test to each coded value for both variables. In this study, Kappa inter-coder reliability test results for frame and claims-maker coding value agreement were 0.87 and 0.89 respectively. This means the agreement happens to be 87% for frames and 89% for claims-maker. Each coded value that had disagreement was discussed in detail, all measurements were clarified, and the pre-tested stories were re-coded by both coders together after clarification of measurement definitions. Minor revisions were made for the codebook to assure the categories were mutually exclusive.

Measurement: Claims-makers

In this research, 'claims-makers' is being operationally defined as the quoted source, commonly found in the news discourse. These sources are used in stories for many reasons such as for their respected work in their fields, their former history and relationship with the media, or their capability to provide journalists with important information about critical and emerging issues (Trumbo,

1996). Selection of the claims-makers of news gives a clear picture of how the story is framed.

Examination of coverage in both the news channels revealed the following categories of sources quoted: Scientists, non-governmental organization (NGOs), IPCC, general public, news bureaus, politicians, government officials, academics, international organizations, journalists and celebrities. A scientist was defined as a person associated with a university, government agency, or other affiliation. Policymaker was further categorized as either associated as an elected official (at the local, state, or national level) or an appointed spokesperson (at a local, state, or national level). NGOs were categorized as an environmental organization that has an interest in issues relating to climate change. These definitions were reexamined during the training session and inter-coder reliability procedure.

Measurement

In the analysis of media texts, Entman's frame construction as adopted by Trumbo (1996) has been used:

1. Define problems: These 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.
2. Diagnose causes: These stories are typically presentations of scientific findings that support the idea that there is evidence to the reality of climate change problem (eg. sea level rise at 0.88 m by 2100; last 11 years have been the warmest since 1850 (IPCC); global warming has affected the Indian monsoons (Science); wheat production to drop by half a ton per hectare as temperature rises (TERI) etc).
3. Make moral judgment: These stories present general statements calling for action or reporting the action taken; arguing against action or reporting action blocked or present the argument that the course of action is not clear (e. g. India does not accept legally binding emission cuts; India says no peaking year for emissions; make the west accountable for climate change; India can not accept caps on emissions; developed countries are not doing enough; developed countries must take the lead, etc.).
4. Suggest remedies: These stories provide specific information about how solutions have been proposed or implemented (e. g. promoting solar energy, building artificial glaciers, usage of public transport, cut down carbon emission level, save electricity, conserving and planting more mangroves, usage of green buildings, protecting low lying area by building levees, plant more trees etc.

RESULTS AND DISCUSSION

Table 1 shows that out of the overall claims-makers, policy maker's amount to 26%, NGOs (18.5%), News Bureaus (18.3%), Others (17.3%), Scientists (11.9%), and IPCC (7.6%). Policy makers, NGOs, News bureaus are the major claims-makers in terms of giving climate change information. IPCC is used very less when compared to other claims-makers. Other category includes general public, students, and film celebrities in which the usage of general public was more. Scientists as claims-makers were used very less. Since the coverage was more on COP meetings, the claims-makers happened to be the participants in those

meetings. The active participants from the policy makers are the politicians and appointed envoys.The former Environmental Ministers, Jairam Ramesh and Jayanthi Natarajan, and the Indian Envoys on climate change Shyam Saran and C.K. Das Gupta were some of the prominent faces who represented India in COP meetings. The political stand of India is well established by the policy makers. The U.S. President Barack Obama and former U.S. Secretary of State Hillary Clinton were some prominent faces. A kind of conflict between India and the U.S. was stressed in both the television news channel regarding emission cuts.

NGOs were also active in giving news information during the COP meetings. Personalities like R.K. Pachauri and Sunita Narain represented their organizations (The Energy and Resources Institute) TERI and the Centre for Science and Environment (CSE) respectively. These organizations happened to be the dominant sources with regard to climate change as both the organizations are closely working with respect to environment and climate change aspects. R.K. Pachauri, who was also the chairman of IPCC, made it possible for the news organizations to choose him as a source for authentic information.

Scientists were from the government, IPCC, and NGOs. The scientists representing India were from Indian Meteorological Department, who emphasized the need for more authentic data to prove the existence of climate science. Academic sources were found to be very less. *NDTV 24X7* had some news episodes referring the scientific reports published in academic journals. This shows that *NDTV 24X7* took some initiative in going through climate science in referred journals and contacting the scientists.

Other sources compromised of general public who were mainly used to tell the level of impact of climate change on them. The level of general public used as sources is found to be very less than all other sources. This shows the lack of research in terms of understanding the impact of climate change on people. Journalists are not able to trace the exact impact of climate change at the regional level which shows the lack of understanding of the climate science within them. More perception related to climate change effects studies might trigger journalists to add up more general public sources. As climate change is much associated with long term happenings, the immediate effect is not yet felt among the citizens of India.

Distribution of frames in *NDTV 24X7* and *CNN-IBN*

With respect to 'moral judgment' frame the conflict between the developed and developing countries was strongly portrayed by both the television news channels (Table 2). The major problem emphasized by the media was the melting of glaciers in India and also at International regions. The picture of climate change in

Table 1. Claims-Makers in *NDTV 24X7* and *CNN-IBN* during 2006-2012.

S/N	Claims-makers	Frequency	Percentage
1	Scientists	56	11.9
2	Policy Makers	122	26
3	NGOs	87	18.5
4	IPCC	36	7.6
5	News Bureaus	86	18.3
7	Others	81	17.3
	Total	468	100

Table 2. Frames represented in the *NDTV 24X7* and *CNN-IBN* during January 2006-12.

S/N	Frames	Frequency	Percentage
1	Problem	76	34.2
2	Causes	22	9.9
3	Moral Judgment	92	41.4
4	Solution	32	14.4
	Total	22 2	100

Indian minds will be either as melting of glaciers or the warmness of the earth. Since India has a very long coastline and a major population lives near the coast, even a small level of increase in sea level will displace millions of people from that region. So the news channels tried to emphasize this point as it's a major issue in terms of lives and livelihood. Health related problems due to climate change episodes were found to be scarce. Framing climate change in terms of public health will make the issue more personally relevant and will emotionally engage the public who are currently dismissive to the issue (Myers et al., 2012).

The next hierarchical frame was solution frame. The solution was mainly in terms of reducing the CO_2 from the atmosphere and reducing the intensity of it was the major solution proposed from the International and National forum. Moral judgment frame (42.3%) was the most dominant frame represented in *NDTV 24X7.* More coverage of COP meeting has led the channel to represent the climate change issue as a problem between the developed and developing country and who should take the moral responsibility.

An *NDTV 24X7* news episode titled 'Wobbly Monsoon' showed visuals of erratic weather. Heavy winds blowing in New Delhi gate, heavy floods affecting the people by washing away their homes were some prominent visuals. The main theme of the news episode was on monsoon variations. The news anchor explains 'since 1951 instances of very heavy rain has gone up from 8 to 18 cm and the spells of moderate rain has gone down'. This quote appears in the scroll at the bottom of the visual. Also visuals of landslides supported with heavy thunder storm sound were used to create a panic emotion among

the viewers (*NDTV 24X7*, 29 November, 2006).

The *NDTV 24X7* framed tigers, as the new victims of climate change due to sea level rise. The salinity increase in water has made the tigers to get displaced from its area. This has resulted in a man-animal conflict, as tigers enter the village. Cases of tigers entering villages because of cyclones have increased and forest officials had to tranquilize the animal to get it back to forest (*NDTV 24X7*, 28 November, 2009).

NDTV 24X7 shows the reality of climate change in Lakshwadeep islands where the corals are highly affected. These visuals present with evidence from news anchor that 27% of corals have been lost throughout the world and another 32% will be lost in coming years.

Another news episode from *NDTV 24X7* has coverage on campaign for Olive Ridley turtle which are affected due to sea level rise. These turtles are forced to dump their eggs in the sea and the eggs will simply perish in the water. So it is important to save them from both ecological and moral stand points (*NDTV 24X7*, 30 November, 2009).

Serious climate change impact visual was the melting of glaciers. A news story shows the breaking of huge masses of ice shelves falling into the sea. These visuals were shot wide angled and the mass of ice falling emphasize the salience of the climate change problem. This video had a timeline effect and was created using editing software, where the scenes move very fast. For example a day's video footage will be drastically so fast, that it would be completed in a second's time. Such effect was used to convey the message of reduction in ice shelf (*NDTV 24X7*, 23 January 2010). The falling of ice shelves were also used as background visuals in news episodes

Table 3. Association between frames and claims-makers.

S/N	Claims-makers	Problem	Causes	Moral judgment	Solution	Total
1	Scientists	15	3	0	0	18
2	Policy Makers	7	0	57	9	73
3	NGOs	20	3	21	15	59
4	News Bureaus	18	0	10	4	32
5	IPCC	7	16	2	0	25
6	Others	10	0	2	4	16
	Total	77	22	92	32	223

that feature interviews in studios. This effect will give a picture on Indian audience mind relating climate change to melting of glacier (*NDTV 24X7*, 3 November 2010). A news episode featured visuals of retreat of Kolahari glacier in Srinagar, Kashmir which is the main source of water for rivers and lakes. The news episode supplements the visual of news anchor saying that 11 sq.km of glacier has shrunk in last three decades and this melting of glacier is happening at an alarming rate causing a major threat to the environment of Kashmir (*NDTV 24X7*, 3 October 2009).

NDTV 24X7 covered an exclusive story on how people of Greenland are affected because of the melting of ice sheets. This video showed how gradually the ice sheets melted. This was an aerial view. Another visual from the same episode showcases the less ice in the month of winter due to which the tourism has reduced. More importantly the visuals of polar bears were shown. These visuals framed polar bears as the global sign of climate change and stress their problem. Visuals of polar bears swimming for a long time for food were shown stressing the shortage of ice (*NDTV 24X7*, 11 April 2012). An episode from *CNN-IBN* visuals show how the flora and fauna have got affected because of climate change. Due to the rising heat, the mango trees in the kammam district of Andhra Pradesh have spring three months early. Bees in the Himalaya are also affected due to erratic flowering patterns. The population of bird species *paradise* and *golden oreal* has become less than half in the decade due to monsoon variation and increased temperature. A *CNN-IBN* video show the visuals of the disappearance of glaciers at an alarming rate. A scientific investigation by the *CNN-IBN* bureau on how climate change is affecting the Himalayan glaciers was carried out. Three scientists and a journalist travelled to the Gangothri glaciers to witness the evidence of the retreat. After crossing many miles, a scientist explained to the journalist about how the glaciers have retreated evidencing climate change.

The 'other' category also had representatives of students, doctors, government officials and celebrities. Students campaigned for the climate change issue at the national and global levels. The researcher was able to trace certain stories like students representing COP

meetings and addressing U.N. delegation. Doctors talk about the level of increase in stress due to global warming and the related effects among the people. Health related climate change issues were broadcasted very less. If climate change problem had been discussed as a serious health issue, public might have taken it seriously. This may have had a rippling effect and helped the media to do more coverage on the issue.

Celebrities like Amitabh Bachan, Imran Khan and Abhay Deol were some of the Bollywood film icons who talked about the importance of global warming. Involving celebrities in terms of climate change communication can persuade people to get more attention and awareness. In all categories the sources of *NDTV 24X7* was more than that of *CNN-IBN*. The level of coverage related to climate change is less in *CNN-IBN.*

Association between frames and claims-makers

On performing a chi-square test of independence using the Pearson coefficient indicated there was a significant and strong association between the frames and the claims-makers $\chi 2$ (24, N = 223) = 186.636, p = <0.001) (Table 3).

First, quotes of scientists were most associated with stories that framed climate change by 'problems' and 'diagnosing causes' (scientific findings). Although less often, they appeared in 'moral judgment' and 'solution' frame. In the year 2006, it was the time when the country was not much aware whether global warming can actually affect and change weather patterns. There was a need for scientists to come out with strong scientific evidence for the certainty of climate change. *NDTV 24X7* sourced the Energy Resource Institute report (TERI) in the year 2006 where a scientist clearly says that the findings reveal that climate change is occurring as a result of human action, and the impacts of climate change are diverse. The frequency of extreme events is increasing every year. During the panel discussions one thing was made clear, that the local scientists from the Indian Meteorological Department (IMD) were not ready to link all extreme events to climate change. They stress

the need for more research in regional level to link independent issues of climate change (*NDTV 24X7*, 7 August, 2006). The same year *NDTV 24X7* video also covered the news of an Indian scientist publishing an article in the journal *Science*. This news reports the scientific research on the Indian monsoon, where it was found that since 1951, instances of heavy rain every year have increased from 8 to 18 cm and spells of moderate rain have gone down. This changing trend of monsoons has made India more vulnerable to disasters. A scientist from the news episode says that 'this finding has shown that there is a significant increase in the extreme events and implies that there is a need for preparedness of disaster management for such events occurring' (*NDTV 24X7*, 29 November 2006).

Table 3 shows the IPCCs strongest association with the causes frame. The major scientific body was the Intergovernmental Panel on Climate Change (IPCC) which is a United Nations body that conducts an exhaustive periodic review research about the causes and impacts of climate change. Scientists from more than 200 countries represent this organization. The year 2007 marks an important year and it is clearly evident that the media coverage of climate change has increased. This is because of the IPCC releasing the Fourth Assessment Report (AR4) that contains four volumes. One of the video from *NDTV 24X7* sources this report and reported some alarming issues like: "global temperatures to rise by 1.5 to 4°, a one degree rise can cause extinction of 30% of the plant and animal species, a three degree rise can cause extinction of 70% of the plants and animals" (*NDTV 24X7*, 20 November 2007).

The strongest association with 'policy maker' was with the 'judgment' frame (Table 3). A 2009 video from *NDTV 24X7* titled 'Legally binding cuts out of question' carried the lead statement of the former Indian Environmental Minister Jairam Ramesh who refutes the idea of the U.S. forcing India to take up a legally binding emission cuts. In the video, the Minister stated: "We have taken on performance targets in energy, industry, forestry, buildings, transportation and various sectors of the economy. We are not going to be taking legally binding emission cuts and that is simply out of the question" (*NDTV 24X7*, 3 December 2009). India stands strong in not to take legally binding emission cuts emphasizing the need for the economic development. Another statement from the former Minister explains how the U.S. climate change drafts are completely unacceptable to India. The draft seemed to be having huge gaps between the developed and the developing countries. In the video, Jairam Ramesh said: "We will resist in a united manner, on any manipulation to weaken the UNFCCC's Kyoto Protocol and Bali Action Plan. The BASIC (Brazil, South Africa, India and China) group is united, and we would like to reiterate that what we want is equitable and a fair agreement to emerge out of Copenhagen, but for some reasons if there are disappointments, BASIC is not to be

blamed" (*NDTV 24X7*, 1 July 2009). A video from *NDTV 24X7* titled 'Chaos in Copenhagen' clearly showed how the developed countries are blocking the developing countries at the climate change summits. In the video the G77 (Joint Declaration of the Seventy-Seven Countries) spokesperson Bernaditas Muller said: "At every negotiating level, we have a very difficult time as the developed countries are blocking us for the adaptation, transfer of technology, and financing for capacity building" (*NDTV 24X7*, 15 December 2009). India being an important member in summits which represented the developing nations, the Indian Minister for Environment and Forest got most attention. The prominent political leader who was in majority of the visuals was Environment Minister Jairam Ramesh. He played a major role in negotiation at international summits. As more number of episodes happen to be on Copenhagen climate summit and Cancun, there were more visuals on politicians. This illustrates how climate change problem has been visually politicised.

Table 3 shows the NGOs strong association with the moral judgment frame and the problem frame. Environmental groups like Greenpeace with its scientific team released a report called 'Blue Alert'. It reports that fifty million people will be displaced if there is a five degree rise in temperature. The episode emphasized the need to create awareness among the people and governments to act before catastrophe (*NDTV 24X7*, 26 March 2008).

An *NDTV 24X7* video of 3 February 2009 described the significant impact of climate change on the corals. Some scientific findings like '27% of coral reefs around the world being lost, and another 32% of corals could be lost in another 20 years' were alarming. So from the data analysis, it was clear that the scientific research happening on climate change needs to be enhanced, particularly at the regional level. The major claims-makers in giving out solution for climate change problems were the NGOs. They played a major role in evidencing the climate change reality and highlighted various mitigation and adaptation measures. Following are a few examples of stories and quotes which portray NGOs associating themselves with the 'solution' frame.

Exnora, a non-governmental organization, created awareness on global warming. It urged Chennai to switch off the lights between 7 and 8 pm. It aims to educate people about global warming. Visuals of people voices on usage of reducing electricity were recorded (*CNN-IBN*, 29 January, 2008). Ecosphere, another NGO, actively engages itself in asking locals to give up burning firewood and instead made them use energy sources like solar technology to warm their homes. Hundreds of such homes built in Spiti valley in Himachal Pradesh use solar technology. Ishita, the founder says, "With these solar passive houses we have been engaging the temperatures during the winter and they do not drop below ten degrees so it drastically cut down the fuelwood

and also the emissions going into the atmosphere" (*CNN-IBN*, 17 March 2010). When several villages in the lower altitude areas of Leh, Ladakh in the state of Jammu & Kashmir faced a shortage of water due to a glacier melting away fast, 77-year-old Chewang Norphel decides to divert the water from the glacier and store it in mini reservoirs; this, in turn, created artificial glaciers which melted slowly during summers to provide water (*NDTV 24X7*, 19 September, 2012).

Environmental activists played a major role in climate change issue by doing awareness campaigns. One of the promotion was lighting sky lanterns on the Copenhagen Summit (*NDTV 24X7*, 11 December, 2009). Shikaras (boatmen) formed the number 350 on the Dal lake in Kashmir and the number 350 actually represents the maximum measure of CO_2 in parts per billion. The same visual was projected in a giant screen at Times Square junction of New York City. Dal lake has water from the Kolahari glacier which is melting at an alarming rate. A news episode of *NDTV 24X7* was about a Greenpeace activist who staged an underwater protest. In these visuals the activist enacted the suffering of people who face life threat due to the sea level rise (*NDTV 24X7*, 7 December, 2010).

The news bureau says that 'currently 67% of countries electricity is generated from coal making and India is the fifth largest carbon emitter in the world. This position is likely to go up a few more if the decision makers are not ready to rethink India's Energy Policy' (*NDTV 24X7*, 23 October, 2007). Table 3 shows the news bureaus' strong association with the problem frame. The news media framed the glacier melt and sea level rise as a serious consequence of climate change. India has a very large coastline and sea level rise can actually shrink a major land part. In a news episode from *NDTV 24X7*, the news bureaus clearly pointed out that 'the Kolahari glacier is the main source of water for rivers and lakes in Kashmir. This glacier is melting at an alarming rate and posing a major environmental threat to Kashmir valley' (*NDTV 24X7*, 24 October 2009). A *CNN-IBN* video also sourced the IPCC report and clearly explained how the climate change is caused and how the general public gets affected. It graphically represented how the Gangotri glaciers are retreating. This graphical representation will allow the viewer to interpret and understand the scientific information more clearly (*CNN-IBN*, 1 November 2009). Not just in India, but also *NDTV 24X7,* covered glaciers that were melting in New Zealand and Greenland (*NDTV 24X7,* 29 November 2009). *NDTV 24X7* exclusively covered the retreat of Alpine glaciers and visually communicated how CO_2 in the atmosphere can be measured. Covering the news stories from the place of impact may certainly convince the audience that climate change is happening and it can also help them to understand the scientific information easily. Women in Andhra Pradesh from Medak village fought against freak weather by using their traditional knowledge for

adaptation in farming practices for food production (*NDTV 24X7*, 16 October, 2012). Coverage on the reporting of the successful mitigation and adaptation strategies on both the channels was found to be very less.

Table 3 shows the Others' categories comprising general public, students, doctors, celebrities. Association of problem frame was more with the 'other' category and less often occurred in solution frames. The impact of climate change was severe on Sunderban islands. In a video from *NDTV 24X7*, a citizen reports, "Everything got destroyed in sea water, our house was broken when the sea water came. We were in the house when sea water entered our house." The news bureau stated, "in the last forty years, 600 ha of land have been lost to the sea and over fifty families displaced over and over again in this one island" (*NDTV 24X7*, 4 April, 2009). A *CNN-IBN* video of 18 November, 2009 describes how sea level rise can destroy the mangrove forests. These mangroves act as a buffer zone for coastal protection and also as a source of livelihood for the people. As the water level rises the villages and mangroves are expected to vanish along with their unique livelihood.

NDTV 24X7 visuals the reality of Ghoramara island in Sunderbans. The visual showcases the loss of land due to sea level rise. The visuals depicted a few people living near the shore where earlier more than thousand people used to live. Also the bunds built by the people as a measure of adaptation too got washed away, allowing the viewers to understand the reality of climate change (*NDTV 24X7*, 5 December, 2007).

An *NDTV 24X7* news titled "Climate change: A Harsh Reality" showed how farmers of Madhya Pradesh were affected due to changing climate. A sudden hail storm destroyed their harvested crop affecting their livelihood. The farmers of Bhopal had the same issue; a farmer from the village said, "I want to consume poison and die" (*NDTV 24X7*, 19 December 2009). *NDTV 24X7* reports the severe drought in Assam where farmers were not able to do farming because of lack of rain. The groundwater was drying up and the tubewells were not working. "Assam is hit by severe drought and unless there occurs proper rain, people's livelihood is in big stake" (*NDTV 24X7*, 19 August, 2006).

The same is the case of farmers of Bundelkhand village in Uttar Pradesh. Farmers complain that the unusual climate has destroyed their wheat crops. Initially, with the occurrence of drought they managed to get a little water but, of late, the heavy rain has affected their livelihood. Even farmers of Himachal Pradesh were affected due to climate change. Their apple production had decreased drastically due to the rising temperature. The farmers said, "for the past five years there had been no snowfall. Seven years earlier 6,000 apples were harvested but now the production has gone down to 1,500 apples" (*NDTV 24X7*, 1 October, 2012).

Bollywood celebrities like Abishek Bachan was

awarded a green globe award from an NGO for his contribution for fighting climate change. The award was given by Hollywood actor and Governor Arnold Schwarzenegger. Also other stars like Amitabh Bachan, John Abraham and Lara Dutta gave their voices and appeared in promotion for fighting global warming (*NDTV 24X7*, 1 February, 2012). In a news episode titled 'Cool Cool B' showed the International Indian Film Association (IIFA) had tie-ups with Global Cool (NGO). The celebrities like Amitabh Bachan and London actress Sienna Miller jointly promoted action against climate change (*NDTV 24X7*, 18 July, 2007).

Conclusions

Firstly, extensive coverage was done by *NDTV 24X7* and not the *CNN-IBN*. This is because of the tie-up *NDTV 24X7* had with TERI, which is actively working on climate change issues. The Director of TERI, R.K. Pachauri, is chairman of IPCC as well. So in a way his initiative could have made the channel to cover more issues compared to that of *CNN-IBN*. But the maximum coverage happened only during the Copenhagen climate change conference of 2009, and the coverage has drastically dipped in the following years.

The first research question was on how the frames and claims-makers were distributed in both *NDTV 24X7* and *CNN-IBN*. On analyzing the frames distribution with respect to climate change, 'moral judgment' frame and 'problem' frame were found to be dominant compared to the 'causes' frame and 'solution' frame. The first dominant frame distribution was the 'moral judgment' frame. Since most of the episodes covered COP meetings and press meets regarding the India's position on cutting down greenhouse gasses reflects the 'moral judgment' frame used by the media. The frame of blame game between the developed and developing countries regarding the cutting down of emissions was found to be in the 'moral judgment' frame. Using this frame implies to the general public that it is a problem left to governments to solve through treaties, regulations or political agreements. This frame sends the message that it is not up to individuals to take responsibility unless some regulation exists (Tillinghast and McCann, 2012). Also, Zhao et al. (2011) say climate change news given as a political news has higher chances of being perceived as a matter of debate, with unclear consequences receiving less serious attention.

The major problem frame stressed by the channels were on melting of glaciers, sea level rise, erratic weather, species getting endangered, depletion of coral reefs, low-agricultural production, drought, and heat stress. But overall, the 'melting of glacier' episodes were more prominent than the other issues. As melting of glaciers is the visible evidence for climate change, channels focus it more. The visual evidence of current

climate impacts upon melting glaciers is thus authenticated by the visual evidence of the past, compared with the present. It also convinces audiences that climate change as real and happening and it eliminates the element of uncertainty (Doyle, 2007; Nielsen and Kjaergaard, 2012).

The 'causes' and 'solution' frames were comparatively very less than other frames. Most of the scientific evidences were sourced from the IPCC, but the news channels failed to provide scientific evidences on the local level impacts of climate change. The then IPCC chairman asserted that India needs to progress much in terms of climate change research. Though the Indian scientific research community has surplus data on monsoons, glaciers, and sea level rise, they have to be analysed and linked with climate change. By evidencing more regional data on climate change would allow the policy makers to formulate the necessary adaptation and mitigation measures. Boykoff (2008) argues that only by giving more scientific evidences there will be an increase in public understanding of climate science leading to public engagement. The 'solution' frame and the 'causes' frame go hand in hand, as research on climate change needs to be more explored to give out the specific solution for different agencies and individuals. Most of the solutions were from the 'NGOs who tried to give adaptation measures on climate change impact. Policy makers also proposed solutions by formulating the guidelines for the emission level of greenhouse gasses.

The second research question was about the association among the frames and the claims-makers. Scientists were found mostly with the 'problem' frames. The association implied that the climate change impact is certain and it is increasing. Usually, the lack of less research proves scientists less associating with the 'solution' frame which they should have been more. Wilson (2000) states if scientists are used as primary claims-makers, there is a possibility for getting more authentic information and it increases the credibility of the reporting. Scientists must energetically communicate climate change information in a manner that is relevant to diverse audiences, including journalists, special interests, politicians, and laypersons (Stocking and Holstein, 2009).

Policy makers were dominant under the category of the 'moral judgment' frame. As policy makers happen to be the participants in dialoguing on the policy issues of individual countries they were more associated with the 'moral judgment' frame.

NGOs were strongly associated with both 'problem' and 'judgment' frames. Members representing environmental organizations also took part in the COP meetings as observers. In a way, both the policy makers and NGOs were the strong claims-makers associated with the 'judgment' frame. Indian news bureaus were strongly associated with the 'problem' frame; their stand was also in a way the same as that of the Indian Government. News bureaus played a major role in emphasing the

seriousness of the impact of climate change by covering the negative effects of it. The first step in solving the problem is through recognizing that a problem exists. And news media here has claimed in defining climate change as a social problem. General public were associated with the 'problem' frame as the news channels covered the way they are affected. Some of the factors like sea level rise, glacier melt, and heat stress were exclusively featured to show the affected public. By showing these visuals of affected people, Boykoff (2009) argues that human behaviour will address the concern as the climate change issue is shown as significantly affecting the functioning of lives.

When comparing the study to Trumbo's content analysis of climate change news coverage, similar results with regard to the significant representations among frames and claims-makers were found. Trumbo (1996) also found that scientists were strongly associated with the 'cause' frame while politicians and NGOs were strongly associated with the 'judgment' frame.

Limitations

The research included only two channels, namely *NDTV 24X7* and *CNN-IBN.* Only these two channels had a sufficient amount of news episodes in their archives compared to other news channels. The regional language channels were not explored as the climate change coverage by them was minimal. There are also chances of missing of some news episodes within the study time period.

RECOMMENDATION

In future, comparison between print and electronic media may be studied to find out the changing dimensions of occurring frames in climate change news stories. Public impact on the climate change issue through the news stories needs to be specifically studied to determine what effect the news framing can create or trigger. Experimental studies may be done to find the framing impacts of television news channels at specific times to understand how the perception varies time to time.

Conflict of Interests

The authors have not declared any conflict of interests.

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